1978

1978-1979 Louisiana Tech University Catalog

Louisiana Tech University

LOUISIANA TECH UNIVERSITY BULLETIN 1978-79

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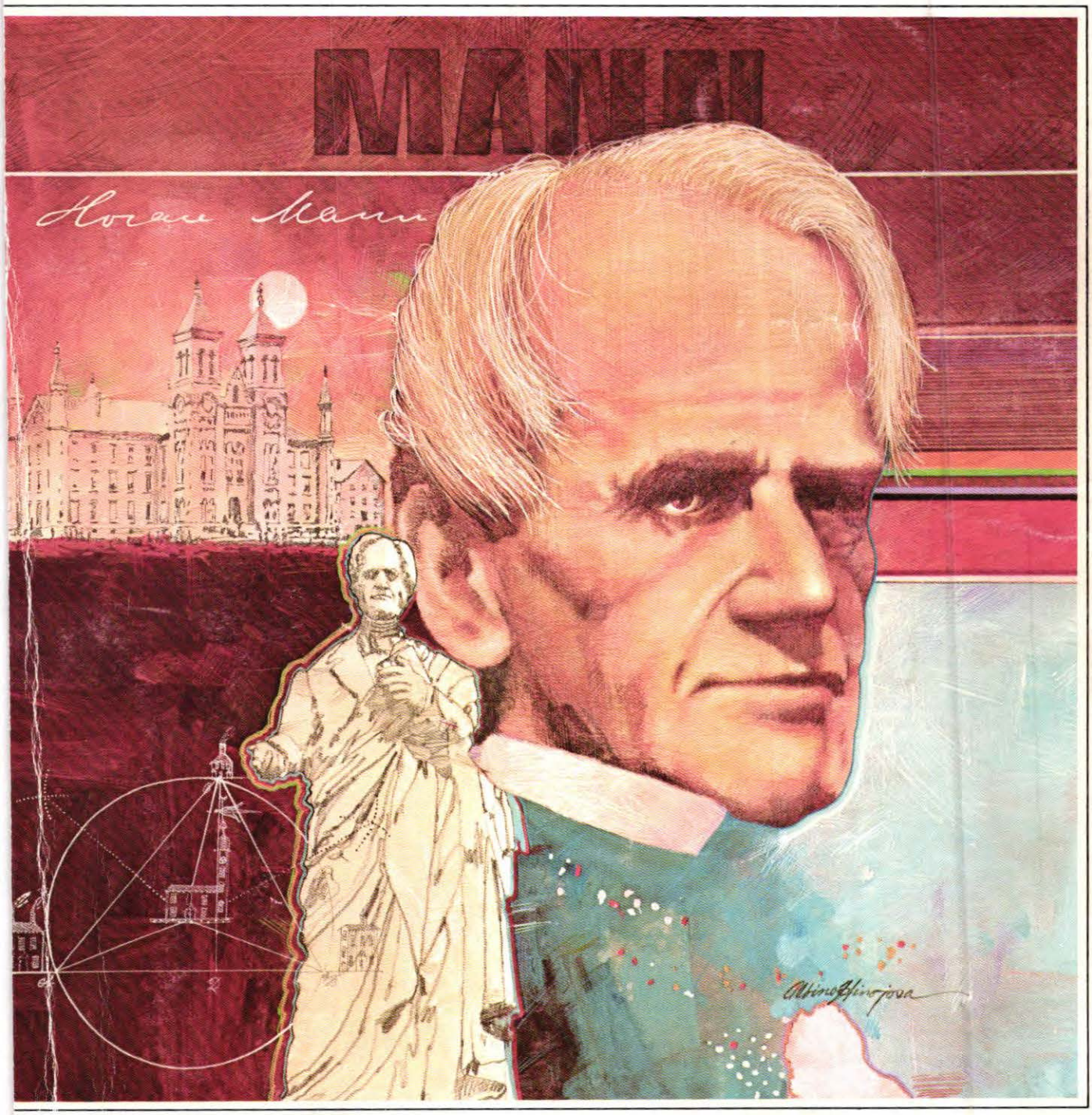

LOUISIANA TECH UNIVERSITY

F. Jay Taylor
President

BULLETIN
1978-79

LOUISIANA TECH UNIVERSITY SUBSCRIBES
TO THE POLICY OF EQUAL OPPORTUNITY

VOL. LXXVI 4TH. QTR. (APRIL MAY JUNE) 1978 NUMBER 4

Published quarterly by Louisiana Tech University, Keeny Circle, Ruston, Louisiana. Second class postage paid at Ruston, Louisiana. This bulletin is not a contract or an offer to contract.

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Executive Director

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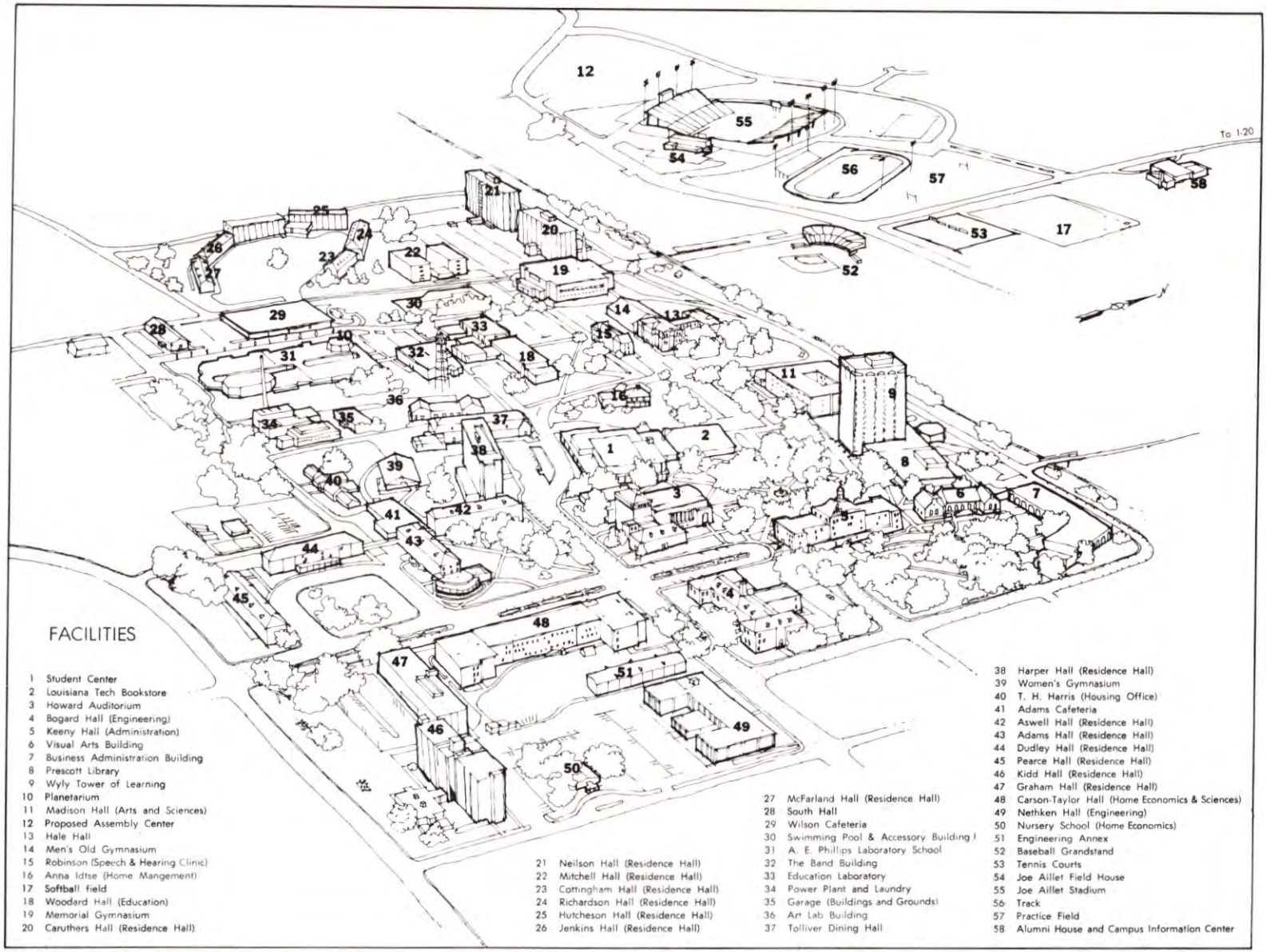
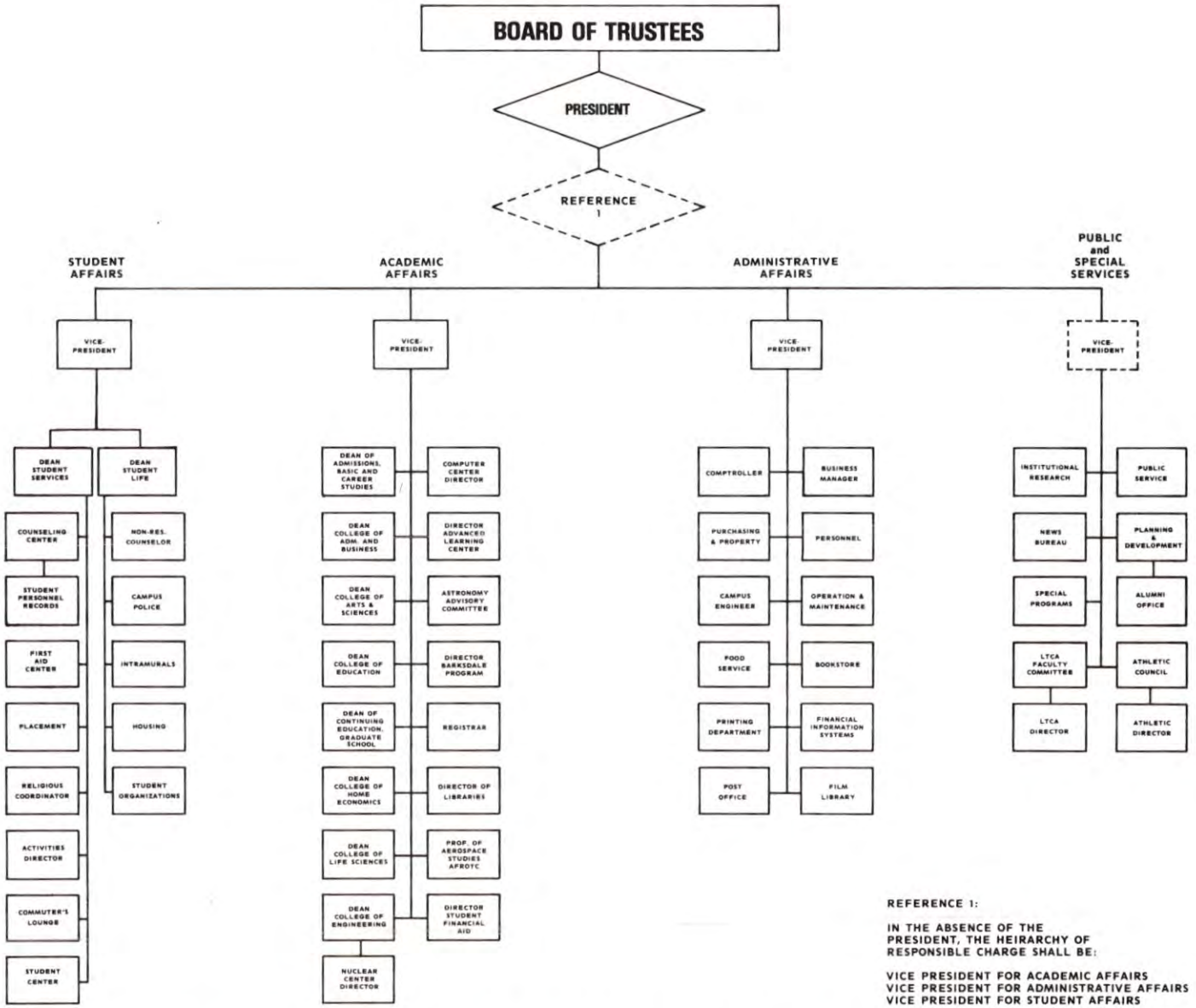


FACILITIES

1 Student Center
2 Louisiana Tech Bookstore
3 Howard Auditorium
4 Bogard Hall (Engineering)
5 Keeny Hall (Administration)
6 Visual Arts Building
7 Business Administration Building
8 Prescott Library
9 Wyly Tower of Learning
10 Planetarium
11 Madison Hall (Arts and Sciences)
12 Proposed Assembly Center
13 Hale Hall
14 Men's Old Gymnasium
15 Robinson (Speech & Hearing Clinic)
16 Anna Idtse (Home Mangement)
17 Softball field
18 Woodard Hall (Education)
19 Memorial Gymnasium
20 Caruthers Hall (Residence Hall)
21 Neilson Hall (Residence Hall)
22 Mitchell Hall (Residence Hall)
23 Cottingham Hall (Residence Hall)
24 Richardson Hall (Residence Hall)
25 Hutcheson Hall (Residence Hall)
26 Jenkins Hall (Residence Hall)
27 McFarland Hall (Residence Hall)
28 South Hall
29 Wilson Cafeteria
30 Swimming Pool & Accessory Building
31 A. E. Phillips Laboratory School
32 The Band Building
33 Education Laboratory
34 Power Plant and Laundry
35 Garage (Buildings and Grounds)
36 Art Lab Building
37 Tolliver Dining Hall
38 Harper Hall (Residence Hall)
39 Women's Gymnasium
40 T. H. Harris (Housing Office)
41 Adams Cafeteria
42 Aswell Hall (Residence Hall)
43 Adams Hall (Residence Hall)
44 Dudley Hall (Residence Hall)
45 Pearce Hall (Residence Hall)
46 Kidd Hall (Residence Hall)
47 Graham Hall (Residence Hall)
48 Carson-Taylor Hall (Home Economics & Sciences)
49 Nethken Hall (Engineering)
50 Nursery School (Home Economics)
51 Engineering Annex
52 Baseball Grandstand
53 Tennis Courts
54 Joe Aillet Field House
55 Joe Aillet Stadium
56 Track
57 Practice Field
58 Alumni House and Campus Information Center



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VICE PRESIDENT FOR ADMINISTRATIVE AFFAIRS
VICE PRESIDENT FOR STUDENT AFFAIRS

ORGANIZATION CHART FOR LOUISIANA TECH UNIVERSITY

1978

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University Calendar

ACADEMIC YEAR 1978-79

SUMMER QUARTER 1978-79

(FIRST QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	May 23, 1978 (Tues.)
Application for undergraduate admission or readmission due	May 30 (Tues.)
Residence Halls open	9:00 a.m., June 5 (Mon.)
Food Service opens, noon meal	June 5 (Mon.)
Math Placement Exam	2:00 p.m., June 5 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00 p.m., June 5 (Mon.) WT 244
Summer Quarter begins	June 6 (Tues.)
Registration (alphabetical order) for all sessions	June 6 (Tues. noon) - June 7 (Wed. noon)
Classes begin. Late registration fee applies	June 8 (Thurs.)
Fourth of July holiday for students begins	End of classes, June 30 (Fri.)
Food Service closes, after noon meal	June 30 (Fri.)
Food Service opens, night meal	July 4 (Tues.)
Fourth of July holiday for students ends	8:00 a.m., July 5 (Wed.)
First Session Ends	July 14 (Fri.)
Second Session Begins. Late registration fee applies	July 17 (Mon.)
End of Classes	Aug. 18 (Fri.)
Food Service closes, after night meal	Aug. 18 (Fri.)
Residence Halls close	12:00 noon, Aug. 19 (Sat.)
Commencement exercises	8:00 p.m., Aug. 24 (Thurs.) Howard Auditorium
Summer Quarter Ends	Aug. 24 (Thurs.)
Courses offered First Session only	June 6 - July 14
Courses offered Second Session only	July 17 - Aug. 24

FALL QUARTER 1978-79

(SECOND QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Aug. 22, 1978 (Tues.)
Applications for Undergraduate admission or readmission due	Aug. 29 (Tues.)
Residence Halls open	9:00 a.m., Sept. 5 (Tues.)
Food Service opens, noon meal	Sept. 5 (Tues.)
Math Placement Exam	2:00 p.m., Sept. 5 (Tues.) GTM 105
Mini-Orientation (all new students)	6:00 p.m., Sept. 5 (Tues.) WT 244
Fall Quarter begins	Sept. 6 (Wed.)
Registration (alphabetical order)	Sept. 6 (Wed.) - Sept. 7 (Thurs.)
Classes begin. Late registration fee applies	Sept. 8 (Fri.)
Registration for evening and special classes	8:00 a.m., - 10:30 a.m., Sept. 9 (Sat.)
Last day of classes	Nov. 17 (Fri.)
Food Service closes, after night meal	Nov. 17 (Fri.)
Residence Halls close	12:00 noon, Nov. 18 (Sat.)
Commencement exercises	10:00 a.m., Nov. 21 (Tues.) Howard Auditorium
Fall Quarter ends	Nov. 21 (Tues.)

WINTER QUARTER 1978-79

(THIRD QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Nov. 14, 1978 (Tues.)
Applications for Undergraduate admission or readmission due	Nov. 21 (Tues.)
Residence Halls open	9:00 a.m., Nov. 27 (Mon.)
Food Service opens, noon meal	Nov. 27 (Mon.)
Math Placement Exam	2:00 p.m., Nov. 27 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00 p.m., Nov. 27 (Mon.) WT 244
Winter Quarter begins	Nov. 28 (Tues.)
Registration (alphabetical order)	Nov. 28 (Tues.) - Nov. 29 (Wed.)
Classes begin. Late registration fee applies	Nov. 30 (Thurs.)
Registration for evening and special classes	8:00 a.m. - 10:30 a.m., Dec. 2 (Sat.)
Christmas recess for Students begins	End of classes, Dec. 19 (Tues.)
Residence Halls close	7:00 p.m., Dec. 19 (Tues.)
Food Service closes, after night meal	Dec. 19 (Tues.)
Residence Halls open	1:00 p.m., Jan. 2, 1979 (Tues.)
Food Service opens, night meal	Jan. 2 (Tues.)
Christmas recess for Students ends	8:00 a.m., Jan. 3 (Wed.)
Last day of classes	Feb. 23 (Fri.)
Food Service closes, after night meal	Feb. 23 (Fri.)

Residence Halls close	12 noon, Feb. 24 (Sat.)
Mardi Gras	Feb. 27 (Tues.)
Commencement exercises	10:00 a.m., March 1 (Thurs.) Howard Auditorium
Winter Quarter ends	March 1 (Thurs.)

SPRING QUARTER 1978-79

(FOURTH QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Feb. 20, 1979 (Tues.)
Applications for undergraduate admission or readmission due	Feb. 27 (Tues.)
Residence Halls open	9:00 a.m., March 5 (Mon.)
Food Service opens, noon meal	March 5 (Mon.)
Math Placement Exam	2:00 p.m., March 5 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00 p.m., March 5 (Mon.) WT 244
Spring Quarter begins	March 6 (Tues.)
Registration (alphabetical order)	March 6 (Tues.) - March 7 (Wed.)
Classes begin. Late registration fee applies	March 8 (Thurs.)
Registration for evening and special classes	8:00 a.m. - 10:30 a.m., March 10 (Sat.)
Easter Recess for Students begins	End of classes, April 12 (Thurs.)
Residence Halls close	7:00 p.m., April 12 (Thurs.)
Food Service closes, after night meal	April 12 (Thurs.)
Residence Halls open	1:00 p.m., April 16 (Mon.)
Food Service opens, night meal	April 16 (Mon.)
Easter Recess for Students ends	8:00 a.m., April 17 (Tues.)
Last day of classes	May 18 (Fri.)
Food Service closes, after night meal	May 18 (Fri.)
Residence Halls close	12:00 noon, May 19 (Sat.)
Commencement exercises	8:00 p.m., May 24 (Thurs.) Stadium
Spring Quarter ends	May 24 (Thurs.)

ACADEMIC YEAR 1979-80

SUMMER QUARTER 1979-80

(FIRST QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	May 15, 1979 (Tues.)
Application for undergraduate admission or readmission due	May 22 (Tues.)
Residence Halls open	9:00 a.m., May 28 (Mon.)
Food Service opens, noon meal	May 28 (Mon.)
Math Placement Exam	2:00 p.m., May 28 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00 p.m., May 28 (Mon.) WT 244
Summer Quarter begins	May 29 (Tues.)
Registration (alphabetical order) for all sessions	May 29 (Tues. noon) - May 30 (Wed. noon)
Classes begin. Late registration fee applies	May 31 (Thurs.)
Fourth of July holiday for students begins	End of Classes, July 3 (Tues.)
Food Service closes, after noon meal	July 3 (Tues.)
Food Service opens, night meal	July 4 (Wed.)
Fourth of July holiday for students ends	8:00 a.m., July 5 (Thurs.)
First Sessions Ends	July 6 (Fri.)
Second Session Begins, Late registration fee applies	July 9 (Mon.)
End of Classes	Aug. 10 (Fri.)
Food Service closes, after night meal	Aug. 10 (Fri.)
Residence Halls close	12:00 noon, Aug. 11 (Sat.)
Commencement exercises	8:00 p.m. Aug. 16 (Thurs.) Howard Auditorium
Summer Quarter ends	Aug. 16 (Thurs.)
Courses offered first session only	May 29 - July 6
Courses offered second session only	July 9 - Aug. 1[illegible]

FALL QUARTER 1979-80

(SECOND QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Aug. 21, 1979 (Tues.)
Application for undergraduate admission or readmission due	Aug. 28 (Tues.)
Residence Halls open	9:00 a.m. Sept. 4 (Tues.)
Food Service opens, noon meal	Sept. 4 (Tues.)
Math Placement Exam	2:00 p.m. Sept. 4 (Tues.) GTM 105
Mini-Orientation (all new students)	6:00 p.m. Sept 4 (Tues.) WT 244
Fall Quarter begins	Sept. 5 (Wed.)
Registration (alphabetical order)	Sept. 5 (Wed.) - Sept. 6 (Thurs.)
Classes begin. Late registration fee applies	Sept. 7 (Fri.)
Registration for evening and special classes	8:00 a.m. - 10:30 a.m. Sept. 8 (Sat.)
Last day of classes	Nov. 16 (Fri.)
Food Service closes, after night meal	Nov. 16 (Fri.)
Residence Halls close	12:00 noon Nov. 17 (Sat.)
Commencement exercises	10:00 a.m. Nov. 20 (Tues.) Howard Auditorium
Fall Quarter ends	Nov. 20 (Tues.

WINTER QUARTER 1979-80

(THIRD QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Nov. 13, 1979 (Tues.)
Application for undergraduate admission or readmission due	Nov. 20 (Tues.)
Residence Halls open	9:00 a.m. Nov. 26 (Mon.)
Food Service opens, noon meal	Nov. 26 (Mon.)
Math Placement Exam	2:00 p.m. Nov. 26 (Mon.) GTM
Mini-Orientation (all new students)	6:00 p.m. Nov. 26 (Mon.) WT 24
Winter Quarter begins	Nov. 27 (Tues.)
Registration (alphabetical order)	Nov. 27 (Tues.) Nov. 28 (Wed.)
Christmas recess for students begins	End of classes, Dec. 19 (Wed.)
Residence Halls close	7:00 p.m. Dec. 19 (Wed.)
Food Service closes, after night meal	Dec. 19 (Wed.)
Residence Halls open	1:00 p.m. Jan. 2, 1980 (Wed.)
Food Service opens, night meal	Jan. 2 (Wed.)
Christmas recess for students ends	8:00 a.m. Jan. 3 (Thurs.)
Mardi Gras Holidays for Students begin	End of classes Feb. 15 (Fri.)
Food Service closes, after night meal	Feb. 15 (Fri.)
Food Service opens, night meal	Feb. 19 (Tues.)
Mardi Gras Holidays for students end	8:00 a.m. Feb. 20 (Wed.)
Last day of classes	Feb. 22 (~~Wed.~~) Fri)
Food Service closes, after night meal	Feb. 22 (Fri.)
Residence Halls close	12:00 noon Feb. 23 (Sat.)
Commencement exercises	10:00 a.m. Feb. 28 (Thurs.) Howard Auditorium
Winter Quarter ends	Feb. 28 (Thurs.)

SPRING QUARTER 1979-80

(FOURTH QUARTER)

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Feb. 19, 1980 (Tues.)
Applications for undergraduate admission or readmission due	Feb. 26 (Tues.)
Residence Halls open	9:00 a.m. March 3 (Mon.)
Food Service opens, noon meal	March 3 (Mon.)
Math Placement Exam	2:00 p.m. March 3 (Mon.) GTM 105
Mini-Orientation (all new students)	6:00 p.m. March 3 (Mon.) WT 244
Spring Quarter begins	March 4 (Tues.)
Registration (alphabetical order)	March 4 (Tues.) March 5 (Wed.)
Classes begin. Late registration fee applies	March 6 (Thurs.)
Registration for evening and special classes	8:00 a.m. - 10:30 a.m. March 8 (Sat.)
Easter Recess for Student begins	End of classes April 3 (Thurs.)
Residence Halls close	7:00 p.m. April 3 (Thurs.)
Food Service closes, after noon meal	April 3 (Thurs.)
Residence Halls open	1:00 p.m. April 7 (Mon.)
Food Service opens, night meal	April 7 (Mon.)
Easter Recess for Students ends	8:00 a.m. April 8 (Tues.)
Last day of classes	May 16 (Fri.)
Food Service closes, after night meal	May 16 (Fri.)
Residence Halls close	12:00 noon May 17 (Sat.)
Commencement exercises	8:00 p.m. May 22 (Thurs.) Stadium
Spring Quarter ends	May 22 (Thurs.)

Directory

OFFICERS OF THE ADMINISTRATION

F. Jay Taylor, B.A., M.A., Ph.D. (1962) ..... President

Virgil Orr, B.S., M.S., Ph.D. (1952) ..... Vice President for Academic Affairs
S. X. Lewis, B.A., M.S. (1938) ..... Vice President for Student Affairs
George W. Byrnside, B.S. (1960) ..... Vice President for Administrative Affairs

Bob R. Owens, B.B.A., M.B.A., Ph.D. (1965) ..... Dean, College of Administration and Business
Paul J. Pennington, B.A., M.A., Ph.D. (1952) ..... Dean, College of Arts and Sciences
B. J. Collinsworth, B.S., M.S., Ed.D. (1962) ..... Dean, College of Education
Jack Thigpen, B.S., B.S., M.S., Ph.D. (1947) ..... Dean, College of Engineering
Elizabeth G. Haley, B.S., M.S., Ph.D. (1969) ..... Dean, College of Home Economics
Hal B. Barker, B.S., M.S., Ph.D. (1949) ..... Dean, College of Life Sciences
Patsy Lewis, B.A., M.A. (1965) ..... Dean, Division of Admissions, Basic and Career Studies
John R. Williams, B.A., M.Ed., (1966) ..... Dean of Continuing Education

OTHER ADMINISTRATORS

Thomas D. Allen, B.S. (1962) ..... Director of Personnel
M. Glynn Aycock, B.S., M.S. (1970) ..... Guidance Counselor
Randall Barron, B.S., M.S., Ph.D. (1965) ..... Director, Engineering Research, College of Engineering; Director, Nuclear Center
Wilbur L. Bergeron, B.S., M.A., Ed.D. (1953) ..... Associate Dean, College of Education; Director, Division of Education Research and Services; Director, Special Education Center
Alex Boyd (1954) ..... Manager, Bookstore
Elenora A. Cawthon, B.S., M.Ed., Ed.D. (1955) ..... Dean of Student Services, Director of Placement
Ross E. Dobbs, B.S., M.B.A. (1969) ..... Director, Barksdale Program
Jerry S. Drewett, B.S. (1972) ..... Business Manager
Sam A. Dyson, B.S., M.A. (1960) ..... Director of Libraries
E. S. Foster, Jr., B.S., M.S. (1960) ..... Dean of Student Life
J. Harold Gilbert, B.A., B.M.E., M.M. (1966) ..... Director, Louisiana Tech Concert Association
Reggie Hanchey, B.A., M.R.E. (1974) ..... Assistant to Director of Planning and Development
Harold G. Hedrick, B.A., M.A., Ph.D. (1969) ..... Director of Graduate Studies, College of Life Sciences
H. L. Henry, B.S., M.S. (1946) ..... Associate Dean, College of Engineering
Wiley W. Hilburn, Jr., B.A., M.A. (1968) ..... Director of News Bureau
J. J. Hinton, B.S., M.A., Ed.D. (1966) ..... Director of Planning and Development
Houston K. Huckabay, B.S., M.S., Ph.D. (1964) ..... Director of Graduate Studies, College of Engineering
Edward R. Janway, B.S. (1969) ..... Director of Physical Plant
Maxie T. Lambright, B.S. (1967) ..... Director of Athletics
Richard B. Lewis, B.S., M.S.(1976) ..... Assistant Registrar
F. Eugene Lueg, B.A. (1971) ..... Superintendent of Printing
Albert G. McKee, B.S., M.S. (1957) ..... Director, Computing Center
O. M. Merriott, B.S. (1964) ..... Director, Student Center
James Robert Michael, B.S., M.B.A., D.B.A. (1968) ..... Director, Division of Administration and Business Research
G. Clint Miller, B.S., M.S., Ed.D. (1969) ..... Director of Graduate Studies, College of Education
P. B. Moseley, B.S., M.S., Ph.D. (1964) ..... Associate Dean and Director, Division of Research College of Arts and Sciences; Director, Division of Health Sciences
John L. Murad, B.A., M.A., Ph.D. (1965) ..... Director, Division of Life Sciences Research
Jack A. Murphy, B.A. (1965) ..... Coordinator of Federal Programs
Homer G. Ponder, B.S., M.S., Ph.D. (1966) ..... Director, Undergraduate Division, College of Administration and Business
Bobby E. Price, B.S., M.S., Ph.D. (1967) ..... Director, Water Resources Center
Phillip F. Rice, B.S., M.B.A., Ph.D. (1968) ..... Director of Graduate Studies College of Administration and Business
M. Richard Ringheim, B.S. (1964) ..... Comptroller
Eleanor S. Rockett, B.S., M.S. (1959) ..... Registrar
J. C. Seaman, Jr., B.A., L.L.B. (1966) ..... Director, Division of Student Financial Aid
Karen Seaman, (1972) ..... Director of Orientation
Joe Thomas, B.S., M.B.A. (1973) ..... Director of Systems and Procedures
Nancy Tolman, B.S., M.S., Ph.D. (1971) ..... Director of Graduate Studies and Director of Research; Associate Dean, College of Home Economics
John C. Trisler, B.S., Ph.D. (1959) ..... Director of Graduate Studies, College of Arts and Sciences
Weldon R. Walker, B.S. (1965) ..... Purchasing Officer
Phillip N. Washington, B.S., M.B.A. (1967) ..... Director of Institutional Research
John A. Wright, B.S., M.S., Ph.D. (1853) ..... Associate Dean, College of Life Sciences

DIRECTORS OF SCHOOLS AND DIVISIONS, HEADS OF ACADEMIC DEPARTMENTS AND PROGRAM COORDINATORS

COLLEGE OF ADMINISTRATION AND BUSINESS
- Business: James L. Hester
- Economics and Finance: Tom S. Sale, III
- Office Administration: Reba K. Neel
- Professional Accountancy: Harold J. Smolinski

COLLEGE OF ARTS AND SCIENCES
- Art and Architecture: Joseph W. Strother, Director
- Chemistry: John C. Trisler, Acting
- English: Robert C. Snyder
- Foreign Languages: Richard L. Ezell
- Health Services: P. B. Moseley
- History: William Y. Thompson
- Journalism: Wiley W. Hilburn
- Mathematics: B. J. Attebery
- Music: Raymond G. Young
- Physics: William H. Brumage
- Professional Aviation: Alfred L. Miller
- Social Sciences: William Conway
- Speech: Guy D. Leake, Acting

COLLEGE OF EDUCATION
- Teacher Education: Donald R. Nelson
- Health and Physical Education: James B. Akers
- Laboratory School: Robert E. Hearn
- Behavioral Sciences: James M. Williams
- Special Education Center: Wilbur L. Bergeron

COLLEGE OF ENGINEERING
- Agricultural Engineering: Jackie W. D. Robbins
- Biomedical Engineering: Daniel D. Reneau
- Chemical Engineering: James W. Malone
- Civil Engineering: Joe R. Wilson
- Electrical Engineering: David L. Johnson
- Geosciences: Leo A. Herrmann
- Industrial Engineering and Computer Science: R. Rainey Little
- Mechanical Engineering: R. Doyle Holstead
- Petroleum Engineering: R. M. Caruthers

COLLEGE OF HOME ECONOMICS: Elizabeth G. Haley

COLLEGE OF LIFE SCIENCES
- Agronomy and Horticulture: John A. Wright, Acting
- Animal Industry: C. Reid McLellan, Jr.
- Botany and Bacteriology: Dallas D. Lutes
- Forestry: J. Lamar Teate
- Nursing: Virginia R. Pennington
- Agricultural Education - Agriculture Business: J. Y. Terry
- Zoology: Margaret H. Peaslee

ADMISSIONS, BASIC AND CAREER STUDIES: Patsy Lewis

AIR FORCE AEROSPACE STUDIES: Col. John T. Kensinger

BARKSDALE PROGRAM: Ross E. Dobbs

CONTINUING EDUCATION: John R. Williams

ATHLETIC PERSONNEL

Maxie Lambright — Athletic Director and Head Football Coach
- J. P. (Pat) Collins — Assistant Football Coach
- E. J. Lewis — Assistant Football Coach
- Wallace Martin — Assistant Football Coach and Golf Coach
- J. E. (Pat) Patterson — Assistant Football Coach and Baseball Coach
- M. E. (Mickey) Slaughter — Assistant Football Coach
- George E. Smith — Assistant Football Coach and Tennis Coach

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Aubrey C. Dooley — Assistant Athletic Director and Track Coach

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Sonja Hogg — Assistant Athletic Director and Basketball Coach
- Leon Barmore — Assistant Basketball Coach

Betty Markham — Tennis Coach

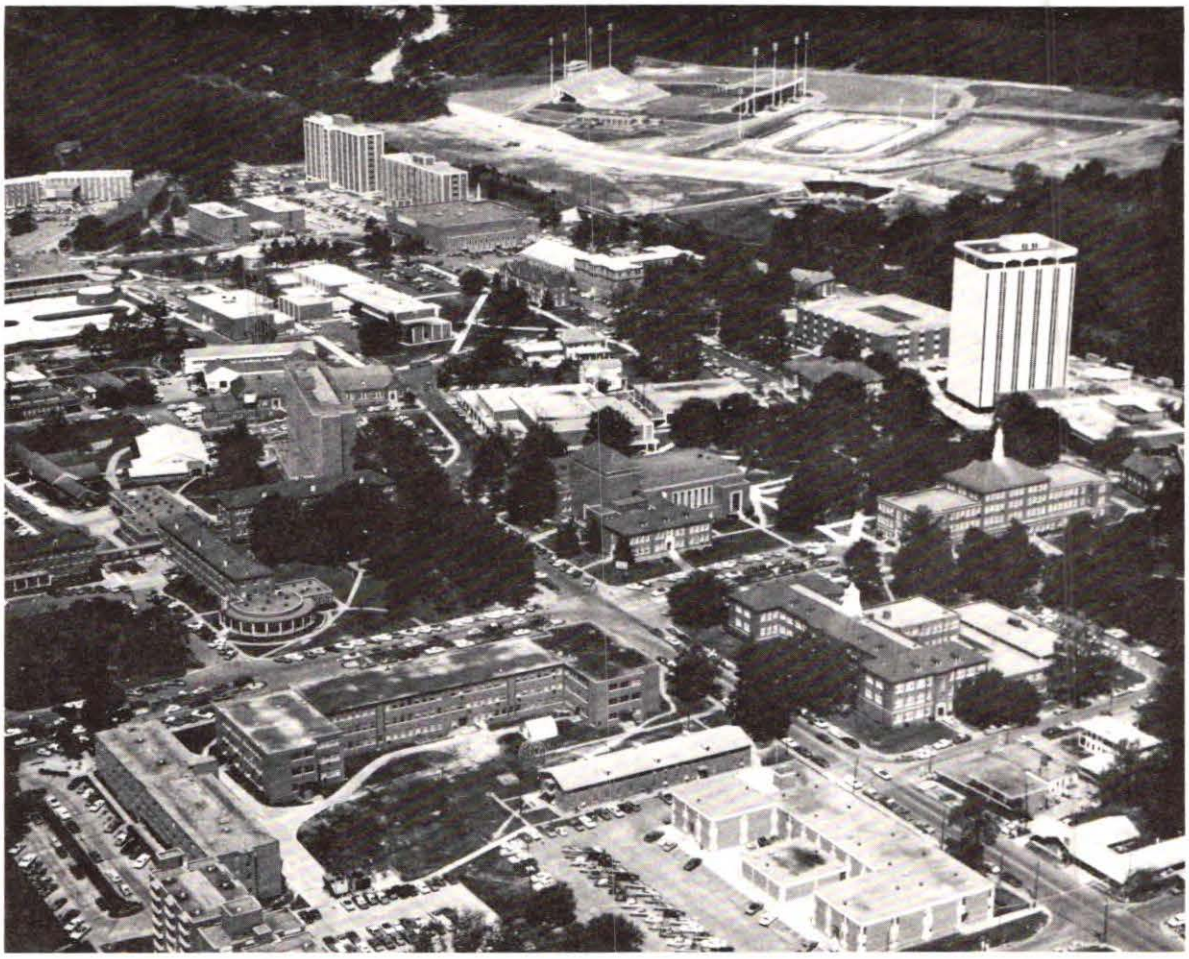
Joseph D. Barnett — Head Basketball Coach
- Tommy R. Vardeman — Assistant Basketball Coach

William Keith Prince — Sports Information Director

Dave Nitz — Director of Promotions

Billy Belding — Athletic Trainer

General Information



General Information

HISTORY

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

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

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

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

The central portions of the campus are arranged on a "quadrangle" basis, the center of which is a statue-fountain called "Our Lady of the Mist". Prescott 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 Auditorium (for Tech's first graduate) is at the south side. The west side is the Student Center. The remaining buildings surround this Quadrangle.

ACCREDITATION

Louisiana Tech University is accredited by the Southern Association of Colleges and Secondary Schools. 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 Engineers' Council for Professional Development, the American Home Economics Association, the American Medical Record Administration, the National Association of Schools of Music, and the National Council for Accreditation of Teacher Education.

EQUAL OPPORTUNITY POLICIES

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

ADMISSIONS

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

EMPLOYMENT

It is the declared policy of Louisiana Tech University to insure that the best qualified U. S. citizens are selected, employed, and promoted without regard to race, sex, creed, color, or national origin, except where sex is a bona fide occupational qualification. In addition, all other employment practices such as compensation, promotion, personal and professional development, fringe benefits and facilities of the University are provided without regard to race, sex, creed, color or national origin.

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

DIVISION OF FINANCIAL AID

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

FAMILY EDUCATIONAL RIGHTS PRIVACY ACT

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

Louisiana Tech University has the responsibility for effectively supervising any access to and/or release of official data/information about its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly-defined purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its collection and retention no longer exists. In this regard, Louisiana Tech University is committed to protecting to the maximum extent possible the right of privacy of all the individuals about whom it holds information, records, and files. Access to and release of such records is restricted to the student concerned, to others with the student's written consent, to officials within the school, to a court of competent jurisdiction and otherwise pursuant to law.

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

ADMISSIONS

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

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

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

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

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

ADMISSION TO THE GRADUATE SCHOOL requires that all official transcripts and admission application forms be submitted to the Admissions Office at least two (2) weeks in advance of registration for the session in which the student expects to enroll. (See the Graduate School Section for specific details.)

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

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

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

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

Anyone interested should write to: Summer Enrichment Program for High School Students, Louisiana Tech University, Ruston Louisiana 71272.

ORIENTATION

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

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

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

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

CREDIT BY EXAMINATION

TWO YEARS OF DEGREE CREDIT BY EXAMINATION

While students are already benefiting from more rapid degree completion in Louisiana Tech University's year-round quarter system, there is also available an avenue through which the more capable student can earn up to two-years' baccalaureate degree credit.

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

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

CREDITS THROUGH COLLEGE ENTRANCE EXAMINATION BOARD

A. THE ADVANCED PLACEMENT PROGRAM

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

B. THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

1. General Examinations

A student who submits a score at the 25th percentile or higher on the General Examination of the College Level Examination Program (CLEP), developed by the College Entrance Examination Board (CEEB) and administered nationally by the Educational Testing Service (ETS) and on military bases around the world by the Defense Activity for Non-Traditional Education Support (DANTES), may gain college credit on subjects related to those portions of test on which the 25th percentile score is reached, but not to exceed 30 semester hours credit. Whether or not this credit is applicable to a student's degree program will be determined by those responsible for his/her academic program. Total degree credit by all the types of examinations may not exceed 60 semester hours. The examinations may be taken Thursday of the third week of each month at Louisiana Tech University upon application to the Director of the Counseling Center or any national CLEP center. Registration should be filed three weeks prior to that date.

CLEP General Exam	Hours Credit	La. Tech Subject Equivalent
English General Exam	6	English 101 and 102
Natural Sciences General Exam		
Biological	3	Biological Science
Physical	3	Physical Science
Mathematics General Exam	6	Math 107, 108, 109
Humanities General Exam	6	English 201 and 202
Social Sciences General Exam	6	History 101 and 102

LOUISIANA TECH UNIVERSITY

CLEP EQUIVALENT COURSES OF CREDIT

GENERAL CLEP EXAM	English Grammar & Composition	Mathematics	Social Sciences	Humanities	Natural Sciences	TOTAL HOURS ACCEPTED
COLLEGE OF ADMINISTRATION AND BUSINESS	English 101 and English 102	Mathematics 107 108 109*	History 101 and History 102	English 201 and English 202	Biological & Physical Science (3 hrs. each)	30
COLLEGE OF ARTS AND SCIENCES	English 101	Mathematics 107 108 109	History 101 and History 102	English 201 and English 202	Biological & Physical Science (3 hrs. each)	0**
COLLEGE OF EDUCATION	English 101 and English 102	Mathematics 107 108 109	History 101 and History 102	English 201 and English 202	Biological & Physical Science (3 hrs. each)	30
COLLEGE OF ENGINEERING	English 101 and English 102	None	History 101 and History 102	English 201 and English 202	None	18
COLLEGE OF HOME ECONOMICS	English 101 and English 102	Mathematics 107 108 109	History 101 and History 102	English 201 and English 202	Biological & Physical Science (3 hrs. each)	30
COLLEGE OF LIFE SCIENCES	English 101 and English 102	Mathematics 107 108 109	History 101 and History 102	English 201 and English 202	None	24

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*Validation may be required, depending on test score.

**Twenty-seven hours of General Clep examinations are accepted in the General Studies Curriculum only in the College of Arts and Sciences.

Students pursuing pre-professional courses e.g. law, medicine, dentistry, veterinary science, or the forestry curriculum, are advised that the professional schools may require actual grades as demonstrated through performance in a regular classroom setting as opposed to credit by examination.

2. Subject Examinations

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

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

LOUISIANA TECH CREDIT EXAMINATIONS

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

Individual credit examinations may be arranged in any subject. The procedure for registering for credit by examination is as follows:

1. Students will register for credit by exam for any given course only during regular registration periods. No examination can be taken for credit unless a student has properly registered for the exam. The advisor's signature will render approval for a student to attempt the exam.

2. Exams will be given and reports submitted during the period prior to the final "drop and add" day, Regular University fees will apply.

3. Department heads will have available for the student a class card for "credit by exam" courses to be issued at registration.

4. Each credit exam will have a section number of "00".

5. The student's white registration card will reflect the "credit by exam" courses for which the student registers; these courses will not, however, be added into the total semester-hour load of the student but will be counted for the purpose of determining fees.

6. Should a student attempt an exam and fail it, there will be no entry on his/her permanent record.

7. Successful completion of credit examinations are recorded on the student's record as "credit by examination" and assigned a grade "S." Grades of "S" are not used to compute a grade point average.

8. Credit through this type examination is limited to 30 semester hours of degree credit and credit by all types collectively may not exceed 60 semester hours.

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

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

ADVANCED PLACEMENT

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

MILITARY EXPERIENCE

Honorably discharged veterans of the United States Armed Forces may be allowed credit for physical education and certain other courses upon presentation of a copy of their discharge (DD 214) to the Admissions Office.

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

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

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

REGISTRATION

REGISTRATION days are announced through the medium of the University Calendar. Late registration is allowed for six regular class days following the last day of scheduled registration.

Department heads or appointed counselors act as advisers during registration but the student is expected to be acquainted with requirements for his/her particular graduation. The curricula may be found in this catalog; each student should know the chosen curriculum, and should know how to register according to its requirements.

THE SEMESTER HOUR is the unit of credit. 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; first number indicates laboratory contact hours per week; second, lecture periods per week (90-minute periods with break between classes included); third, credit in semester hours.

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

TO AUDIT A COURSE, the applicant must be eligible to enter the University either as a regular student, as a visiting student, or as a special student. Approval from the teacher of the course must also be obtained. A student auditing one or more classes must follow the regular registration procedure. After the approval of the teacher is obtained, the student will be assessed the appropriate general registration and tuition fee for the period audited. This fee is not refundable. The auditing student is not required to do the work of a regular student in the course, nor will credit be allowed for the course audited. An audit may not be changed to credit after registration closes. Audits are permitted only when a student's schedule affords the time.

To REPEAT A COURSE in which a passing grade has been earned; the student must have the consent of his/her department head. All courses attempted will be recorded and computed in the overall average.

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

TO DROP A COURSE a student must be in good standing and have the consent of his/her department head or advisor. A student may be dropped from a class, or more than one class, or from the rolls of the College if his/her Dean considers such action to be in the interests of the class or the University. In such a case, the Dean will decide whether the student will be given a "W" or an "F." The "W" grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The "W" grade is not included in computing the student's average. However, if a student resigns from school after the first six weeks, the class instructors will submit grades of "W" plus the student's average grade at the time of withdrawal, except if the student resigns within two weeks of the end of classes the grade given will be an "F." These grades ("W" plus average) will be recorded on the student's permanent record but will be included in the computation of the average only when the student is being examined for probation or suspension. A student who withdraws from a class after the first six weeks of a quarter will receive an "F" in the course.

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

EXPENSES

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

Admissions Office
Post Office Box 5226
Louisiana Tech Station
Ruston, LA 71272

ACADEMIC REGULATIONS

GENERAL

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

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

CLASSIFICATION OF STUDENTS

Freshman—1-29 semester hours
Sophomore—30-59 semester hours
Junior—60-~~91~~ semester hours
Senior—~~92~~ semester hours—Graduation

DEFINITION OF STUDENTS

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

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

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

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

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

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

All institutions under the Louisiana Board of Trustees for State Colleges and Universities are required to issue transcripts for a student on scholastic probation or suspension. These transcripts are to show the effective dates of such probation or suspension. Thus Louisiana Tech cannot admit a transfer student from another college or

university under control of the Board of Trustees unless a transcript is presented which satisfies the Board's regulation as specified in this paragraph.

A transfer from a non-accredited institution will not be allowed credit toward graduation on any course which was passed with the lowest passing grade, "D" or its equivalent. The grades, however, will be entered and counted in the computation of the earned average of "C" required for graduation from the University.

The maximum hours transferable from a junior college are 68. No credit from a junior college will be accepted toward a degree after the student has attained junior standing.

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

A Graduate Student holds at least a bachelor's degree from an accredited institution, has gained admission to the Graduate School, and is pursing a prescribed graduate curriculum.

LOUISIANA STATEWIDE ARTICULATION

Louisiana Tech subscribes to the statewide Articulation Policy as adopted by the Board of Regents, June, 1976. The aim of this policy is to insure that transitions which students may encounter in their educational careers will be orderly and, to the extent possible, easy. A student transferring to Louisiana Tech will make initial contact with the Office of Admissions for general information and evaluation. Credits earned from regionally accredited colleges and universities will be accepted by Louisiana Tech. Credits earned from colleges and universities which are not regionally accredited will not be accepted on any course which has been passed with the lowest passing grade, "D" or its equivalent. The academic dean of the college offering the curriculum selected will determine which of the transferred credits will actually apply toward completing degree requirements. The transfer student will find information concerning registration, academic regulations, credit by examinations, advanced placement, and other non-traditional means of earning academic credit within the general information sector of the catalog.

SEMESTER HOUR LOAD

A NORMAL STUDENT LOAD is that amount of course work required by the curriculum in which the student is registered. A graduating senior or a student having a "B" average (3.0) overall (and for the preceding quarter) may be permitted to carry a maximum of 14 hours during a quarter. Correspondence work pursued during these periods will be considered as a part of this load. In all cases where a student wishes to schedule in excess of 12 hours during a quarter or when a student wishes to pursue a course by correspondence, approval of his/her academic dean must be obtained. Courses pursued in excess of these limits will be invalidated upon discovery. Drive-in students and those students engaged in part-time employment should schedule proportionately fewer hours. As for **minimum load**, full-time students must be registered for 8 or more hours. Exception: a graduating senior may carry only the courses required for graduation at the end of the quarter.

CLASS ATTENDANCE

Louisiana Tech has adopted CLASS ATTENDANCE regulations in consonance with the policy of the Board of Trustees for State Colleges and Universities (Effective May, 1976).

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 official(s) designated by the President within three class days after the student returns to the respective class. The appropriate official may excuse the student for being absent and the faculty member shall accept an official university excuse.
D. When a freshman or sophomore student receives excessive unexcused absences (a minimum of four) in any class, the instructor may recommend to the student's academic dean that the student be withdrawn 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.

EXAMINATIONS

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

(1) Special examinations, including postponed examinations, must be taken within the first four weeks of the following quarter. If he/she does not re-enroll the following quarter, the deadline to take the examination still is within the first four weeks of the following quarter. If the student does not take the examination during the period specified above, the grade of "F" in the course will be reported by the teacher.

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

SYSTEM OF GRADING

The University's SYSTEM OF GRADING is traditional: An "A" is given for the highest degree of excellence that is reasonable to expect of students of exceptional ability and application. A "B" is superior. A "C" is average. A "D" is given for a quality of work that is considered the minimum for receiving credit for the course.

Some other grades given by the University need more explanation. An "F" is a failure and the work must be repeated to receive credit. 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. If the grade "I" has not been removed by the end of the fourth week of the following quarter, a grade of "F" will be recorded, except on graduate research or thesis courses numbered 551, 590, and Education 580. A student may be placed on probation, continued on probation, or removed from probation at the time the "I" grade is cleared.

The "W" grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The "W" grade is not included in computing the student's average. However, if a student resigns from school after the first six weeks, the teacher will submit grades of "W" plus the student's average let-

ter grade at the time of withdrawal, except if the student resigns within two weeks of the end of classes he/she will be given an "F." These grades ("W" plus average) will be recorded on the student's permanent record but will be included in the computation of the average only when the student is being examined for probation or suspension for that quarter. A student who withdraws from a class after the first six weeks of a quarter will receive an "F" in the course.

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

Quality points indicate the quality of a student's work. An "A" receives four quality points per semester hour; a "B" receives three quality points per semester hour; a "C" receives two quality points per semester hour; a "D" receives one quality point per semester hour. An "F" receives none. A student, wishing to increase quality points, may with the consent of the head of his/her department, repeat a course in which a passing grade has been earned. (See "Graduation Requirements" and "Scholastic Standards" for an explanation of the method by which quality points are used in determining averages for graduation and for probation and suspension.) The scholastic rating of a student (or of any group of students) is determined by the number of hours of academic work for which the student or group was registered.

FINAL GRADE APPEALS PROCEDURE

The following final grade appeals procedure is to provide the student at Louisiana Tech University a mechanism whereby he/she will be given the opportunity to determine that the final grade is fair and justified.

In the event that a student feels his/her final grade in a particular course is unfair and/or not justified, then to initiate this appeal procedure they should confer with the appropriate faculty member concerning the final grade. If the student remains unsatisfied, he/she may then confer with the appropriate department head. It will be the department head's responsibility to seek a solution to satisfy the student. If the student remains unsatisfied with the results of the effort made by the department head, he/she has thirty (30) days from the end of the quarter in which the final grade was received to appeal in writing to the Dean of the respective college. Upon receiving the appeal the Dean will then instruct the Academic Appeals Board within the college to meet within ten (10) school days to review the grade in question.

An Academic Appeals Board shall be formed by each college Dean to review each appealed final grade. It shall consist of three students and three faculty members selected at random from a general roster of at least eight faculty members and eight students. At least one faculty member from the academic discipline in which the grade is appealed shall serve on each appeals board. This roster is appointed by the Dean of each college at the beginning of each school year and is composed of members of that college. A chairman shall also be appointed and will vote only in the case of a tie.

The student and faculty member shall be notified of the time and place of the Board meeting. The Board will hear the student and faculty member and deliberate in closed session. If the Board feels further evidence is needed, it may call on other witnesses to give additional information. The Board will then continue its deliberations and deliver its recommendation to the Dean on the following school day. If the recommendation is in favor of the student, the Board will also recommend the specific grade change to the Dean. The Dean will then rule in favor of either the student or faculty member and notify all parties of the affirmation or rejection of the recommendation of the Appeals Board. This will be done in writing within three (3) school days. In deciding in favor of the student, the Dean will also notify the Registrar and other appropriate personnel of the grade change.

However, in order to meet due process, both student and faculty member are provided with a means of appealing the Dean's decision. If a party wishes to appeal, he/she must do so within three (3) school days upon receiving the Dean's decision by notifying, in writing, that Dean of his/her intention.

The appeal will be made to the Scholastic Standards Committee upon receiving the notice of appeal. The Dean will notify the Chairman of the Scholastic Standards Committee who will in turn, call a special meeting of the committee within ten (10) school days. It is understood that the Dean of the college involved would excuse himself/herself from the Scholastic Standards Committee meeting.

The Scholastic Standards Committee will accumulate all information in the case, listen to both parties and any additional witnesses it sees fit to invite, and then make a written recommendation in favor of either the student or faculty member to the Vice President for Academic Affairs on the following school day. Should the committee rule in favor of the student, it will also recommend the appropriate grade change. The Vice President for Academic Affairs will communicate, in writing, an affirmation or rejection of the recommendation of the Scholastic Standards Committee to all concerned parties within three (3) school days with this decision being final.

ACADEMIC ACHIEVEMENT

HONOR FOR ACADEMIC ACHIEVEMENT of an undergraduate student shall be recognized by the University. The student is honored at graduation by a suitable inscription on the diploma and by recognition by his/her Dean. The following conditions determine such recognition: (A) An average on all hours attempted 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 at Louisiana Tech University a total of 30 semester hours.

The PRESIDENT'S HONOR LIST was inauguarated effective with the Fall Quarter, 1968, with the requirements for membership set at a grade point of 3.8, on a minimum of ten hours' work completed and no grade lower than a "C."

The DEAN'S HONOR LISTS are prepared at the end of each quarter. Students whose names are on the lists must be regularly enrolled undergraduates with an average of at least 3.5 with a minimum of ten hours completed and with no grade of "F." The Dean of each College determines the students who will be honored on these lists.

TRANSCRIPT

A TRANSCRIPT of work completed by a student at Tech will be furnished within three days following a request for this record, provided the student is not indebted to any department of the University. For each transcript, a fee of $1.00 is charged. A signed request for a transcript is required with fee payment upon request. No transcripts are issued during the first ten days of any quarter.

SCHOLASTIC STANDARDS

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

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

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

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

(4) After the lapse of one quarter, a student may reenter the University on probation, but he/she must make a "C" average (2.0) on all hours attempted during the quarter or he/she will be dismissed again.

(5) A student who resigns after six weeks of a quarter will receive at the time of withdrawal grades of "W" and the grade he/she was making at the time of withdrawal. These grades will be used to compute his/her academic status.

(6) A student dismissed (from Louisiana Tech University) at the end of the spring quarter may attend the summer quarter, but he/she must remain out during the fall quarter. Grades earned during a summer quarter (at Louisiana Tech University) do not change the probational or dismissal status of a student.

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

(8) A student under suspension for scholastic reasons may not obtain credit toward a degree on credits earned at another institution during the period when he/she is ineligible to register in an institution under the jurisdiction of the Board of Trustees for State Colleges and Universities.

READMISSION AFTER SUSPENSION is permissible under the following circumstances:

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

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

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

ACADEMIC MISCONDUCT at the University is determined by the faculty member under whom such misconduct occurs. The penalty for cheating and other forms of misconduct is also determined by the faculty member. This penalty may be an "F" in the course, but lesser penalties may be given at the discretion of the faculty member.

WITHDRAWALS

Any student who wishes TO WITHDRAW FROM THE UNIVERSITY for any reason must process a resignation with the registrar and the academic and personnel deans prior to the withdrawal. A grade of "F" for each course will be entered on the record of any student who leaves without proper resignation. A student living in the dormitories or housing who leaves without proper withdrawal will forfeit the unused portion of any payment or deposit made to the University.

GRADUATION REQUIREMENTS

GRADUATION REQUIREMENTS at the University are traditional, but the student should be thoroughly familiar with the following regulations if he/she is to become a candidate for a degree:

Associate Degree Requirements:

The Associate of Arts or Science degree can be earned from Louisiana Tech University when a student has fulfilled the following requirements:

1. The candidate must complete one of the approved two-year programs consisting of 60 or more specified academic credit hours in the Basic and Career Studies Division.
2. He/she must make a "C" average on hours earned. If a student is short on hours earned at the beginning of the final quarter or is more than six quality points of a "C" average he/she will not be allowed to register for graduation. A transfer student must also make a "C" average on all hours earned at the University.
3. If the student is a transfer he/she must not have less than 24 weeks in residence at Louisiana Tech, during which at least 15 hours and 30 quality points, has been earned.
4. The last two quarters must be spent in residence. Exception: a student who has fulfilled the minimum residence requirements may be permitted to earn six of the last 18 hours out of residence.
5. He/she must report his/her candidacy to his/her dean and register for graduation within the first four 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.
7. The student must be present for commencement. If a candidate absents himself/herself from commencement without the approval of the president of the University, an absentee fee of $10.00 will be assessed. An additional $3.00 "Special handling" fee for mailing of the diploma will be charged each person who does not pick up the diploma at graduation when it is normally available.
8. The student must be registered at Louisiana Tech University.
9. 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.
10. If a student wishes to earn a baccalaureate degree from the University he/she must re-apply for a baccalaureate program and meet all additional requirements as explained in each specific curriculum.

15 additional hours for 2nd Assoc degree.

Baccalaureate Degree Requirements:

1. The candidate must complete one of the curricula of the six colleges.
2. A "C" average on hours earned is required. A student who is short on an hours earned basis of more than nine quality points of a "C" average will not be allowed to register for graduation. A transfer student must also make a "C" average on all hours earned at the University.
3. If he/she is a transfer student, not less than 36 weeks residence at Louisiana Tech, is required during which at least 30 semester hours and 60 quality points are earned.
4. He/she must spend the senior year in residence. Exception: a student who has fulfilled the minimum residence requirements may be permitted to earn nine of the last 36 semester hours out of residence.
5. The student must report his/her candidacy to his/her Dean and to the Registrar within the first four 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 residence. Louisiana Tech does not permit a student to apply for more than six hours of correspondence study toward the pursuit of a degree.
7. The student must be present for commencement. If a candidate is absent from commencement without the approval of the President of the University, an absentee fee of $10.00 will be assessed and an additional $3.00 "Special handling" fee for mailing will be charged each person who does not pick up the diploma at graduation when it is normally available.
8. The student must be registered at Louisiana Tech University.
9. 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.
10. 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.

Graduate Degree Requirements:

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

DIVISION OF STUDENT AFFAIRS

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

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

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.

HOUSING

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

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

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

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

Exemptions to the requirement of on-campus residence hall living may be made according to the following priority:

1. First, undergraduate students who wish to live with a close relative, defined as grandparents, married brother or married sister.
2. Second, undergraduate students who wish to live in social fraternity houses.
3. Third, Seniors.
4. Fourth, Juniors.
5. Fifth, Sophomores.
6. Sixth, Freshmen.

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

1. First, students who have resided in off-campus housing the longest period of time.
2. Second, date application was received.

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

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

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

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

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

"Senior" means an undergraduate student who has earned a minimum of 92 semester hours and 180 quality points.

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

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

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

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

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

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

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

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

RESIDENCE HALL RESERVATIONS

Room reservation contracts may be secured at the office of the Director of Housing. Applications for residence hall reservations will be accepted beginning October 1 of each year for the following Winter, Spring, Summer, and Fall quarters. Reservation contracts will not be confirmed until the following have been submitted to the Housing Office of the University: (1) Completed residence hall reservation contract with picture of applicant attached, and (2) a $25.00 reservation deposit. (All residence hall students are required to pay for room and meals.)

RESIDENCE HALL ACCOMMODATIONS

Specific room assignments for freshmen are made according to the date the completed residence hall room contracts for the student and his/her roommate request, if any, are received.

Upperclass students are assigned on a first come basis for those students presently living in the residence halls and are assigned by hours earned for those students not presently in the residence halls.

It should be understood that such accommodations are made on a room-meals plan, and all students living in the residence halls must pay for these two services.

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.

Refrigerators may be rented from Louisiana Tech Housing Office at a rate of $10.00 per quarter.

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

The student who does not plan to return to the residence hall the next quarter must claim the deposit by the close of the present quarter. If the student is leaving the residence hall and wishes to leave the deposit on file in order to return to the residence hall at a later date, he/she must fill out a reservation card in the Housing Office by the close of the present quarter, stating the date he/she wishes to return.

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

The student who leaves the residence hall system under authorization of the University, and in compliance with University rules and regulations, and remains in school will forfeit the unexpended portion of room payment (rent) for the quarter. The $25.00 reservation deposit, less any charges for damages, will be refunded upon the proper conclusion of the use of the room and completion of an official check-out from the residence hall system. "Official check-out" and "conclusion of the use of a room" are defined as having moved all personal effects out of the room and completely processed a 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 meals until all official check-out procedures are completed. The check-out must occur within five (5) days after leaving the residence hall or by the close of the pay period involved, whichever comes first. 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 a 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. These applications must be accompanied by a $25.00 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 contact agreements are fulfilled. No assignment can be made until the $25.00 deposit is received. If the applicant wishes to reject the assignment it must be done 30 days before the quarter begins (date specified in catalog) or forfeit the deposit. Rent is as follows: Ninety dollars ($90.00) per month payable in advance, plus cost of electrical power; the first rent payment being due the date the key to the department is issued. Payments thereafter are due on the first of each calendar month. Students are expected to accept the responsibility of making payments promptly; therefore, the school will not send a statement to the student of a payment due. Failure to pay in advance subjects the student to these penalties: Dismissal from the apartment, the University, or both. Non-students are not eligible to live in University owned apartments. Except for a heater, these apartments are unfurnished.

CHANGE OF APARTMENT RENT MAY OCCUR WITHOUT NOTICE

INTERNATIONAL STUDENTS

International students are welcomed at Louisiana Tech University. Those interested in attending should request application materials through the Admissions Office.

The Foreign Student Counselor is available to assist the international in becoming acclimated to the new surroundings; to assist in the registration process; to provide personal counseling; and to answer questions involving immigration.

The Office of the Foreign Student Counselor is located in the T. H. Harris Building (Housing Office).

FIRST AID CENTER

A First Aid Center is maintained by the University for use by all students. A Registered Nurse is on duty from 8:00 a.m. to 4:00 p.m., Monday through Friday, during official school sessions. First aid services, within the limits of personnel and supplies which can be maintained in the Center, are provided to students at no charge other than the fee during registration. Medical expenses for services incurred outside the Center are the responsibility of the student.

ACCIDENT AND HOSPITALIZATION INSURANCE

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

COUNSELING CENTER SERVICES

The Counseling Center exists as a personnel service to the students of the University. The Center believes in the worth, dignity, and potentiality of each individual and strives to help young people become aware of these qualities within themselves. The Center endeavors to aid students in gaining more of the insight, learnings, and skills needed to cope intelligently and effectively with each phase of their lives. Counselors assist students in three major areas: PERSONAL COUNSELING, EDUCATIONAL COUNSELING, AND CAREER COUNSELING. These areas include such concerns as personal emotional adjustments, health, dating, marriage, home relationships, social relations, adjustments to college work, study skills, and plans for the future. Counseling is done in an atmosphere in which students may discuss problems freely and confidentially. The Center is located in 313 Keeny Hall.

PLACEMENT AND ALUMNI SERVICES

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

VEHICLE REGISTRATION

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

Vehicles may be registered and decals obtained in the Security Office, located in Keeny Hall, during regular office hours.

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

STUDENT CONDUCT

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

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

STUDENT ACTIVITIES AND ORGANIZATIONS

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

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

STUDENT FINANCIAL AID

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

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

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

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

Loans of the following types are available to eligible students:

NATIONAL DIRECT STUDENT LOAN PROGRAM These are loans of a long term nature, with a legal maximum that an undergraduate student may borrow up to a maximum of $5,000 for an undergraduate career. A graduate student may borrow up to $2,500 per academic year with an aggregate for all years of $10,000. A borrower has a nine-month "period of grace" after he/she ceases to be enrolled as at least a half-time student in the University before payment must begin.

GUARANTEED STUDENT LOAN PROGRAM— The State of Louisiana guarantees loans for full-time students who are Louisiana residents, and who meet certain academic qualifications. Loans are made up to $1,500 for the academic year to undergraduate students, and up to $2,000 per year to graduate students. After a student's application has been processed by the office of Student Financial Aid, the student then negotiates with a Louisiana bank, credit union or savings and loan association in their home town area. If the lender agrees to participate, the loan is guaranteed by LHEAC. Interest charges to the student and repayments begin after the student leaves school either upon graduation or for some other reason.

Student from states other than Louisiana should check with the same types of agencies and offices for information on the Guaranteed Loan Program available in their particular state. In some states this program will be available through a state agency similar to the Louisiana Higher Education Assistance Commission and in others it will be available through the Federally Insured Student Loan Program.

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

Grants available include:

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

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT — This grant is a federal aid program that provides assistance for students with exceptional need. The grants range from $200 to $1,500 a year for a total of $4,000 for a four year program of study and $5,000 for a five year program. None may exceed 50 per cent of the college's estimate of the student's financial need nor may they exceed one-half the sum of the total amount of student financial aid made available through the institution to such student-whichever is the lesser. Grants are available to any student with exceptional financial need who is attending at least halftime and progressing normally toward a degree. They are not restricted to students who are expected to, or who actually do, maintain strong academic averages.

BASIC EDUCATIONAL OPPORTUNITY GRANT— Authorized under the 1972 Higher Education Act this program provides for grants to students of up to $1,600 for each of a student's four undergraduate years. The grant cannot exceed one-half the costs of attending the institution of the student's choice or the difference between the amount a student and his/her family can contribute and the total allowable expenses of attending college, whichever is less. Applications are available through high school counselors and college financial aid offices.

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 Student Eligibility Report received from the Basic Educational Opportunity Grant Program office to be considered for this grant program and must submit the Family Financial Statement to ACT and direct that agency to send the report to Louisiana Tech. Current regulations provide for annual awards ranging from $200 to $500.

Scholarships are quite limited in number. They divide into categories:

(1) Academic Scholarships which are awarded on the basis of demonstrated ability—usually without regard to need. Typifying these are State Board of Trustees Academic Scholarship, Greater Tech Foundation Scholarships, T. H. Harris Scholarships, and Engineering Foundation Scholarships.

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

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

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. Thirteen positions are available to qualified graduate students without regard to curriculum. Remuneration for the Graduate Residentship includes approximately $3,495 for the nine-month academic year, rent-free furnished apartment, paid utilities, and waiver of the non-resident fee. 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.

Auxiliary Programs and Facilities

ADVANCED LEARNING CENTER

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

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

ATHLETICS

A member of the National Collegiate Athletic Association since 1951, the University is also a member of the Southland Conference which it joined at the beginning of the 1971-72 year. Tech competes in seven different sports including football, basketball, baseball, track, cross country, golf and tennis. The women's athletic program includes varsity basketball, tennis and volleyball.

The University's first priority in athletics is to produce a well-rounded program with excellence in all areas. Beginning with the 1975-76 school year Tech acquired full Division I (major college) status in all sports.

Eligibility for intercollegiate competitors is determined by the rules and regulations established by the conference, the NCAA and by the state.

Tech is especially proud of its athletic complex which includes a 23,318-seat football stadium, 9-lane tartan track, 10-lighted tennis courts and a 2,500-seat baseball stadium.

BARKSDALE PROGRAM

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

CONTINUING EDUCATION

Tech has for many years been active in sponsoring continuing education programs; these programs are offered in most fields of study. Year round, the institution attracts thousands of persons for events such as short courses, seminars, workshops, conferences, lectures, institutes, and other educational programs sponsored by each of the academic colleges.

The Continuing Education Center, located in the Wyly Tower of Learning, provides several classrooms, office space, a large auditorium, and modern audio-visual equipment which are reserved especially for use in continuing education activities.

THE COOPERATIVE PROGRAM

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

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

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

INTER-INSTITUTIONAL COOPERATIVE PROGRAMS

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

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

In 1971, Louisiana Tech University and Northwestern State University entered into a cooperative program whereby a student may complete at Louisiana Tech a portion of the course requirements for the Doctor of Educa-

tion degree at Northwestern State University. This inter-institutional program is limited to the fields of elementary education and secondary education. For further information, contact the College of Education.

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

LOUISIANA TECH ASTRONOMY FACILITIES

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

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

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

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

LOUISIANA TECH COMPUTING CENTER

The Louisiana Tech Computing Center, an entity organizationally separate from the academic and administrative departments, provides computing facilities and services to the entire campus community.

Since its inception in 1957, the Computing Center has grown and kept pace with the advances in Computer Science and electronic data processing. In maintaining the capability of the Center to serve the needs of the University, every effort has been made to keep current with the latest computer equipment and techniques. The principal computer system in the Center is an IBM System 370, Model 148 with 1,000,000 bytes of core storage, six magnetic disks, two magnetic tapes, high speed printer, and a reader/punch. This computer is operated 24 hours a day 7 days a week on a closed-shop basis to process programs for undergraduate and graduate instruction, graduate student and faculty research, and all University administrative data processing. Remote job entry terminals and interactive terminals are connected to the central computer system to enhance utilization by the academic and administrative users.

The Computing Center maintains a highly qualified and capable staff whose primary function is to be of assistance and service to the Center users. Systems and Programming Specialists and Research Analysts teach courses in programming languages and are available to consult with students and faculty in their needs for computer services and assistance. These efforts are coordinated with the various curricula on campus in which computer programming is taught and in advanced courses which use computers in the solution of problems and in research.

LOUISIANA TECH CONCERT ASSOCIATION

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

LOUISIANA TECH NUCLEAR CENTER

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

Operation of the Center is in accordance with licenses 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 subcritical nuclear reactor designed and built by the Curtiss-Wright Corporation, a gamma irradiation facility, and an electron microscope 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. A loan of 5000 pounds of natural uranium metal from the U.S. Nuclear Regulatory Commission completed the subcritical reactor facility.

In the past, the Nuclear Center has been utilized for special instruction to students attending summer institutes sponsored by National Science Foundation, for research work, for radioactive fallout work, and for regularly scheduled classes. Equipment grants from the U.S. Nuclear Regulatory Commission have provided additional specialized instrumentation and equipment for use by Zoology Department, the Nuclear Center, and the Department of Chemistry. The Louisiana Tech Nuclear Center is fulfilling its obligation to provide nuclear training to the students of this area, and in addition, is aiding in Civil Defense planning and radioactive fallout contamination reporting. Contract research and special institutes are included in the responsibilities of the Nuclear Center.

LOUISIANA TECH SPEECH AND HEARING CENTER

The Louisiana Tech Speech and Hearing Center is housed in Robinson Hall near the center of the campus. This modern facility 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 Pathology and/or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

LOUISIANA TECH SUMMARY TAPE PROCESSING CENTER

The Center, which is housed in the Research Division of the College of Administration and Business, maintains and processes data from the 1970 Censuses of Population and Housing and personal income data furnished by the U.S. Bureau of Economic Analysis. Computer programs and projects have been developed to generate demographic and economic analyses for the State, regions in the State, and for selected areas of the Southeast. Short reports, articles, and research projects are prepared, both on an in-house basis and on a contractual basis for local, state, and regional organizations.

LOUISIANA TECH WATER RESOURCES CENTER

The Louisiana Tech Water Resources Center was established on June 12, 1968. The establishment of the Center disbanded the Louisiana Tech Water Resources Technical Advisory Committee which had operated since December 12, 1963. The purpose of the Water Resources Center is to:

1. Provide an interdisciplinary study of developments in the broad area of water resources and to interpret these developments to the best advantage of Louisiana Tech and the state and region as a whole;

2. Advise the administration of wise moves the University should make in its desired participation in these activities;

3. Encourage and promote the development of research programs and laboratories, and to formulate and recommend policy matters in the area of water research;

4. Identify research problems, encourage interested faculty members to engage in water resources research, and to coordinate an interdisciplinary approach to the solution of water research problems;

5. Provide liaison between the University, governmental agencies, municipalities, industry, and the public;

6. Expand the areas of continuing education and student involvement on the undergraduate and graduate levels.

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

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

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

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

NORTH LOUISIANA DAIRY TESTING CENTER

Louisiana Tech has made available space and equipment in the Dairy Processing Plant to receive samples of milk from dairy cows in the North Louisiana area. Detailed accounting information is collected and computerized records are made available to the dairy farmers within the area. The laboratory is supervised by Louisiana Tech University personnel.

PRESCOTT MEMORIAL LIBRARY

The Prescott Memorial Library is a modern ten-story structure. Features of the library include the Hardtner Memorial Forestry Library, the microprint library and the Electronic Program Learning Center.

Prescott Library houses a collection of more than one million items, including books, documents, microprints, pamphlets and other organized collections. The purposes of the library are to support in depth the curricular offerings of the University and to supply recreational and inspirational reading matter for the University faculty, staff and student body. Toward these ends the library is administered by a highly competent faculty and staff.

In 1964 the Documents Library of Louisiana Tech was designated a Regional Depository for United States government publications, and as such the library receives and retains at least one copy of all government publications made available to depositories. It is also a complete depository library for publications of the State of Louisiana.

Tech's library participates in numerous cooperative programs with both public and academic libraries. It is a member of the Trail Blazer Library System of Northeast Louisiana which is a cooperative program of 13 parish libraries and three academic libraries. This system makes the combined collections of the 16 libraries, as well as the State Library, rapidly available to anyone holding a Trail Blazer Library System card. The library also subscribes to the American Library Association's interlibrary loan code, a copy of which is kept on file at the interlibrary loan desk.

Tech is linked via TWX and Telex to all major libraries and businesses in the United States and overseas that also have TWX or Telex equipment. The library participates in the nationally significant Louisiana Numerical Register (LNR) which is a catalog of holdings of all major libraries in Louisiana by Library of Congress card number. Other cooperative services are available and may be identified through the Director of Libraries' office.

THE RESEARCH DIVISIONS

The participation of both faculty and students in academic and contract research is strongly encouraged at Louisiana Tech University. Toward this end formally organized divisions of research associated with each college have been charged with the responsibility of coordinating and expediting research activities in their respecective colleges. At the institutional level, the Director of Sponsored Programs is 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.

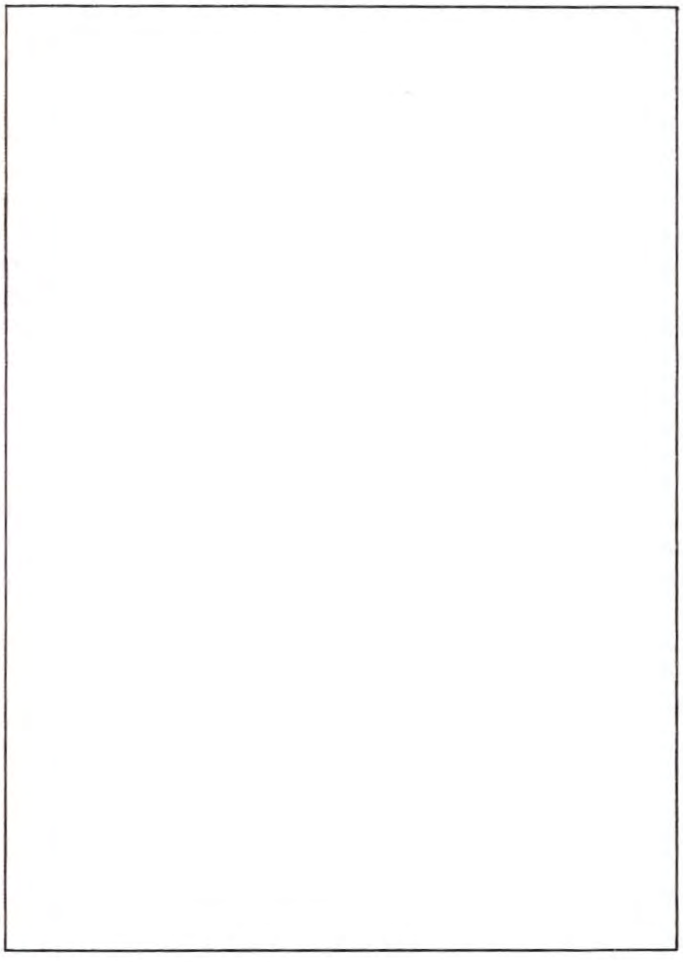
ROME PROGRAM

Louisiana Tech has offered study programs in Rome, Italy, since 1969. Courses offered in Rome are designed as an integral part of the undergraduate and graduate program offered on the Ruston campus.

SOILS TESTING LABORATORY

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

Academic Program



Academic Objectives

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

ACADEMIC INSTRUCTION OBJECTIVES

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

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

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

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

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

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

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

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

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

RESEARCH OBJECTIVES

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

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

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

to facilitate research activities by supporting organized research units.

SERVICE OBJECTIVES

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

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

COLLATERAL OBJECTIVES

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

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

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

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

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

interpreting the role of the University to society.

ACADEMIC ORGANIZATION

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

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

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

MAJORS

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

The Associate Degrees are: Associate of Arts (in General Studies), and Associate of Science (in Agriculture Technology, Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Mechanical Technology, Nursing, Petroleum Technology, Secretarial Curriculum and Technical Drafting).

The baccalaureate are: Bachelor of Arts, Bachelor of Fine Arts and Bachelor of Science.

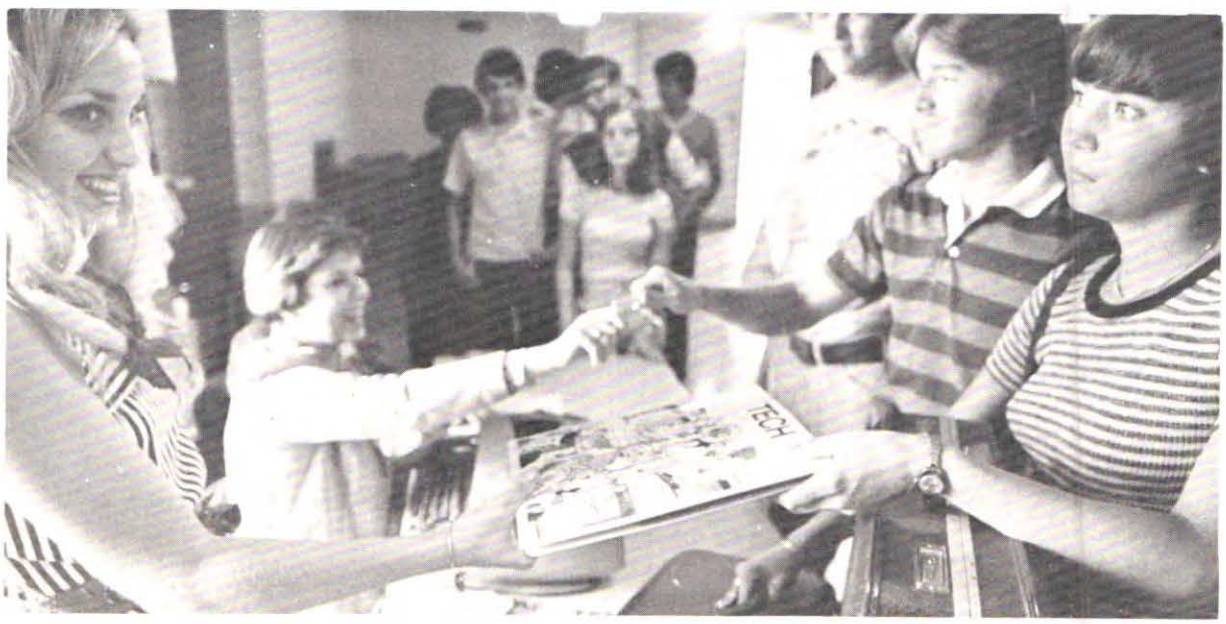
The graduate degrees are: Master of Architecture; Master of Arts (in Art Education, Counseling and Guidance, Elementary Education, English, English Education, History, Music, Music Education, Reading, Social Studies Education, Special Education, Speech, Speech Education, Speech Pathology and Audiology, and Speech Pathology and Audiology Education; Master of Business Administration (General and specialties in Accounting, Administration and Organizational Behavior, Business Education, Computer Applications, Economics, Finance, Industrial Management, International Business-Economics, Labor Economics, Management, Management Science, Marketing and Personnel Management); Master of Fine Arts; Master of Professional Accountancy; Master of Science (in Business Education, Chemistry, Engineering, General Home Economics, Geology, Health and Physical Education, Home Economics Education, Human Relations and Supervision, Institution Management, Life Sciences, Mathematics, Mathematics Education, Physics, and Science Education). In April, 1967, the State Board of Education approved Louisiana Tech's offering a Specialist degree, a degree beyond the master's. Doctoral degrees in Business Administration (DBA) and Engineering (Ph.D.) were authorized in December 1967.

MINORS

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

1. A minor shall consist of minimum of 21 hours of course work and a minimum of 40 to 60% of the courses shall be in the 300 to 400 level.
2. If the required courses are not presented in the catalog then the student's advisor will consult with the department head in which the minor is desired and agree upon the number of hours and course content of the minor.
3. The minor will be determined at the beginning of the student's junior year (completed 60 hours) at which time a plan of study will be submitted by the student's adviser to the department in which the minor is to be taken.
4. The computer will record the major and minor subject at the junior year. The transcript and diploma will indicate the major subject and the minor subject at time of graduation.
5. A student may acquire a double major and one baccalaureate degree by completing the total hours required for one degree and the total hours required in the subject (major) courses for the second degree.
6. A student may complete a second minor by completing the required hours listed in the catalog or agreed to by the student's adviser and the Department Head in which the minor is to be taken.
7. An area of concentration is classed as the area in which the major portion of the student's studies are concentrated.
8. Supporting courses are those in which a student will obtain background information in the major area of study. These courses may be called prerequisites in some cases.

Divison of Admissions, Orientation, Basic and Career Studies



Division of Admissions, Orientation, Basic and Career Studies

PATSY LEWIS, Dean

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

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

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

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

SUMMER ORIENTATION

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

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

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

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

READING LABORATORY

Incorporated in the Division is a diagnostic reading laboratory which is designed to serve the University community. Improvement of reading skills is the primary objective of this service area.

Developmental courses and rate improvement courses are available to all students of the University.

CAREER STUDIES

(Two-Year Curricula)

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

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

The two-year associate degree programs which Louisiana Tech University is authorized to provide are listed as follows: Agricultural Technology, Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Liberal Arts and Sciences, Mechanical Technology, Nursing, Petroleum Technology, Secretarial Curriculum and Technical Drafting.

ASSOCIATE DEGREE GRADUATION REQUIREMENTS

See "Graduation Requirements" for an Associate Degree.

AGRICULTURAL TECHNOLOGY

(Administered by the College of Life Sciences)
JOHN A. WRIGHT, Advisor

The Agricultural Technology curriculum is a two-year program leading to the Associate of Science degree. There are six options: Floral Design and Turfgrass Management (Agronomy-Horticulture Department), Dairy Cattle Management, Dairy Plant Management, Meat Animal Management and Meats Processing (Animal Industry Department). All options require 62 semester hours for completion.

AGRICULTURAL TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

GENERAL CURRICULUM

(Required in all Options)

	Semester Hours
Agriculture 241, 242, 243	27
English 101, 102	6
Life Sciences 101	1
Speech 110	3
	37

FLORAL DESIGN OPTION

Art 115, 116, 215, 240	12
Botany 101	4
Horticulture 103, 215, 200, 403	6
Mathematics 105	3

TURFGRASS MANAGEMENT OPTION

Agricultural Engineering 206, 210, or 215	3
Agronomy 202, 312, 421	10
Botany 101	4
Horticulture 200, 230	3
Mathematics 105	3

DAIRY CATTLE MANAGEMENT OPTION

Agronomy 211	3
Animal Science 101, 102, 301, 307	12
Mathematics 105	3
Sociology 201	3
Electives	4

DAIRY PLANT MANAGEMENT OPTION

Animal Science 102, 301	6
Bacteriology 210	3
Dairying 310, 318	6
Mathematics 105	3
Sociology 201	3
Electives	4

MEAT ANIMAL MANAGEMENT OPTION

Animal Science 101, 301, 303, 318, 410	15
Mathematics 105	3
Sociology 201	3
Electives	4

MEATS PROCESSING OPTION

Animal Science 101, 204, 303, 315	11
Bacteriology 212	4
Mathematics 105	3
Sociology 201	3
Electives	4

BUSINESS TECHNOLOGY

(Administered by the College of Administration and Business)

JAMES A. WEBB, Advisor

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.

BUSINESS TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Finance 100 or 201	3
Liberal Education Elective*	3
Management 105, 201	6
Mathematics 105 or 107 and 108	3 or 4
Office Administration 202	2
Psychology 102 or Sosiology 201	3
Social Studies Elective*	3
	29 or 30

Sophomore Year	
Accounting 203, 204, 310	7
Economics 315	3
Marketing 335 or 307	3
Office Administration 305 or 209	3
Science or Approval Elective*	3
Speech 110 or 377	3
Approved CAB Electives**	9
	31
TOTAL SEMESTER HOURS	60 or 61

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

**Student should select a concentration of courses applicable to employment interest and they must be approved by the student's advisor.

FOOD SERVICE SUPERVISION

(Administered by the College of Home Economics)

JANET B. WRIGHT, Advisor

This program is designed for those who wish to qualify for intermediate supervisory positions in the food service field. Positions are available for graduates in commercial, school and hospital food service organizations.

FOOD SERVICE SUPERVISION CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
Bacteriology 210	3
English 101, 102	6
Home Economics 112, 203, 212, 222	11
Mathematics 105	3
Psychology 102 or 204	3
Sociology 201	3
Speech 110 or 377	3
	32

Sophomore Year	
Home Economics 242, 342, and 272 or 282	13 or 16
Management 201 or 311	3
Office Administration 305	3
Technical Electives[1]	5
Free Electives	5 or 8
	32
TOTAL SEMESTER HOURS	64

[1] Technical Electives: (to be chosen from courses listed below)

	Semester Hours
Accounting 203, 204	4
Economics 315	3
Home Economics 213	3
Management 105	3
Marketing 300	3

INSTRUMENTATION TECHNOLOGY

(Administered by the Department of Electrical Engineering)

DAVID H. COWLING, Advisor

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

INSTRUMENTATION TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 111, 112 and 220	9
Mechanical Technology 101, 151, 231 and 251	10
*Non-Technical Electives	6
	31

Sophomore Year	
Electro-Technology 160, 161, 182, 264, and 270	11
Management 105	3
Instrumentation Technology 201	3
Physics 209, 210, 261, 262	8
*Technical Elective	3
Technical Drafting 101	3
TOTAL SEMESTER HOURS	62

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

LAND SURVEYING TECHNOLOGY

(Administered by the Department of Civil Engineering)

CALVIN A. LEMKE, Advisor

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

LAND SURVEYING TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 111, 112	6
Engineering 102, 151, 152	6
Civil Engineering 254	4
Accounting 203	2
Office Administration 201	2
Elective[1]	3
	29

Sophomore Year	
Civil Engineering 232, 255, 256, 257, 304, 433	15
Speech 110	3
Business Law 441	3
Office Administration 305	3
Electives	9
	33
TOTAL SEMESTER HOURS	62

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

MECHANICAL TECHNOLOGY

(Aministered by the Department of Mechanical Engineering)

R. D. HOLSTEAD, Advisor

The Mechanical Technology curriculum is a two-year program leading to an Associate of Science degree. The program is primarily concerned with the generation, transmission, and utilization of mechanical energy and heat as well as the design, application, and production of tools, machines, engines, instruments and other mechanical devices. The program will emphasize practical aspects through applied course work and a considerable amount of laboratory work. Persons will be trained to perform a variety of tasks in the areas of fabrication and installation, maintenance, testing, troubleshooting, operating, and even special areas such as drafting for commerical and industrial employers involved in any way with mechanical equipment and machines.

MECHANICAL TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 111, 112	6
Mechanical Technology 101, 151, 201, 251, 252	11
Physics 209, 261	4
Technical Drafting 101, 102	5
	32

Sophomore Year	
Civil Technology 206, 207	6
Electro-Technology 160, 161	4
Mathematics 220	3
Mechanical Technology 204,206,215,221,226, 251, 253	17
Physics 210, 262	4
	34
TOTAL SEMESTER HOURS	66

DIVISION OF NURSING

(Administered by the College of Life Sciences)
VIRGINIA R. PENNINGTON, Advisor

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

The Division of Nursing is accredited by the Louisiana State Board of 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. Acceptable scores on the NLN Pre-Nursing and Guidance Examination

c. Grade point average of 2.6 or better from high school or acceptable score on the GED test.

d. If applicable, acceptable score on the Louisiana State Board of Practical Nursing Examination.

e. Indication of emotional stability, character, personality, maturity and interest in nursing as determined by personal interview.

f. Applicants must furnish satisfactory evidence of good health on forms to be sent by the University. An annual physical examination including a chest X-ray is required.

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

In addition to the regular University fees, costs for uniforms, supplies and equipment including books required in the nursing program is approximately $300.

Students must maintain a C average or better in nursing and nursing related courses to progress from one sequentially designed nursing course to the next.

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

NURSING CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
Nursing 101, 102, 103, 104, 105, 106	17
Zoology 225, 226	4
Mathematics 107	2
Life Sciences 101	1
English 101	3
Bacteriology 212	4
Psychology 102	3
	34
Summer Quarter	
Nursing 107, 108	6
Elective	3
	9
Sophomore Year	
Nursing 201, 202, 203, 204, 205, 206	22
Psychology 408	3
Home Economics 203	3
English 102	3
	31
TOTAL SEMESTER HOURS	74

PETROLEUM TECHNOLOGY

(Administered by the Department of Petroleum Engineering)
R. M. CARUTHERS, Advisor

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

PETROLEUM TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 111, 112, 220	9
Mechanical Technology 101, 251	5
Petroleum Engineering 200	3
Petroleum Technology 101	3
Technical Drafting 101	3
	29
Sophomore Year	
Electives	6
Electro-Technology 160, 161	4
Petroleum Technology 102, 103, 104	10
Physics 209, 210, 261, 262	8
Speech 110	3
	31
TOTAL SEMESTER HOURS	60

Electives must be approved by the Head of the Department of Petroleum Engineering and are to be selected from humanities, social science or communications.

SECRETARIAL CURRICULUM

(Administred by the College of Administration and Business)
REBA K. NEEL, Advisor

The two-year Associate of Science program has two options—Secretarial Option (shorthand) and the Correspondence-Word Processing Option (non-shorthand)—and is designed: (1) to prepare students who wish to qualify for beginning secretarial positions in large and small commercial and governmental offices; (2) to permit students to apply the credits earned on the Associate degree program toward the four-year office administration program should they choose to continue their education to prepare for more demanding and challenging career opportunities.

The Associate of Science degree in the Secretarial Curriculum with the shorthand option is designed for students who wish to qualify for office positions in which shorthand is a requisite for employment and future advancement. This program provides the student with skills and knowledge which, when complemented by work experience and additional study, may enable the student to attain an administrative secretarial position. Students electing this option will obviously qualify for a larger number of secretarial-type positions than will students following the correspondence-word processing option.

SECRETARIAL CURRICULUM

SECRETARIAL OPTION

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
English 101, 102	6
Liberal Education or CAB Electives	6
Management 105	3
Mathematics 107	2
Office Administration 202, 203, 206, 207, 208	13
	30
Sophomore Year	
Accounting 203, 204	4
Economics 203, 204	4
English 201 or 202	3
Office Administration 250, 303, 304, 305, 307, 309, 310	20
	31
TOTAL SEMESTER HOURS	61

The correspondence-word processing (non-shorthand) option is designed for students who are interested in performing the various functions of secretarial work in an office except that of taking dictation. This position is often designated as a correspondence secretary. The curriculum has been structured to provide the student with a high-level skill in machine transcription and with business knowledge and understanding that will enable the student to attain employment in offices in which shorthand is not a required skill. With additional experience and study, the student following this curricular pattern can expect to advance to higher levels of work in the secretarial profession. The program provides a good foundation for those interested in working in word processing centers.

CORRESPONDENCE-WORD PROCESSING OPTION

(Leading to the Degree of Associate of Science)

Economics 315	3
Office Administration 209, 210, 211, 212	12
Mathematics 105 or 107	3 or 2
CAB Elective (depends on student's specialization)	8
	21[1] or 20[1]

[1]Note: The 21 or 20 semester hours above replace the following courses in the secretarial (shorthand) curriculum: Office Administration 206, 207, 208, 303, 304; Economics 203, 204; Mathematics 107. Additionally, Quantitative Analysis 220 will be taken. Consequently, the total semester hours required for graduation in the curriculum for the correspondence-word processing (non-shorthand) option will be 64 or 63 depending on which mathematics course is taken.

TECHNICAL DRAFTING

(Administered by the Department of Industrial Engineering and Computer Science)

H. L. HENRY, Advisor

The curriculum in technical drafting is designed to prepare persons to perform the drafting tasks in a modern technically oriented system. The required courses provide comprehensive training in the preparation of design and working drawings for industry and construction.

TECHNICAL DRAFTING CURRICULUM

(Leading to the Degree of Associate of Science)

Freshman Year	Semester Hours
Electro Technology 160, 161	4
Engineering 152, 162	4
English 101, 102	6
Mathematics 111, 112	6
Speech 110	3
Technical Drafting 101, 102, 103	7
	30
Sophomore Year	
Architecture 226, 227	6
Civil Engineering 254	4
Computer Science 102	3
Electives	4
Electro Technology 390	2
Mechanical Technology 101, 251	5
Technical Drafting 201, 202, 203	6
	30
TOTAL SEMESTER HOURS	60

All electives must be approved by the Head of the Department of Industrial Engineering and Computer Science.

Department of Air Force Aerospace Studies

Department of Air Force Aerospace Studies

COL. JOHN T. KENSINGER

Professor of Air Force Aerospace Studies

ASSISTANT PROFESSORS: CAPTAIN TOBE D. GOODEN, CAPTAIN RICHARD H. CAMPBELL, CAPTAIN GEORGE W. HORST.

ADMISSIONS COUNSELOR; CAPTAIN JAMES L. SCHENCK

ADMINISTRATIVE ASSISTANTS: TECHNICAL SERGEANT BOBBY A. WILCOX, TECHNICAL SERGEANT WILLIAM E. LANG, TECHNICAL SERGEANT LINDA L. EVANS, TECHNICAL SERGEANT H. C. RADER, Jr.

PURPOSE: The MISSION of the Air Force ROTC is to produce quality officers to meet Air Force requirements.

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

OBJECTIVES: The objectives of the program are to select and commission men and women who will demonstrate dedication to their assignments; who willingly accept responsibility; who think critically and creatively; and who have the ability to communicate with clarity and precision.

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

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

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

REQUIREMENTS FOR ADMISSION: General Military Course (Freshmen and Sophomores); Enrollment requirements are as follows: (1) be a U. S. Citizen, (2) possess good moral character, (3) not be more than 30 years of age at graduation and commissioning; not more than 26½ years at graduation and commissioning if entering flight training, (4) be medically qualified, (5) sign an oath of loyalty to the United States, and (6) be accepted by the University as a regular full-time student. Veterans will be phased into Air Force ROTC according to their college standing and at the discretion of the Professor of Air Force Aerospace Studies.

Professional Officer Course (Juniors and Seniors): Students are selected for the POC on a competitive basis. In addition to those requirements mentioned for the GMC, entrance into the POC requires that students be not less than 16 years of age; meet mental and physical requirements for commissioning; have satisfactorily completed approximately 60 semester hours toward his or her degree and be in good standing in the institution; be recommended by the Professor of Air Force Aerospace Studies.

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

FIELD TRAINING: All cadets must complete summer Field Training which consists of academic work, intensive orientation on Air Force environment and traditional military training. It also includes orientation flight in Air Force aircraft and a close look at the Air Force in operation. Cadets in the two-year program must, by law, attend six-week Field Training prior to POC entry. Four-year program cadets attend four week Field Training, normally between their sophomore and junior years. Field Training is conducted at an Air Force base, and all cadets receive approximately $75 per week while in attendance. Round trip travel pay between their home and the Field Training base is provided to each cadet.

FLIGHT INSTRUCTION PROGRAM: Senior members planning to enter pilot training are required to complete the Flight Instruction Program, unless they are in possession of a valid FAA private (or higher) license. The program affords cadets the opportunity to solo in light aircraft, providing approximately 25 hours of total time at government expense.

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

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

DISTINGUISHED AIR FORCE ROTC GRADUATES: Up to 20% of the seniors each year may be designated as Distinguished Graduates of the AFROTC program. Their superior performance earns them preferential consideration in job assignments and in opportunities for both Regular Air Force Commissions and graduate education at Air Force expense.

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

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

BOOKS AND UNIFORMS: All uniforms and textbooks required for the General Military Course and the Professional Officer Course are furnished by Louisiana Tech and the U. S. Air Force. Each member of AFROTC will make a refundable deposit of $10.00 to cover possible uniform loss or damage. Each member of AFROTC is also assessed a $10 annual activity fee, which is used for the military ball, squadron parties, and other cadet activities.

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

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

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

HONOR GUARD: A military group composed of outstanding cadets who perform a variety of ceremonial functions. Those include providing the personal escort guard for the University President, conducting flag ceremonies, providing a color guard for campus and civic activities, and giving precision drill exhibitions.

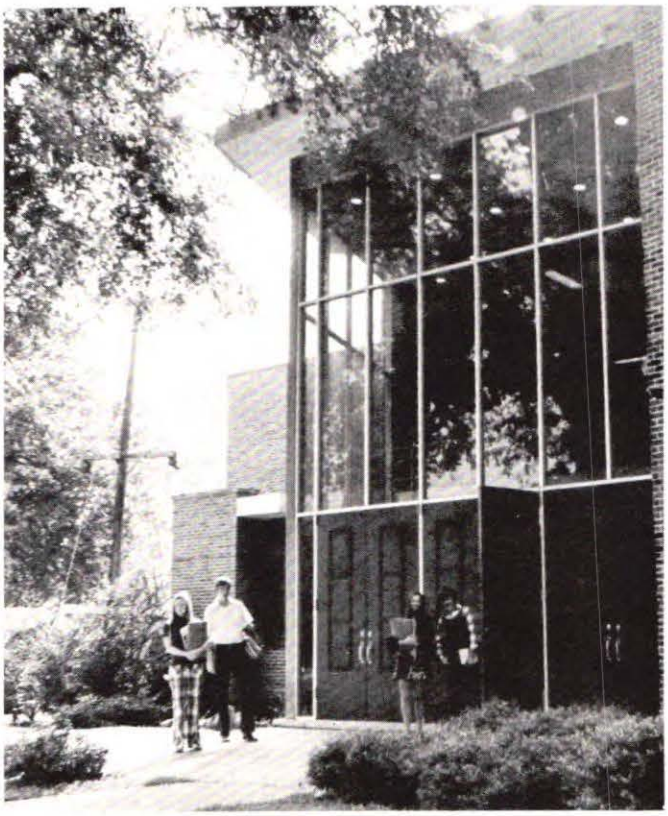
SPECIAL FORCES SQUADRON: This activity allows cadets to follow a more strenuous and demanding program associated with Air Force special operations and special forces training. Survival, weapons training, parachuting, and land navigation have been some of the activities pursued.

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

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

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

College of Administration and Business



College of Administration and Business

BOB R. OWENS, Dean

DEAN EMERITUS: Burton R. Risinger

Officers Of Instruction

DIRECTORS OF DIVISIONS

GRADUATE: Philip F. Rice
RESEARCH: James R. Michael
UNDERGRADUATE: Homer G. Ponder

DIRECTOR OF SCHOOL

PROFESSIONAL ACCOUNTANCY: Harold J. Smolinski

HEADS OF DEPARTMENTS

BUSINESS: James L. Hester
ECONOMICS AND FINANCE: Tom S. Sale, III
OFFICE ADMINISTRATION: Reba K. Neel

PROFESSORS

FRANK N. EDENS, Management; BOBBY L. HAMM, Economics; JAMES L. HESTER, Management; REBA K. NEEL, Office Administration; ARCHER W. HUNEYCUTT, Marketing; FLOYD LANGFORD, JR., Office Administration; BOB R. OWENS, Management; HOMER G. PONDER, Economics; JOE M. PULLIS, Office Administration; PHILIP F. RICE, Quantitative Analysis; WILLIAM R. RIVES, Accounting; TOM S. SALE, III, Economics and Finance; LAWRENCE C. SMITH, Economics; HAROLD J. SMOLINSKI, Accounting; B. EARL WILLIAMSON, Economics.

ASSOCIATE PROFESSORS

STEPHEN BLUCAS, Office Administration; FRANK M. BUSCH, Office Administration; JAMES A. CALLOWAY, Quantitative Analysis; CHARLES E. CATO, Accounting; JOHNNIE R. CHARNETSKI, Quanantative Analysis; LYNDON E. DAWSON, JR. Marketing; TED L. FISHER, Accounting; ROBERT DAN JR., Marketing; TED L. FISHER, Accounting; ROBERT DAN GLENN V. HENDERSON, Finance; WILLIAM A. HOLLIDAY, Management; ANTHONY E. JURKUS, Management; HELON LINDSEY, Office Administration; JAMES N. MANGUM, Economics; DOUGLAS W. MELLOTT, JR., Marketing; JAMES R. MICHAEL, Accounting; EDWARD J. O'BOYLE, Economics; BETTY L. ORR, Office Administration; JOHN B. SHAVER, JR., Accounting; SATEESH K. SINGH, Economics; SETPHEN E. SKOMP, Finance; JAMES E. TOWNSEND, Finance.

ASSISTANT PROFESSORS

LARRY B. ARMSTRONG, Accounting; NORMAN F. BYERS, Economics; CLIFFO D. CRUMP, Office Administration; PHILLIP E. FINCHER, Economics; JOHN R. FOWLER, Quantitative Analysis; JOSEPH H. JONES, Economics and Finance; J. WAYNE MEDLEY, Finance; WILLIAM L. SEAVER, Quantitative Analysis; MAURICE F. TASSIN, JR., Accounting; JAMES A. WEBB, JR., Management.

INSTRUCTORS

LOWELL S. BROOM, Accounting; JENIFER W. CLASON, Business Law; SUSAN C. CORLEY, Office Administration; KENNETH M. GRIFFIN, Quantitative Analysis; JOHNETTE PULLIG, Office Administration.

SUPPORTIVE STAFF

BARBARA H. DENTON, Demographer.
ROY S. WATERS, Research Associate.
PATSY G. HINTON, Counselor and Research Director.
SUZANNE CURRY, PAMELA T. MILSTEAD, VIRGINIA G. RISER, DEBBIE ROBERTSON, NELDA D. SHOWS, BRENDA SANDERSON, CONNIE SMITH, DIANNE H. TIMS, Secretarial-Clerical.

ACCREDITATION

The College of Administration and Business is accredited by the Accreditation Council of the American Assembly of Collegiate Schools of Business (AACSB). The accreditation covers all bachelor of science programs of the College. 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. The Associate of Science degree is awarded by the College of Administration and Business for satisfactory completion of either the Secretarial Curriculum or the Business Technology Curriculum. Other sections of the CAB portion of the Bulletin (e.g., Admissions, Electives Policies in the CAB) that are pertinent to this program will be found in the Bulletin under Division of Admissions, Basic and Career Studies.

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

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

The Master of Professional Accountancy degree is offered.

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

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

ORGANIZATION

The College is divided into three divisions, each having a director, The School of Professional Accountancy with a director, and three academic departments, each having a head. All of the directors and heads are responsible to the Dean of the College of Administration and Business.

The three divisions, which represent the primary area of the College's endeavors are: Undergraduate Division, Graduate Division, and Research Division.

In addition the College includes the School of Professional Accountancy and the Departments of Business, Economics and Finance, and Office Administration. Within the framework of University and College of Administration and Business policies, each school or department: (1) includes faculty appropriate to the courses, curricula, and research undertaken by the faculty members; (2) enrolls and directs the programs of CAB students who choose a program of study the school or department offers; and (3) functions within each of the three college divisions in fulfilling its multiple objectives relative to undergraduate, graduate, and research programs.

HISTORY

Among the purposes listed in the original act creating the University was to give instruction in business subjects and, indeed, Tech's first graduate, Harry Howard, graduated in 1897 in business and later be-

came head of the department. Business courses were thus an important part of the work of the University from its very inception. The Department of Commerce progressed steadily through the years in all of its branches, and in 1940, the School of Business Administration was created by the Louisiana State Board of Education. In 1970, Tech was designed a University and the School became a college and is now named the College of Administration and Business.

PURPOSE

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

RESEARCH DIVISION

The activities of the Research Division involve contract and, to the extent resources are available, non-contract research. Contract research activities are oriented mainly toward public service projects for the state or smaller clientele areas and organizations. Non-contract research activities include some facilitative support for faculty academic and applied research. The division also provides for some in-house publication of research, primarily of a public service nature, including **The Louisiana Economy** (a quarterly publication).

CENTER FOR ECONOMIC EDUCATION

The College of Administration and Business has established a Center for Economic Education directed by Dr. Homer G. Ponder. The Center is affiliated with the Louisiana Council and the national Joint Council on Economic Education. The Center's primary purpose is to provide a comprehensive program for increasing the level of economic understanding of its citizenry.

BURTON R. RISINGER FACULTY CHAIR

Dean Emeritus Burton R. Risinger was Dean of the College of Administration and Business from 1945 until retirement in 1975. He was also President of the Lincoln Bank and Trust Company in 1962 and Chairman of the Board from 1962-1975 and continues to be active as a Board member.

To honor his meritorious service the Lincoln Bank and Trust Company in cooperation with the SBA Foundation (a non-profit corporation to promote the business college) established in 1977 the Burton R. Risinger Faculty Chair. The purpose of the semi-endowed chair is to promote faculty scholarship, professional growth and overall development of the college. The holder of the chair is Dr. Glenn V. Henderson.

SMALL BUSINESS INSTITUTE

The Small Business Institue (SBI) is a contractual program between the College and the federal Small Business Administration. The purpose is to provide management counseling and technical assistance to small business concerns. Dr. Lyndon E. Dawson, Jr. is Coordinator of the institute.

AWARDS AND RECOGNITIONS

BETA ALPHA PSI AWARD

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

BETA GAMMA SIGMA

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

CAB OUTSTANDING SENIOR SCHOLARS

The faculty of the College of Administration and Business each year elects from among the seniors a group of students who are designated as outstanding senior

scholars. The selection is made on the basis of scholarship, character and activities. The pictures and accomplishments of these students are placed in a lighted bulletin board for a year.

CPA AWARD

The Society of Louisiana Certified Public Accountants makes an annual award to the graduating senior in accounting who has the highest scholastic record for the four years. It consists of a very attractive gold key.

DELTA PI EPSILON

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

DELTA SIGMA PI SCHOLARSHIP AWARD

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

MORTAR BOARD

Mortar Board is an honor society for upper level students selected for distinguished ability and achievement in scholarship, leadership, and service.

OMICRON DELTA KAPPA

Outstanding leadership is recognized by the election to membership in Omicron Delta Kappa, the national leadership fraternity.

PHI CHI THETA NATIONAL KEY AWARD

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

PHI KAPPA PHI

Phi Kappa Phi is a national honorary scholastic society that is open to honor students from all academic areas. The primary purpose is to promote the pursuit of excellence in all fields of higher education.

SCHOLARSHIPS

For information about scholarships available to all Louisiana Tech students, contact the Division of School and College Services. The following scholarships are available to CAB students only. Those administered by the CAB are awarded by faculty scholarship committees and information may be obtained by contacting the Office of the Dean, College of Administration and Business, P.O. Box 5796, Tech Station, Ruston, Louisiana, 71272. Most scholarships are awarded in the early spring for the following year and notices are posted when applications are being taken.

ALUMNI FOUNDATION

A portion of the Alumni Foundation scholarship money is allocated to the various Tech colleges so that the CAB has a varying amount of funds each year, depending on contributions, for scholarships.

B. H. RAINWATER

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

BURTON R. RISINGER

Through the gifts of alumni and others a scholarship has been established to honor Burton R. Risinger, Dean Emeritus. He was the dean of the College of Administration and Business for a 30 year period, 1945-1975 during which time the College experienced extraordinary growth in size, program offerings and professional recognitions. The award is normally awarded to a first year Business Administration student in the approximate amount of $300.

BUSINESS FOUNDATION

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

COMMERCIAL UNION ASSURANCE COMPANIES

Commercial Union Assurance Companies, with regional offices located in Ruston, Louisiana, has established a scholarship program. This program is available to qualified, deserving students enrolled in a program of study which will ultimately lead to a degree in the College of Administration and Business. For additional information contact the office of the CAB dean.

H. DILLARD DARBY

The family of H. Dillard Darby, a long-time Ruston businessman owning a funeral home and insurance companies, has established a memorial scholarship. The amount of $1,000 funded by the family and the National Old Line Insurance Company, is awarded annually as a single scholarship or two scholarships of $500 each to a junior or senior student(s) majoring in business administration, finance, or accounting.

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.

LOU-ARK PURCHASING MANAGEMENT ASSOCIATION

The Purchasing Management Association of Lou-Ark gives each year to a College of Administration and Business student who has achieved junior or senior standing, a cash award. Recipients must be enrolled in programs of study which could logically lead to later involvement in purchasing/management.

T. L. JAMES AND COMPANY

T. L. James and Company has established a scholarship-internship award for an entering freshman each year who plans to enroll in one of the curricula of the College of Administration and Business. The award is a minimum of $2,000 during a four year program in the form of $500 scholarships for each of the first two years and an internship work opportunity in the final two years of study which will enable the student to earn at least as much as the scholarship portion of the award.

Scholarships which are not administered by the CAB but which are available to CAB students are given below. Inquiry should be made with the organization awarding the scholarship for additional information.

DAVID L. GLOER

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

MURPHY FOUNDATION

Several scholarships are available. Inquiries and

requests for application forms should be addressed to the Murphy Foundation, Murphy Oil Corporation, El Dorado, Arkansas.

PHI CHI THETA

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

ORGANIZATIONS

ACCOUNTING CLUB

The Accounting Club was organized in December, 1953, as a professional organization for the purpose of encouraging higher standards of scholarship and developing a closer relationship among the accounting students, faculty, and businessmen. The group meets twice a month with one meeting being devoted to the business affairs of the club and the other meeting being devoted to professional development.

ALPHA KAPPA PSI

Eta Tau chapter of the professional national fraternity of Alpha Kappa Psi was chartered on February 12, 1967. Alpha Kappa Psi is the oldest professional fraternity in business, being founded in the School of Commerce, Accounts and Finance at New York University on October 5, 1904, because of the desire of ten students to aid their alma mater. The objects of Alpha Kappa Psi are "to further the individual welfare of its members; to foster scientific research in the fields of commerce, accounts, and finance; to educate the public to appreciate and demand higher ideals therein; and to promote and advance in institutions of college rank, courses leading to degrees in business administration."

AMERICAN SOCIETY OF PERSONNEL ADMINISTRATION

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

BETA ALPHA PSI FRATERNITY

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

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 fifty cents per quarter, and this is an official charge recognized by the College.

DATA PROCESSING MANAGEMENT ASSOCIATION

The Louisiana Tech University Data Processing Management Association is a student organization affiliated with the Data Processing Management Association; its charter was received on January 23, 1973. Membership is open to students interested in data processing. 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 of the data processing field, its requirements, and its functions.

DELTA SIGMA PI

Beta Psi chapter of the professional international fraternity of Delta Sigma Pi was chartered on May 15, 1948. Delta Sigma Pi was founded at New York University on November 7, 1907. The purpose of the fraternity is to foster the study of business in colleges and universities, to encourage scholarship and the association of students for their mutual advancement by research and practice, 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.

ECONOMICS AND FINANCE CLUB

Membership in the Economics and Finance Club is open to any student interested in the respective fields. Organized in 1969, the Club is devoted to the professional development of its members and to fostering a meaningful relationship among students, faculty, and professionals in the areas of Economics and Finance.

MARKETING CLUB

The Louisiana Tech Marketing Club was organized in 1956 and is affiliated with the American Marketing Association. Membership is open to any college student interested in marketing. Outstanding people in the field of marketing are frequent guest speakers at the regular meetings of the club. The purposes of the club are to develop sound thinking in marketing theory; to improve marketing personnel; to develop better public understanding and appreciation of marketing problems; to encourage and uphold sound, honest practices; and to promote friendly relations among students, faculty, and businessmen.

NATIONAL COLLEGIATE ASSOCIATION FOR SECRETARIES

The Louisiana Tech Chapter of the National Collegiate Association for Secretaries was established as a charter of the national organization in March, 1962. This association is a professioinal organization for degree-granting collegiate institutions offering secretarial programs on the undergraduate level and teacher training programs in the secretarial area.

The activities of the organization are designed to encourage exchange of ideas and experiences among those students planning secretarial careers; to provide an opportunity for teacher trainees in the secretarial area to expand their understanding of the secretarial profession; to promote a spirit of fellowship among those students planning secretarial or teaching careers; to provide opportunities for contacts between students and professional business men and women.

OMICRON DELTA EPSILON

Omicron Delta Epsilon is one of the nation's largest academic honor societies. It was established in January of 1963 as the result of the merger between two major honor societies, Omicron Delta Gamma, which was origi-

nally founded in 1915, and Omicron Chi Epsilon, which was originally founded in 1955. Omicron Delta Epsilon is a member of the American Association of Collegiate Honor Societies and, thus, is fully recognized and accredited. It is open to students who have a 3.0 or better grade point average, graduate students in the field of Economics, and faculty members of the Economics and faculty members of the Economics and Finance Department.

PHI CHI THETA

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

SIGMA IOTA EPSILON

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

SOCIETY FOR THE ADVANCEMENT OF MANAGEMENT

The local chapter of the Society for the Advancement of Management received its charter on January 24, 1948. The purpose of this society is to inspire students in business administration and to promote contact among individuals in the business world. Leading businessmen are obtained to speak at the regular meetings of the Society. The Society makes field trips to selected business and industrial firms of the area where valuable contacts are made as well as information obtained first-hand about the organization and operation of the firms visited.

COUNSELING PROGRAM

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

The CAB counselors advise students which courses to take in future quarters during established preregistration periods, and are available during posted conference hours to advise the students on academic and career matters. All CAB students are encouraged to use the services of the University's Counseling Center. The Center's counseling assistance services include personal problems, study habits improvement, and various tests such as vocational interest and aptitude.

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. Judgment is exercised since admission decisions involve consideration of qualitative as well as quantitative factors. Some of the considerations are: grades in specific college courses, total quality and quantity of prior college preparation, standardized test scores, apparent maturity and seriousness of purpose, record of academic probations and suspensions, and intended program of study.

In general, students who have an overall, attempted average of 2.0 or higher and are not on probation may be admitted. Admissions latitude may be excerised when the overall average is less than 2.0 but the trend in grades is upward, the student is not on probation, and other considerations are favorable.

The foregoing is a general statement on admissions policies. The complete current statement of admissions requirements may be obtained upon request to the CAB dean's office, which makes all admissions decisions and transfers students into the CAB during each registration period in accordance with policies in effect at that time. Tentative evaluations of transfer status are given by the CAB dean's office on request at most times during the year.

If a student does not meet the CAB admission requirements, he/she may enroll in the Division of Basic and Career Studies and attempt, normally for a maximum of three terms, to meet the requirements. All beginning freshmen enroll first in the Division. In that program students will have certain course limitations—for example, the number of semester hours in CAB courses is limited each term and no 400-level CAB courses may be taken. For additional information contact the CAB dean's office. (See also CAB sections on "Scholarship Standards" and "Graduation Requirements").

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; it is a more detailed statement than the general guidelines given below. Deviations from all requirements must have advance written approval by the CAB dean's office. (See also "CAB Graduation Requirements").

VALIDATION

Validation of knowledge gained in a non-traditional manner is possible as discussed under "Credit by Examination" below. Validation may also be required by the CAB dean's office before degree credit is allowed for other college-level work if deemed necessary to demonstrate competence comparable to other CAB students. This is especially true in the case of some courses taken at the freshman/sophomore levels which the CAB requires at the junior/senior levels.

COLLEGE CREDITS

Courses taken in residence with other colleges are generally given degree credit in the CAB, if the courses are of comparable quality, content, level, and semester hours credit.

CREDIT EXAMINATIONS

The CAB normally allows credit, in accordance with general university policies, for College Level Examination Program (CLEP) General and Subject examinations; College Entrance Examination Board (CEEB) Advanced Placement examinations; and Louisiana Tech subject examinations.

Where duplicate credit exists on a student's record, the priority of selection to satisfy degree requirements will be residence college courses first, Louisiana Tech subject examinations second, other subject examinations third, and general examinations last. Duplicated credits are counted as degree credit only once. Also, first priority is given to non-CAB courses when evaluating or approving credit examinations other than Louisiana Tech examinations.

Subject examinations cannot exceed thirty semester hours and the subjects must be at comparable levels of comparable content, and semester hours credit to receive degree credit.

General examinations (CLEP) may be used up to a maximum of thirty semester hours degree credit only as follows, when equivalent other credits have not been earned: English for English 101 and 102, if 50 percentile or higher is made on the English examination, otherwise English 102 must be taken by course or subject examination to validate knowledge of the field; Social Sciences in lieu of any American or western civilization history course(s); Humanities for English 201 and 202; Natural Sciences in lieu of natural science electives, if not already satisfied (excluding Industrial Management Option); and Mathematics in lieu of Mathematics 107, 108, and 109, if 50 percentile or higher is made on the mathematics examination. A lower score requires that Mathematics 109, or some approved higher level mathematics course, be taken by course or subject examination to validate knowledge of the field. For additional, more restrictive policies, each curriculum should be referenced.

CORRESPONDENCE

Prior written approval must be obtained from the CAB dean's office before taking a correspondence course for degree credit. Normally, only one such course per quarter is approved when the student is not enrolled for other college work. A maximum of six semester hours degree credit is permitted for this work.

NON-COLLEGE SCHOOLS AND EXPERIENCE

Up to six semester hours of degree credit, in lieu of liberal education electives (only as defined in "Electives System in CAB") may be earned for military service school using the American Council on Education as the evaluative source. No additional degree credit is allowed for military, industrial, or similar schools, work, or experiences. However, if the student wishes to qualify such knowledge for degree credit, appropriate course content credit examinations can be arranged. See section above on "Credit Examinations."

SCHOLARSHIP STANDARDS

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

Each time CAB students are suspended, their total academic status is subject to a review by the CAB Scholastic Standards Committee. In addition to acting on appeals for reinstatement from a suspension, the Committee may impose special conditions on suspended students—such as a maximum course load of six semester hours, requiring all courses taken to be repeats of courses previously taken, and so forth. The Committee may also disenroll a student from the CAB when the requirements for admission (see section on CAB "Admissions Policies") 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.

A student who is disenrolled from the CAB by the Committee is normally not eligible for readmission consideration until after an extended period and then only when exceptional total academic merit and progress have been exhibited.

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. 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. CAB courses taken while enrolled in another college or division of the University or at another institution do not satisfy any part of the CAB senior residence requirements.

Students entering their last quarter who are more than nine quality points short of the required earned average for graduation will not be permitted to register for all courses required (one will be withheld). Neither can they register for graduation.

If a student has completed all courses and is quality points short of the required average for graduation, it is required that CAB courses at the 400 and 300 levels in which "D" grades were made must be repeated before repeating lower level and non-CAB courses. The last passing grade, only, is computed in the earned average for graduation; a grade of "F" in a repeated course removes the preceding passing grade in the earned average and removes degree credit for the course.

Students must have a 2.0 earned average on all additional courses required in their CAB curriculum to receive a second degree in the CAB, exclusive of the grade average for the courses in the first degree. The senior year residence requirements are applicable to the second degree.

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. In addition to policy and requirements changes, informational items are posted such as planned course schedules for the next quarter(s), courses planned to be offered in future terms, available scholarships, etc. Students are advised to check the board at least once or twice during each quarter for any new information.

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. Students are also responsible for scheduling infrequently offered courses when they are available. CAB counselors, during preregistration and registration, advise students how to meet graduation requirements but whether the advice is followed is the student's prerogative. However, all CAB policies, regulations, and requirements (e.g., course prerequisites, electives policies, semester hour load limits, etc.) must be adhered to or the student is subject to being discontinued from enrollment in the CAB.

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 CAB undergraduate division director. The student is furnished a copy of approved program changes, courses approved to be taken elsewhere, etc., and is advised to retain such copies.

ELECTIVES SYSTEM IN CAB

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

CAB ELECTIVE

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

CONCENTRATION FIELD ELECTIVE

Several CAB programs require or permit a concentration field in a subject area such as management or finance. A concentration field consists of a minimum of six semester hours of advanced study in a subject field beyond the introductory course(s). CAB and specified option elective courses as approved by the student's advisor may be used to obtain a concentration.

LIBERAL EDUCATION ELECTIVE

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

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

OPTION ELECTIVE

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

RESTRICTED ELECTIVE

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

SCIENCE ELECTIVE

A science elective may be satisfied by any one or a combination of the following specified courses: Physics 205; Zoology 111, 112; Botany 101; Chemistry 101 or 120, 123; Geology 111, 200; and Physics 207. While students will normally select science electives only from the foregoing list, advisors may also approve the following courses: Physics 206; Geology 112; Chemistry 121, 124. (Special problems and advanced honors will not satisfy this elective; the objective of these electives is a survey knowledge of the subject area(s).)

SOCIAL STUDIES ELECTIVE

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

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

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

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

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

	Semester Hours
Economics 203, 204, 205	6
Economics 312	3
Economics 408	3
Economics 437	3
Economics or Finance electives approved by the Head of the Department of Economics and Finance	15
TOTAL	30

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

REQUIREMENTS FOR BUSINESS MINORS FOR STUDENTS ENROLLED IN OTHER TECH COLLEGES

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

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

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

Students interested in this minor should elect 21 hours from among the following courses (more may be taken if desired up to a maximum of 27 hours of courses); Accounting 203, 204, 205, or 203, 204, 310; Business Law 355; Quantitative Analysis 335, 336, 337; Economics 203, 204, 205, or 315, 408; Finance 318; Management 311, 350; Marketing 300.

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

Minor in Business Data Processing, including Statistics. Quantitative Analysis 220, 310, 315, 335, 336, 337, 435; and five hours from 400 level Quantitative Analysis courses to complete 21 semester hours.

Minor in Economics. Economics 203, 204, 205, 312; and 12 hours of Economics courses at the 300 and 400 level, excluding Economics 315, to complete 21 semester hours.

Minor in Finance, including Insurance and Real Estate. Economics 315; Accounting 203, 204, 310; Finance 318; and nine other hours of Finance courses to complete 22 semester hours.

Minor in General Business. Accounting 203, 204; Economics 315; Finance 318; Management 311; Marketing 300; and five or six hours of other CAB courses to complete 21 or 22 semester hours.

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

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

Minor in Office Administration. Office Administration 201, 202, 203, 206, 207, 208, 303, 304, 307, and 309. A student who is exempt from 201 would take a total of 25 hours rather than a total of 27 hours.

UNDERGRADUATE PROGRAMS

ASSOCIATE DEGREE PROGRAMS

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

SECRETARIAL CURRICULUM

(Leading to the Degree of Associate of Science)

There is a four-year bachelors degree office administration program discussed later. This two-year associate of science program has two options—secretarial option (shorthand) and correspondence-word processing option (non-shorthand). Both seek: (1) to prepare students who wish to qualify for office positions, at the stenographic level, in large and small commercial, governmental, and industrial organizations; (2) to permit students to apply the credits earned toward the four-year office administration program should they choose to continue their education to prepare for additional, challenging career opportunities. For the course requirements of the two options of the Secretarial Curriculum, see the Division of Basic and Career Studies section of this bulletin where all the University's associate degree programs are described.

BUSINESS TECHNOLOGY CURRICULUM

(Leading to the Degree of Associate of Science)

The primary objective of the program is to provide an educational alternative for students who desire, and need for their intended careers, basic education beyond high school, but less than a four-year college program, and some practical knowledge to help prepare them for job entry and possible advancement opportunities. For degree and course requirements, see the Division of Basic and Career Studies section of the bulletin.

BACHELOR DEGREE PROGRAMS

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

statement listing courses and justifying the proposed option must be submitted by the student to the Dean for consideration.)

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

BASIC B.S. FRESHMAN CURRICULUM

This basic curriculum is required of all bachelor of science degree students except Finance who enter the College of Administration and Business. Freshman year requirements for associate degrees are given in those curricula. Students enrolling in CAB programs who have already decided what curriculum or major they wish to pursue may designate that curriculum when they register. Students who have not definitely decided what curriculum they wish to pursue should write "BA-Basic" after the word "Curriculum" on the registration form.

Freshman Year	Semester Hours
Economics 200	3
English 101, 102	6
Management 105[1]	3
Mathematics 107, 108, 109 or 111, 222[2]	6
Office Administration 202[3]	2
Political Science 201	3
Science Elective[4]	3
Social Studies Elective[4]	3
Sociology 201	3
TOTAL SEMESTER HOURS[5]	32

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

[2]Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 107, 108, and 109 will satisfy the mathematics requirement for most College of Administration and Business programs, students may choose to take 111 and/or 222 instead of, or in addition to 107, 108, and 109. Liberal education electives may be used for such additional math courses. (Note: The Management Science and Industrial Management options require Mathematics 222 or the equivalent.)

[3]Students having approximately a year of typing in high school are usually ready to take Office Administration 202. Students who have never had typing will need to take Office Administration 201 prior to taking 202. The semester hours for Office Administration 201 will not count in the hours required for a degree.

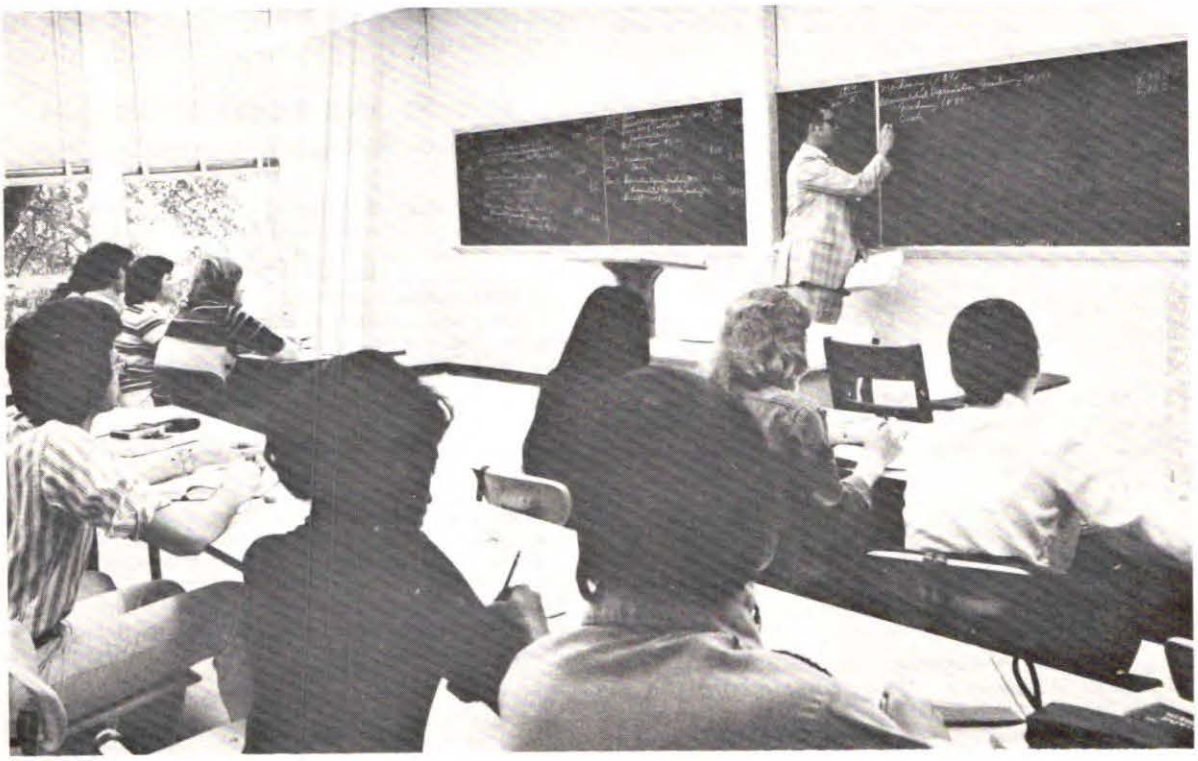
[4]See "Elective System in CAB."

[5]Some students may take more, and some students may take less, than this number of hours the first year, depending on extracurricular activities, educational background, and so forth.

ACCOUNTING CURRICULA

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

Each of these curricula provides a thorough education in the accounting discipline. This specialized accounting knowledge, together with the broad liberal arts, sciences, and business background, is designed to prepare students: (1) for advanced studies in accounting or business; (2) to take appropriate trainee and managerial positions in government and various types of business organizations; (3) to provide the basis for future growth and development within the accounting profession; and (4) to provide the educational foundation for future advancement to general administrative and leadership positions.



The accounting profession is one of the most rapidly growing professions in the country. Transfer students electing this curriculum will be required to take at least nine semester hours in advanced accounting at Louisiana Tech.

ACCOUNTING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum	32
Sophomore Year	
Accounting 203, 204, 205	6
Economics 203, 204, 205	6
English 201 or 202	3
Liberal Education Elective[1]	6
Liberal Education or Science Elective[1]	1
Psychology 102	3
Quantitative Analysis 220	3
Science Elective[1]	3
	31

[1]See "Elective System in CAB"

Junior Year	
Accounting 303, 304, 305, 307, 308	12
Business Law 355, 356	6
Finance 318	3
Management 311, 350	4
Marketing 300	3
Quantitative Analysis 335, 336, 337	6
	34

Senior Year	
Accounting 411, 412, 413	9
Accounting Electives	6
Economics 312	3
Management 495	3
Office Administration 305	3
Speech 377	3
Restricted Electives[1]	5
	32
TOTAL FOR CURRICULUM	129

[1]Restricted electives: select five semester hours from Mathematics 222; Quantitative Analysis 315, 426, 430.

While the traditional four-year program gives adequate training for certain accounting areas, it is recognized that in many cases the profession needs individuals with additional formal education. Consequently, to supply this need, the School of Professional Accountancy offers a five-year accounting program leading to a Master of Professional Accountancy degree.

PRE-PROFESSIONAL CURRICULUM

(Leading to the degree of Master of Professional Accountancy)

Year One[1]	Semester Hours
Economics 200	3
English 101, 102	6
Liberal Education Electives[2]	6
Mathematics 111, 222	6
Office Administration 202[3]	(2)
Political Science 201	3
Science Elective[2]	3
Social Studies Elective[2]	3
Sociology 201	3
	33

Year Two[1]	
Accounting 203, 204, 205	6
Economics 203, 204, 205	6
English 201 or 202 and 336	6
Psychology 102	3
Quantitative Analysis 220, 335, 336, 337	9
Science Elective[2]	3
	33

ADVANCED PROFESSIONAL CURRICULUM

Year Three[1]	Semester Hours
Accounting 303, 304, 305, 307, 308	12
Economics 312, 408	6
Finance 318	3
Management 311	3
Marketing 300	3
Office Administration 305	3
Speech 377	3
	33

Year Four[1]	
Accounting 312, 406, 411, 412, 413	15
Business Law 355, 356	6
CAB Electives[2]	6
Finance 414	3
Management 350	1
Quantitative Analysis 315	2
	33

Year Five[4]	
Accounting 506 or 507, 508, 517, 521, 541	15
Accounting Electives	6
Economics 510	3
Finance 515	3
Management 521	3
Quantitative Analysis 525	3
	33
TOTAL FOR CURRICULUM	165

[1]In the first four years of this program, a grade of "D" in any accounting course must be repeated immediately.

[2]See "Elective System in CAB."

[3]Must be able to pass the proficiency exam or show credit for Office Administration 202 (Typewritten Communications).

[4]In the fifth year of this program, any grade less than a "B" in any accounting course must be repeated immediately.

ADVANCED PROFESSIONAL ACCOUNTANCY PROGRAM REQUIREMENTS AND ADMISSION POLICIES

Students pursuing the five-year curriculum leading to the Master of Professional Accountancy degree should begin pursuing the two-year Pre-Professional Accountancy curriculum at the beginning of their freshman year.

Students following the five-year curriculum which leads to the Master of Professional Accountancy degree will be eligible to apply for admission to the Advanced Professional Accountancy Program when they have completed all requirements of the Pre-Professional Accountancy Program.

In evaluation of the applications for admission to the Advanced Professional Accountancy Program, consideration will be given to such things as grade point averages, grade trends, and areas of scholastic strength. Only students who have demonstrated exceptional academic performance will be admitted into the Advanced Professional Accountancy Program. Judgment is exercised since admission decisions involve consideration of qualitative as well as quantitative factors. Some of these con-

siderations are: grades in specific college courses, total quality and quantity of prior college preparation, apparent maturity and seriousness of purpose.

Students not meeting the requirements for admission in the Advanced Professional Accountancy Program may, subject to the director's approval, continue to schedule courses required in the Advanced Professional Accountancy curriculum and attempt to meet the requirements for formal admission into the program for a specified period of time.

Students pursuing the M.P.A. degree may be formally admitted to the Graduate School at the completion of their fourth year of study even though they do not hold a bachelor's degree. In addition to other Graduate School and the College of Administration and Business admission requirements which must be met by all masters level students, students pursuing the M.P.A. degree must meet any additional requirements of the School of Professional Accountancy before entering the graduate phase of their studies.

The foregoing are general statements on admissions policies. The complete current statement of admission scholastic requirements and other program requirements may be obtained upon request to the School of Professional Accountancy director's office. 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.

BUSINESS ADMINISTRATION CURRICULUM

(Leading to the Degree of Bachelor of Science)

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

The modern age with its rapid changes has made it essential that the future business man and woman be broadly educated in order to adjust and adapt themselves to changing methods. Furthermore, it has been found that many students move out of their college specialty after entering business. Therefore, it is desirable to their future development that they receive training in all of the staff and functional areas of business. In this way, they will be prepared to take full advantage of opportunities that present themselves.

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

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum	32
Sophomore Year	
Accounting 203, 204, 310	7
Economics 203, 204, 205	6
English 201 or 202	3
Liberal Education Electives[1]	6
Psychology 102	3
Quantitative Analysis 220	3
Science Elective[1]	3
	31
Junior Year	
Business Law 355	3
CAB Elective[1]	3
Economics 312	3
Finance 318	3
Management 311, 350	4
Marketing 300	3
Office Administration 305	3
Option Elective[2]	3
Quantitative Analysis 335, 336, 337	6
	31
Senior Year	
CAB Elective[1]	3
Management 495	3
Option Electives[3]	15
Restricted Electives[4]	6
Speech 377	3
	30
TOTAL FOR CURRICULUM	124

[1]See "Elective System in CAB"

[2]The three semester hours of Option Electives in the junior year plus the fifteen semester hours of Option Electives in the senior year permit the student to select one of the several options (specialties) shown on the following pages. As will be noted, some of the options are offered by the Business Department and some by the Economics and Finance Department.

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

[4]See each option for the courses listed as restricted electives.

OPTIONS OFFERED DEPARTMENT OF BUSINESS

BUSINESS DATA PROCESSING OPTION

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

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

	Semester Hours
Quantitative Analysis 310, 315, 428, 435	9
Finance 422, Management 444, 480; Marketing 435; Quantitative Analysis 426, 436 (any nine hours)	9
TOTAL	18

Restricted CAB Electives in the senior year: Accounting 308; Economics 409, 437; Marketing 482; Quantitative Analysis 430, 432, 433 (any six hours) 6

BUSINESS MANAGEMENT OPTION

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

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

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

GENERAL BUSINESS ADMINISTRATION OPTION

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

	Semester Hours
Finance 330	3
Business Law 441 or Finance 442 or 443	3
Marketing 320 or 425 or Management 446 or 465	3
CAB Electives[1]	9
TOTAL	18

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

[1]See "Electives System in CAB."

INDUSTRIAL MANAGEMENT OPTION*

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

	Semester Hours
Industrial Engineering 409	3
Management 444, 475, 476	7
Quantitative Analysis 310, 430	5
Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 315, 426, 432 (any three hours)	3
TOTAL	18

Restricted CAB Electives in the senior year:
Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 315, 426, 432 (any three hours) 3

*Additional specific requirements for the Industrial Management Option are:

Mathematics 107, 108, 109 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective(s).

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

MANAGEMENT SCIENCE OPTION*

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

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

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

	Semester Hours
Quantitative Analysis 430, 432, 433	9
Select nine hours from: Management 444; Quantitative Analysis 435, 436; and no more than six of the nine hours from Quantitative Analysis 310, 315, 426, 428	9
TOTAL	18

Restricted CAB Electives in the senior year:
Accounting 308; Economics 409, 437; Finance 422; Marketing 482 (any six hours) 6

*Additional specific requirements of the Management Science Option are:

Mathematics 107, 108, 109 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective(s).

MARKETING OPTION*

In the past three decades marketing has become the focal point of many business operations. Since approximately one-third of the country's work force is engaged in some form of marketing activity, the institutions of

manufacturing, wholesaling, retailing, and service offer outstanding opportunities for rapid career advancement into high paying positions. The Marketing Option is designed to help prepare individuals for a wide range of possible positions in this exciting field. These positions include retailing, advertising, sales and sales management, wholesaling, product development, and marketing research. The option provides the student with a sound body of knowledge pertaining to marketing principles, decision-making, and practices. It should afford the student with the opportunity for flexibility in career choices. The courses to be taken to satisfy this option are as follows:

	Semester Hours
Marketing 320, 473, 482	9
Nine additional hours to be selected from: Marketing 307, 420, 425, 435	9
TOTAL	18

Restricted CAB Electives in the senior year:
Economics 409 or 437; Business Law 445 or Management 470; Quantitative Analysis 430, 432, or 433 6

*For students interested in Marketing Research, Mathematics 222 is highly recommended. Likewise, Quantitative Analysis 432 or 433 is recommended as the restricted elective in the senior year for those interested in research.

PERSONNEL MANAGEMENT OPTION

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

	Semester Hours
Economics 419	3
Management 447, 470, 472	**9**
Management Electives (300 and 400-level Management courses)	6
TOTAL	18

Restricted CAB Electives in the senior year:
Economics 409, 418; Finance 431; Marketing 482 (any six hours) 6

PRE-LAW OPTION

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

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

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

	Semester Hours
Business Law 356	3
Business Law 441, 445 or Management 447 (any two)	**6**
Philosophy 325, 326, or 423 (or approved CAB elective)	3
Political Science 302 or 318 (or approved CAB elective)	3
Speech 200 or other approved speech elective	3
TOTAL	18

Restricted CAB Electives in the senior year:
Accounting 307; Economics 409, 410, or 437; Finance 414 or 442 6

A growing number of law schools require a Baccalaureate degree for admission. However some law schools still admit after three years of college. Students wishing to select the three-year option approach are advised to take the first three years of Business Administration Curriculum after verifying acceptance by the law school on this basis.

Under the three year option, the student finishes the first three years of the Business Administration Curriculum, plus Management 495 and Speech 377, and then enters law school. After finishing one full year of law school, making at least a C average on net hours earned there, the student may have transferred back to Louisiana Tech the law credits and with a combined minimum total of 124 semester hours credit receive the Bachelor of Science degree. CAB senior year residence requirements apply to the junior year of this program. Only the first bachelors degree may be earned in accordance with these requirements, which must be met precisely.

BUSINESS ECONOMICS CURRICULUM

(Leading to the Degree of Bachelor of Science)

Business economists are employed in most kinds of businesses, such as manufacturing, transportation, utilities, banking, retailing and communications. The growth of the profession of business economics has resulted from an increasing awareness by business that applied economics can provide assistance in forecasting economic conditions, in solving business problems and in formulating business policies.

Business economists perform a wide variety of assignments, reflecting primarily the scope of activities of the business with which they are associated. A business economist may be responsible for applying economic and business principles to such problems as desirable inventory levels, location and size of production and distribution units, economic lot size in production runs, and pricing policies.

The job mobility of business economics is high. Opportunities exist for moving among business firms and also to and from business firms, academic institutions, and government. In fact, many business economists pursue multiple careers by combining a full-time job in business with part-time teaching or serving as an advisor to government.

To function effectively, the business economist requires both a knowledge of theory and a knowledge of economic and business facts and institutions. Also an adequate knowledge of statistics and mathematics is required, but all business economists need not specialize in statistical and mathematical techniques. For the majority of business economists, the ability to write clear, correct and readable English is more important than a highly technical knowledge of quantitative techniques.

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum	32
Sophomore Year	
Accounting 203, 204, 310	7
Economics 203, 204, 205	6
English 201 or 202	3
Liberal Education Electives[1]	6
Psychology 102	3
Quantitative Analysis 220	3
Science Elective[1]	3
	31

Junior Year

Business Law 355	3
CAB Elective[1]	3
Economics 312, 408	6
Finance 318	3
Management 311, 350	4
Marketing 300	3
Office Administration 305	3
Quantitative Analysis 335, 336, 337	6
	31

Senior Year

CAB Elective[1]	3
Economics 401, 411, 437	9
Economics Electives	6
Economics 410	3
Management 495	3
Quantitative Analysis 430	3
Speech 377	3
	30
TOTAL FOR CURRICULUM	124

[1]See "Electives System in CAB."

FINANCE CURRICULUM

(Leading to the Degree of Bachelor of Science)

The Finance Curriculum provides students with a body of specialized knowledge and analytical techniques sufficient to support career aspirations in several financial fields: (1) Financial management of an industrial or commercial enterprise attracts many students who are interested in financial position analysis, working capital management, funds acquisition, and capital investment analysis; (2) Commercial, savings, and mortgage banking offer many opportunities in such things as commercial and consumer lending, trust management, and, eventually, management of a financial institution; (3) Securities analysis and portfolio management may lead to rewarding career opportunities for many students as account executives with brokerage firms or as security analysts with pension and mutual fund management groups, insurance companies, and commercial banks; (4) Risk management and insurance offer several alternative opportunities for development from working directly for an insurance company, to operating as an independent agent or broker entrepreneur, or as a professional estate planner and risk management consultant; (5) Real estate brokers and agents are involved with the buying and selling of property, property management, appraisal, and development; (6) Federal, state, and local government agencies require professional expertise in the financial management area from directing a city's budget and financial resources to staffing the Securities and Exchange Commission or the Federal Reserve System.

Freshman Year	**Semester Hours**
Economics 100 or Economics 200 or Social Studies Elective[1]	3
English 101, 102	6
Finance 100	3
Management 105	3
Math 107, 108, 109 or Math 111, 222	6
Office Administration 202	2
Political Science 201	3
Science Elective[1]	3
Sociology 201	3
	32

Sophomore Year

Accounting 203, 204, 310	7
Economics 203, 204, 205	6
English 201 or 202	3
Liberal Education Electives[1]	6
Psychology 102	3
Quantitative Analysis 220	3
Science Elective[1]	3
	31

Junior Year

Economics 312	3
English 332 or 336	3
Finance 318, 319, 414	9
Management 311	3
Marketing 300	3
Office Administration 305	3
Quantitative Analysis 335, 336, 337	6
Speech 377	3
	33

Senior Year

Business Law 355	3
CAB Electives[1]	6

Finance Electives[2]	6
Finance 422, 425, 427, 430	12
Management 350	1
Management 495	3
	31
TOTAL FOR CURRICULUM	127

[1]See "Elective System in CAB."

[2]For students interested in various specialty areas of finance, specific courses are suggested for the finance electives.

Courses suggested for an insurance concentration: Finance 330, 431, 432, 433.

Courses suggested for a real estate concentration: Finance 442, 443, 444.

Courses suggested for a managerial finance concentration: Accounting 303, 304, 305, and/or Quantitative Analysis 432, and/or Accounting 308.

OFFICE ADMINISTRATION CURRICULUM

(Leading to the Degree of Bachelor of Science)

The Office Administration Curriculum combines the general education in the liberal arts and sciences and business with rigorous specialized study to provide students with the foundation for: (1) advanced study in the field; (2) entry or promotion into executive assistant positions; and (3) future supervisory and administrative positions in the secretarial and office manager areas.

Graduates will be prepared to assume many responsibilities thus relieving the busy executive of routine duties. The shortage of college-educated secretaries is acute, and those prepared for such positions are assured of excellent positions and an opportunity for advancement to supervisory and excutive-type positions.

Transfer students electing this curriculum will be required to take at least the last term of the shorthand sequence at this institution regardless of the amount of credit earned elsewhere, unless excused on the basis of an examination by the curriculum advisor.

Freshman Year	Semester Hours
See Basic B.S. Freshman Curriculum	32
Sophomore Year	
Economics 203, 204, 205	6
English 201 or 202	3
Liberal Education Elective[1]	3
Liberal Education or Science Elective[1]	1
Office Administration 203, 206, 207, 208	11
Psychology 102	3
Quantitative Analysis 220	3
Science Elective[1]	3
	33
Junior Year	
Accounting 203, 204, 310	7
Business Law 355	3
CAB Elective	3
Management 311, 350	4
Office Administration 303, 304, 307	9
Quantitative Analysis 335, 336, 337	6
	32
Senior Year	
CAB Elective[1]	3
Economics 312	3
Finance 318	3
Liberal Education Elective[1]	3
Management 495	3
Marketing 300	3
Office Administration 305, 309, 310, 480	11
Speech 377	3
	32
TOTAL FOR CURRICULUM	129

[1]See "Electives System in CAB."

BUSINESS EDUCATION CURRICULUM

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

GRADUATE PROGRAMS

MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration 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.

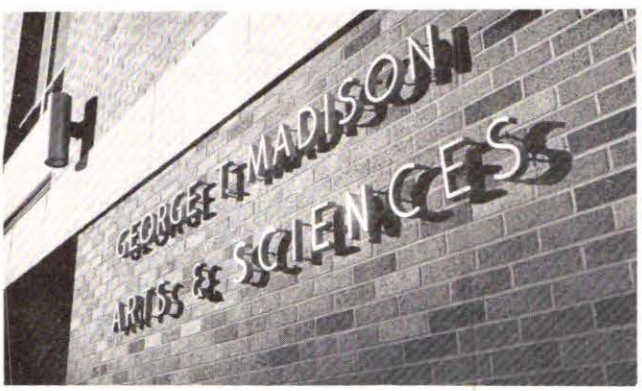
MASTER OF PROFESSIONAL ACCOUNTANCY

The Master of Professional Accountancy 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



College of Arts and Sciences

PAUL J. PENNINGTON, Dean

P. B. MOSELEY, Associate Dean

PURPOSE

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

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

SCHOLARSHIPS

Scholarships are available in the College of Arts and Sciences. Information concerning scholarships may be obtained in the Office of the Dean of Arts and Sciences.

DEPARTMENTS AND CURRICULA

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

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

SUBJECTS OF INSTRUCTION

The subjects of instruction in the College of Arts and Sciences are advertising art, architecture, art, chemistry, English, French, geography, German, history, honors, interior design and photography, Italian, journalism, mathematics, medical record administration, medical technology, music, philosophy, physics, political science, Portuguese, professional aviation, Russian, sociology, Spanish and speech, as well as the "General Studies" curricula.

REQUIREMENTS FOR GRADUATION

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

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

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

Basic mathematics requirements for students majoring in mathematics or science call for Mathematics 111 and 112; other students may substitute Mathematics 107, 108, and 109, or 110.

GRADUATE PROGRAMS

JOHN C. TRISLER, Director Of Graduate Studies

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

Master of Architecture
Master of Arts (Curricula available as follows:)
- English
- History
- Music
- Speech
- Speech Pathology and Audiology

Master of Fine Arts
Master of Science (Curricula available as follows:)
- Chemistry
- Mathematics
- Physics

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

DIVISION OF RESEARCH

P. B. MOSELEY, Director

Graduate and undergraduate research are an integral part of the College of Arts and Sciences. Their value is to stimulate both the faculty and the students to achieve a higher degree of knowledge and a desire to contribute this knowledge to their particular fields and related fields of study.

The research is designed to provide the student with adequate information and training in the arts and sciences that will allow the student to pursue a terminal degree, choose industrial research, or expand a cultural and educational horizon for life's vocation. The research activity is well balanced and is coordinated with the instructional program to provide a com-

plete and competent faculty with well equipped laboratories.

The College of Arts and Sciences research committee is chosen from the sciences and humanities, with the director of the Division of Research serving as chairman of the group. This committee is responsible to the dean of the College of Arts and Sciences.

The purpose of a university is instruction, research, and public service. The research division is designed to carry out the second responsibility of these important phases of our educational program.

DIVISION OF HEALTH SCIENCES

P. B. MOSELEY, Director

S. S. KILGORE
Program Director
Medical Technology

LOU H. STEBBINS
Program Director
Medical Record Adm.

PROFESSORS: JAMES R. BROWN and CARLOS J. MULLER

ASSOCIATE PROFESSORS: S. S. KILGORE and LOU STEBBINS

ASSISTANT PROFESSOR: WINSTON N. McVEA

INSTRUCTORS: MARTHA E. RICHARDSON, ANN PEDEN, and ALEXA CROSS

MRA AFFILIATION SITE COORDINATOR: MARY R. GUICE

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

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

MEDICAL RECORD ADMINISTRATION

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

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

The Medical Record Administration program requires eleven quarters of study on the campus. The campus studies are complemented by directed experience in a hospital designated as the primary directed practice site. This is a closely supervised learning experience in an operating medical record department.

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

1. Completed all course work on campus.
2. Have no grade in their major field less than a "C".
3. Have an overall GPA no less than 2.0.

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

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

The Medical Record Administration program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation, in collaboration with the American Medical Record Association.

MEDICAL RECORD ADMINISTRATION CURRICULUM

(Leading to the Degree of Bachelor of Science)

LOU STEBBINS, Advisor

Freshman Year	Semester Hours
English 101, 102	6
Math 107, 108, 109	6
Zoology 111, 112	4
Health and Physical Education	2
Medical Record Administration 100, 103*	4
Psychology 102	3
Elective (minor)[1]	6
	31
Sophomore Year	
Medical Record Administration 203	4
English 201, 202	6
Zoology 225, 226	4
Quantitative Analysis 220	3
Sociology 201	3
Bacteriology 212	4
Elective (minor)	3
Electives (science)[2]	4
Health and Physical Education	2
	33
Junior Year	
Medical Record Administration 301*, 302, 303*, 304, 305*, 308, 309, 310	16
Speech 377	3
Management 311	3
Elective (minor)	9
Elective (statistics)[3]	3
	34
Senior Year	
Medical Record Administration 401*, 402, 403*, 404, 405, 406, 407, 408*, 390*	25
Office Administration 480	3
Quantitative Analysis 435	3
Elective (minor)	3
	34
TOTAL SEMESTER HOURS	132

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

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

[3] The choice of a statistics course will depend on the minor the student has elected.

* Required courses for a minor in Medical Record Administration.

MEDICAL TECHNOLOGY

The medical technologist needs a thorough background in chemistry, biology and physics. The major portion of the work consists of performing tests on the blood and body fluids using automated methods. The Bachelor of Science requires 129 or 130 semester hours with the following distribution:

Humanities, 25 semester hours

Prerequisite science courses, 34 semester hours

Advanced sciences and technical courses, 40 or 41 semester hours

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

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

MEDICAL TECHNOLOGY CURRICULUM

(Leading to the Degree of Bachelor of Science)
S. S. KILGORE, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201	9
Mathematics 111 or 230, 112 or 231	6
Medical Technology 110	1
Bacteriology 212	4
Zoology 111, 112	4
	32

Sophomore Year	
English 202	3
Zoology 115 and two of the following: Zoology 202, (225 & 226) or Life Sciences 300	11 or 12
Chemistry 220, 351	8
Foreign Language	6
Medical Technology 245, 341	6
	34 or 35

Junior Year	
Medical Technology 242, 346, 448, 449, 452	10
Chemistry 212, 352	7
Zoology 401	3
Social Science	6
Physics 209, 210, 261, 262	8
	34

Senior Year	
Medical Technology 453, 454, 455, 456	30
	30

TOTAL SEMESTER HOURS....130 or 131

PRE-OPTOMETRY

P. B. MOSELEY, Advisor

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

Subject	Minimum Semester Hours Credit
English	6
Mathematics 228, 230, 231	9
Zoology 111, 112	4
Botany 101	4
Bacteriology 212	4
Chemistry 101, 102, 103, 104	8
Physics 209, 210, 261, 262	8
Psychology 102	3
Sociology 201, 202	6
Chemistry 250, 251, 253	5
Chemistry 351	4
Hours Required	61
Electives (Optional)	6
Total Hours	67

DEGREE IN GENERAL STUDIES

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

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

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

SCHOOL OF ART AND ARCHITECTURE

JOSEPH W. STROTHER
Director

DEPARTMENT OF ART—JACK BEARD, Assistant Director of Art and Architecture

PROFESSORS: JACK BEARD, TED McKINNEY, JOSEPH W. STROTHER

ASSOCIATE PROFESSORS: ROBERT BERGUSON, GEORGE DONAHUE, MARK HARRIS, ALBINO HINOJOSA, EDWIN PINKSTON, GRANT TITTLE

ASSISTANT PROFESSORS: GARY CAWOOD, DEAN DABLOW, ROBERT KARSTEN, JACKSON LEWIS, NANCY MARABELLA, CHARLES MEEDS, MARY MORSE

DEPARTMENT OF ARCHITECTURE—THOMAS McNULTY, Head

PROFESSOR: THOMAS McNULTY

ASSOCIATE PROFESSORS: PHOEBE ALLEN, MORRIS SCHOPF

ASSISTANT PROFESSORS: VAUGHN CROMBIE, MARTHA LAMPKIN, LESTAR MARTIN, M. DOUGLAS WALTON.

The School of Art and Architecture offers the following degrees:

Department of Art:

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

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

Department of Architecture:

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

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

Master of Arts (M.A.) in Architecture

Requirements For A Minor In Art

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

Bachelor Of Arts In Education

(See College of Education)

Prerequisites

All courses numbered 300 and above have the prerequisites of corresponding 200 level courses.

Bachelor Of Fine Arts

This program is designed to train the professional artist. The curriculum combines a knowledge of techniques and general education. The candidate is required to complete the prescribed courses in the College of Arts and Sciences, and the remainder must be taken in the field of art or photography. Total hours required 125.

BACHELOR OF FINE ARTS CURRICULUM

(Leading to the Degree of Bachelor of Fine Arts)

GRAPHIC DESIGN

Freshman and Sophomore Years	Semester Hours
Architecture 216	3
Art 115, 116, 120, 121, 125, 126, 215, 225, 228, 366, 367	33
English 101, 102, 201, 202	12
Social Science	6
Mathematics 107, 108, 109	6
	60
Junior and Senior Years	
Art	45

Electives	12
Science	6
Social Science	3
	66

TOTAL SEMESTER HOURS....126

INTERIOR DESIGN

Freshman and Sophomore Years	Semester Hours
Architecture 102, 201, 202, 216	12
Art 115, 116, 120, 121, 125, 215, 220, 221	24
English 101, 102, 201, 202	12
Social Science	6
Mathematics 107, 108, 109	6
	60

Junior and Senior Years	
Art	45
Electives	12
Science	6
Social Science	3
	66

TOTAL SEMESTER HOURS....126

STUDIO

Freshman and Sophomore Years	Semester Hours
Architecture 216	3
Art 115, 116, 120, 121, 125, 126, 215, 225, 228, 366, 367	33
English 101, 102, 201, and 202	12
Social Science	6
Mathematics 107, 108, 109	6
	60

Junior and Senior Years	
Art	45
Electives	12
Science	6
Social Science	3
	66

TOTAL SEMESTER HOURS....126

PHOTOGRAPHY

Freshman and Sophomore Years	Semester Hours
Architecture 216	3
Art 115, 116, 125, 170, 173, 215, 270, 271, 272, 366, 367	33
English 101, 102, 201, 202	12
Social Science	6
Mathematics 107, 108, 109	6
	60

Junior and Senior Years	
Art	45
Electives	12
Science	6
Social Science	3
	66

TOTAL SEMESTER HOURS....126

ARCHITECTURE CURRICULUM

(Leading to the Degree of Bachelor of Arts)

BACHELOR OF ARTS IN GENERAL STUDIES

(Pre-Architecture)

This degree is offered to the Architecture student upon successful completion of the prescribed courses. Entrance into Graduate School is based on this phase of the six-year Architectural program.

GENERAL STUDIES
(Pre-Architecture)

Freshman Year	Semester Hours
Architecture 101, 102, 103, 104, 105, 106	17
English 101, 102	6
Mathematics 111, 112, 220	9
Social Science	3
	35

Sophomore Year	
Architecture 201, 202, 203,216	12
Engineering Mechanics 206, 207	6
Art 366, 367	6
Behavorial Science	3
English 201 or 202	3
Physics 209, 210	6
	36

A prerequisite to entering upper division courses requires successful completion of all 100/200 level courses unless approved by Department Head. Entering overall gradepoint requirement: 2.25; Maintain; 2.00.

Junior Upper Division	Semester Hours
Architecture 301, 302, 303, 304, 305, 306, 307	21
Civil Engineering 371, 372	6
Elective	3
Electrical Engineering 326	3
Mechanical Engineering 326	3
	36

Senior Upper Division	
Architecture 410, 420, 430	12
Civil Engineering 471, 472, 473	9
Electives	9
	30

TOTAL SEMESTER HOURS....137

BACHELOR OF ARCHITECTURE
(Fifth Year)

Fall Quarter	Semester Hours
Architecture 440	6
Architecture 441	3
Architecture 442	3
	12

Winter Quarter	
Architecture 440	6
Architecture 441	3
Architecture 442	3
	12

Spring Quarter	
Architecture 440	6
Architecture 441	3
Architecture 443	3
	12

TOTAL SEMESTER HOURS..... 36

MASTER OF ARCHITECTURE
(Sixth Year)

Fall Quarter	Semester Hours
Architecture 556	6
Elective	3
Architecture 442	3
	12

Winter Quarter	
Architecture 556	6
Elective	3
Elective	3
	12

Spring Quarter	
Architecture 556	6
Elective	3
	9

TOTAL SEMESTER HOURS..... 33

DEPARTMENT OF CHEMISTRY

JOHN C. TRISLER
Professor and Acting Head of the Department

PROFESSORS: BEN F. FREASIER, HARRY E. MOSELEY, PATTERSON B. MOSELEY, CARLOS J. MULLER, SELMA S. PATTON, DONALD D. ROBERTS and CHARLES H. SMITH.

ASSOCIATE PROFESSORS: JACK B. MARTIN, and RONALD H. THOMPSON.

CHEMISTRY CURRICULUM

(Leading to the Bachelor of Arts Degree)
JOHN C. TRISLER, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 105, 106	10
English 101, 102, 201	9
Health & Physical Education	2
Mathematics 111, 112, 230	9
Social Science Elective	3
	33
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
English 202	3
Health & Physical Education	2
Mathematics 231, 232 or Science Electives	6
Modern Foreign Language	6
Social Science Elective	3
Electives	6
	34
Junior Year	
Chemistry 205	4
Physics 201, 202 or 209, 210/and 261, 262	8
Social Science Electives	6
Electives	14
	32
Senior Year	
Chemistry 311, 312, 313, 314 or Chemistry 271, 330	8
Electives	24
	32

TOTAL SEMESTER HOURS....131

CHEMISTRY CURRICULUM

(Leading to the Bachelor of Science Degree)
JOHN C. TRISLER, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 105, 106	10
English 101, 102	6
Health & Physical Education	2
History 201	3
Mathematics 111, 112, 230	9
Speech 110	3
	33
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
Foreign Language 120, 121	6
Health & Physical Education	2
Mathematics 231, 232, 330	9
Physics 201, 202, 261, 262	8
	33
Junior Year	
Chemistry 255, 311, 312, 313, 314, 465	14
English 202, 303	6
Foreign Language 220, 221	6
Mathematics 350	3
Political Science 201	3
	32
Senior Year	
Chemistry 402	2
Chemistry 409, 420, 424, 466, 481	16
Electives	6
Physics 410	4
Social Science Elective	3
	31

TOTAL SEMESTER HOURS....129

THREE-YEAR PRE-MEDICAL/PRE-DENTAL CURRICULUM

JOHN C. TRISLER, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101	3
Health & Physical Education	2
Mathematics 111, 112, 230	9
Social Science Elective	3
Zoology 111, 112, 115	8
	33
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
English 102, 201, 202	9
Health & Physical Education	2
Modern Foreign Language	6
Social Science Elective	3
Zoology 202	4
Elective	1
	33
Junior Year	
Chemistry 205, 271, 330	12
Life Sciences 300	3
Physics 209, 210, 261, 262	8
Psychology 102	3
Speech 110	3
Zoology 411	4
	33

TOTAL SEMESTER HOURS.... 99

PRE-PHARMACY CURRICULUM

JOHN C. TRISLER, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 105, 106	10
Economics 200	3
English 101, 102	6
Health & Physical Education Activity	2
Mathematics 111, 112, 230	9
Zoology 111, 112	4
Elective	1
	35
Sophomore Year	
Bacteriology 212	4
Botany 101	4
Chemistry 250, 251, 252, 253, 254	8
Health & Physical Education Activity	2
Mathematics 231	3
Physics 209, 210, 261, 262	8
Electives*	6
	35
TOTAL SEMESTER HOURS	70

*Three hours of electives should be from the fields of political science, psychology or sociology.

DEPARTMENT OF ENGLISH

ROBERT C. SNYDER
Professor and Head of Department

PROFESSORS: LOWELL F. LYNDE, EDWARD E. SAMAHA, JR.

ASSOCIATE PROFESSORS: NELLE T. FRANCIS, SIDNEY J. LANDMAN, CAROLE S. TABOR

ASSISTANT PROFESSORS: ROBERT E. BARHAM, GLENDA CARR, PATRICIA ELLIOTT, ANN FUTRELL, ANNE GRIFFIN, JAN HALL, MARIA HAMMON, EDWARD C. JACOBS, FRAN JOHNSON, ROBERT JUNGMAN, DENNIS MINOR, ANNA MITCHELL, IRENE MYLES, GARY SLOAN, SUE WESTBROOK, LIZ WHITE

INSTRUCTORS: RUTH CALHOUN, BARBARA GILBERT, MARIE HALL, RUTH JOHNSON, SUE KINMAN, MARY TEMPLE

English Exemption and Credit Examination

Any high school graduate whose ACT score was a composite 26, or above, is invited to take the English Exemption Examination which will be given at the beginning of the fall and spring quarters in each academic year. A written request to take the examination must be on file with the Chairman of the English Department at least two weeks in advance of the beginning of the fall or spring quarter. The examination will consist of grammar, punctuation, spelling, and composition. Credit for English 101 will be given to those students who successfully pass the examination which will be administered by the English staff.

Requirements For A Major

Each student in the Department of English is required to follow the curriculum for English. Not later than the end of the sophomore year, each student must, with the approval of the head of the Department, choose major and minor fields of study and the rest of the program of work for their junior and senior years.

A major in English consists of 30 semester hours, which must include English 101, 102, 201, 202, 415, 422, 440, 450, and six additional hours of English. A student may not receive credit for more than one of the following courses: English 303, 332, 336.

Requirements For A Minor In The Department of English

A minor in English consists of 21 semester hours including English 101, 102, 201, 202, 415, 442, and three additional semester hours of English.

ENGLISH CURRICULUM

(Leading to the Degree of Bachelor of Arts)
ROBERT C. SNYDER, Advisor

Freshman Year[1]	Semester Hours
English 101, 102; 201 or 202	9
History 101, 102	6
History 201 or Political Science 201	3
Mathematics 111, 112[2] or 107, 108, 109	6
Science	4
Health & Physical Education[3]	2
Elective	1
	31
Sophomore Year	
English 201 or 202	3
History 202 or Political Science 302	3
Foreign Language[4]	6
Science	8
Speech 110	3
Music 330	2
Health & Physical Education	1
Electives[5]	9
	35
Junior Year	
English 422, 450	6
Foreign Language	6
Health & Physical Education	1
Electives	20
	33
Senior Year	
Electives	24
English 415, 440	6
	30
TOTAL SEMESTER HOURS	129

[1]Three quarters constitute an average academic year.

[2]Students choosing Mathematics 111 must continue with Mathematics 112. Students choosing Mathematics 107 must continue with Mathematics 108 and 109.

[3]The student is required to take four hours of activity courses in health and physical education.

[4]The 12 hours of required credit in foreign language must be in a single language.

[5]In choosing electives the student should remember the following points: first, complete a minimum of 30 hours in English; second, get the approval of his/her minor from the head of the Department, and must meet the minimum requirements in hours for the minor subject.

DEPARTMENT OF FOREIGN LANGUAGES

RICHARD L. EZELL
Associate Professor and Head of Department

PROFESSOR: O'NEIL J. RICHARD

ASSOCIATE PROFESSORS: RICHARD EZELL, JOHN LEICH

ASSISTANT PROFESSORS: MAGDALEN B. FERGUSON, TOM J. LEWIS, ROY H. SHOEMAKER

INSTRUCTOR: SUSAN GOSS.

Students who so elect may earn credit for beginning and intermediate foreign language courses (101, 102, 201, 202) by passing the corresponding department credit examinations. Students with three or more years of high school credit should consult the department head before registration.

All students are advised to complete a year's sequence without any time interval between courses and to have two years' work in their foreign language without any unnecessary interval between courses.

All foreign languages are taught under the general title of Foreign Language. For course content one should refer to the course descriptions. The following number key is used to designate the various foreign language courses: The first digit of a foreign language signifies the year 1, 2, 3, or 4. The second and third digits denote one of seven foreign languages as follows:

00-19 French	50-59 Russian
20-39 German	60-79 Spanish
40-45 Italian	80-85 English as a
46-49 Portuguese	Foreign Language

FRENCH CURRICULUM

(Leading to the Degree of Bachelor of Arts)

RICHARD L. EZELL, Advisor

Freshman Year	Semester Hours
Elective	1
Foreign Language 101, 102, 201	9
English 101, 102; 201 or 202	9
Science	4
Health & Physical Education	2
History 101, 102	6
	31
Sophomore Year	
Foreign Language 202, 300, 301, 302	12
English 201 or 202	3
Science	8
Health & Physical Education	2
Electives[2]	8
	33
Junior Year	
Foreign Language 306, 307	6
History 201, 202 or Political Science 201, 302	6
Music 330	2
Mathematics 111[1], 112 or 107[1], 108, 109	6
Electives	12
	32
Senior Year	
Electives or Minor	33
TOTAL SEMESTER HOURS	129

[1]Students choosing Mathematics 111 must continue with Mathematics 112. Students choosing Mathematics 107 must continue with Mathematics 108 and 109.

[2]In choosing electives, the student should remember that each person is required to complete a minor in a subject approved by the head of the department.

SPANISH CURRICULUM

(Leading to a Degree of Bachelor of Arts)

RICHARD L. EZELL, Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102; 201 or 202	9
Mathematics 111[1], 112 or 107[1], 108, 109	6
Foreign Language 160, 161, 260	9
Science	4
Health & Physical Education	2
	31
Sophomore Year	
English 201 or 202, 415	6
Foreign Language 261, 360, 361	9
History 201, 202 or Political Science 201, 302	6
Science	8
Music 330	2
Health & Physical Education	1
Electives[2]	3
	35
Junior Year	
Foreign Language (Spanish)	9
History 101, 102	6
Health & Physical Education	1
Electives or Minor	15
	35
Senior Year	
Electives or Minor	29
Foreign Language (Spanish)	3
	32
TOTAL SEMESTER HOURS	129

[1]Students choosing Mathematics 111 must continue with Mathematics 112. Students choosing Mathematics 107 must continue with 108 and 109.

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

[3]Advisor to international students in English as a Foreign Language orientation, Tom Lewis.

DEPARTMENT OF HISTORY

WILLIAM Y. THOMPSON
Professor and Head of Department

PROFESSORS: BILLY H. GILLEY, C. WADE MEADE, MORGAN PEOPLES, KENNETH W. REA, JOHN D. WINTERS.

ASSOCIATE PROFESSORS: ABRAHAM M. ATTREP, S. DAVID BUICE, JOHN M. BUSH, PHILIP C. COOK, E. GLYNN INGRAM.

ASSISTANT PROFESSOR: R. PAT TOMLINSON

Requirements For A Major In The Department of History

Thirty semester hours in history contitute 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 their advisor during each registration period and throughout the term as need arises.

Requirements For A Minor In The Department of History

(For Students in Other Departments)

History 101, 102, 201, and 202 plus nine hours of advanced history taken during the junior and senior years constitute a minor.

HISTORY CURRICULUM

(Leading to the Degree of Bachelor of Arts)
W. Y. THOMPSON, Advisor

Freshman Year	Semester Hours
English 101, 102	6
Foreign Language	6
Geography 203, 225, or 226	3
History 101, 102	6
Mathematics 107, 108 109[1]	6
Health & Physical Education	3
	30
Sophomore Year	
English 201, 202	6
Foreign Language	6
History 201, 202	6
Health & Physical Education	1
Science	8
Sociology 201, 202	6
	33
Junior Year	
Economics 200, 315	6
History 300 or 400 level course	9
Minor subject	9
Political Science 201, 302	6
Science	4
	34
Senior Year	
Elective	11
History 300 or 400 level course	9
Minor subject	12
	32

TOTAL SEMESTER HOURS....129

[1]Mathematics 111 and 112, each three hours credit, may be taken in place of Mathematics 107, 108, and 109.

DEPARTMENT OF JOURNALISM

WILEY W. HILBURN, JR.
Associate Professor and Head of Department

ASSOCIATE PROFESSOR: NEIL RON WHITE.
INSTRUCTOR: SALLIE R. HOLLIS.

Requirements For A Major In Journalism

The 31 semester hours required for a major in journalism are Journalism 101, Journalism 310, Journalism 311 and 22 hours in advanced courses numbered in the 300 and 400 series, including a total of 8 hours of Journalism 350, 353, and 355.

For a minor, the student must complete 21 hours in a subject related to journalism. Junior and senior courses in such fields as English are recommended as a minor with a journalism major, although other subjects, such as the social sciences, may be selected upon approval of the dean of the College of Arts and Sciences and the department head.

Proficiency in spelling and grammar is essential to successful newspaper work. Students weak in those subjects are discouraged from enrolling in journalism as a major.

Requirements For A Minor In Journalism

(For Students in Other Departments)

Journalism 101, Journalism 310 and 15 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.

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, which is printed in the University printing plant. 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

THE SHREVEPORT JOURNAL SCHOLARSHIP

TOMMY LEWIS MEMORIAL SCHOLARSHIP

STUDENTS PUBLICATION SERVICE SCHOLARSHIPS

These scholarships are service-based and are awarded basically to editors of The Tech Talk.

JOURNALISM CURRICULUM

(Leading to the Degree of Bachelor of Arts)
WILEY W. HILBURN, JR., Advisor

Freshman Year	Semester Hours
English 101, 102	6
Journalism 101, 310, 311	9
History 201, 202	6
Mathematics 107, 108	4
Health & Physical Education	1
Science	4
	30
Sophomore Year	
English 201, 202	6
Foreign Language	6
Journalism 350, 353	4
History or Government	6
Mathematics	2
Health & Physical Education	2
Minor	8
	34

Junior Year	
Journalism 353, 355	4
Journalism Electives	8
Health & Physical Education	1
Science	4
Electives	3
Minor	8
Foreign Language	6
	34

Senior Year	
Journalism Electives	9
Electives	14
Science	4
Minor	5
	32

TOTAL SEMESTER HOURS....130

DEPARTMENT OF MATHEMATICS AND STATISTICS

B. J. ATTEBERY
Professor and Head of Department

PROFESSORS: KENNY S. CRUMP, J. B. GARNER, J. D. GILBERT, R. B. HOWE, E. P. KELLY, S. E. SIMS, W. B. TEMPLE.

ASSOCIATE PROFESSORS: H. W. BOYETTE, E. P. BURTON, GEORGE BUTLER, R. A. JONES, R. D. SALMON, J. D. SPENCER, W. W. WATSON.

ASSISTANT PROFESSORS: N. B. COLEMAN, LEAMON GRIFFITH, CHARLES HANCOCK, RUTH E. HANNA, GERALDINE LAMBRIGHT, C. C. McBRIDE, JAMES T. MARANTO, C. D. TABOR.

ACTING INSTRUCTORS: LINDA P. GILBERT, GEORGE W. TREESE.

The courses in the department are designed as follows: (1) to provide general disciplines in mathematics in the core curriculum; (2) to serve the requirements of students pursuing a specialized curriculum in business, education, engineering, etc.; and (3) to provide students majoring in mathematics a thorough preparation for teaching, graduate work, or for industry.

Prior to registration in Mathematics 230 a student majoring in mathematics from the College of Arts and Sciences, a student majoring in mathematics from the College of Education, or a student from the College of Engineering not having had high school geometry will be required to have credit in Mathematics 113.

Mathematics Placement by Mathematics Placement Test

Each beginning student prior to registration is required to take a placement test administered by the Mathematics Department. Students along with advisors will determine the beginning mathematics course based on the placement test score and the student's high school record. Placement test scores will be made available to the student's advisor.

Credit will not be given for courses bypassed. If the student desires credit for bypassed courses or others, provision is made for credit by examination. See Section "Credit by Examination" in this bulletin.

Requirements For A Major In Mathematics

Each student majoring in mathematics will be assigned an advisor from the members of the mathematics department staff. This staff member will serve as the student's advisor throughout his/her college career. The student is requested to meet with his/her advisor at least once during each quarter, at which time courses for the following quarter will be decided upon.

*Each mathematics major is required to complete a minor. The minor requirements are listed under the department concerned.

Prescribed courses, totaling 36 semester hours, for a major in mathematics include: Mathematics 111, 112, 230, 231, 232, 308, 318, 330, 340, 350 and in addition six semester hours in elective courses, three of which must be chosen from 400 series courses.

*Students who choose to take a minimum of 22 hours in statistical and computer technology will not be required to declare a minor. However, no mathematics course may count toward both the major and in statistical and computer technology. The following courses are required in the statistical and computer technology curriculum: Computer Science 102, Mathematics 228, 414, 418, 440, and any three of the following: Mathematics 415, 428, 441, 448, 449. Furthermore, it is strongly recommended that the computer technology student choose technical electives from the following: Electrical Engineering 436, 437, 441, 443, and 444.

Requirements For A Minor In Mathematics

(For Students in Other Departments)
J. T. MARANTO and J. D. SPENCER, Advisors

Students in other departments who wish to minor in mathematics are required to take Mathematics 111, 112, 230, and in addition 11 semester hours earned in courses numerically above Mathematics 222 but excluding Mathematics 303, 304, and 307.

MATHEMATICS CURRICULUM

(Leading to the Degree of Bachelor of Science)
J. T. MARANTO and J. D. SPENCER, Advisors

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201	9
Mathematics 111, 112, 230	9
History 101	3
Health & Physical Education	3
General Elective	1
	33

Sophomore Year	
English 202	3
History 102, 201, 202	9
Mathematics 231, 232, 308, 318, 330	15
Physics 201, 202, 261, 262	8
Health & Physical Education	1
	36

Junior Year	
Foreign Language	9
Mathematics 350	3
Mathematics (Elective)	3
Mathematics (Elective above 400)	3
Science (Electives)	6
General Electives	12
	36

Senior Year	
Foreign Language	3
Mathematics 340	3
General Electives	24
	30

TOTAL SEMESTER HOURS....135

DEPARTMENT OF MUSIC

RAYMOND G. YOUNG
Head of the Department
Associate Professor and Director of Bands

ASSOCIATE PROFESSORS: ROBERT H. FERRINGTON, Director of Choral Activities, Coordinator of Graduate Studies; JOHN M. HEARD, Double Reeds, Music History; JOHN LUCE, Theory and Singers; GRAY BARRIER, Percussion, Director of Percus-Opera Workshop.

ASSISTANT PROFESSORS: JON BARKER, Voice, Madrigal Singers; GRAY BARRIER, Percussion, Director of Percussion Ensembles, Theory; ALEX CAUTHEN, Associate Director of Bands, Tuba; ROBERT CHEATHAM, Trumpet, Coordinator of Winds and Percussion; JOHN P. FORD, Coordinator of Theory and Composition; ELIZABETH HOWARD, Music Education, Piano; GEORGIA HUCKABAY, Flute, Double Reeds, Music Education; SUE MOORE, Coordinator of Piano; ROY PICKERING, Theory and Low Brass; RORY THOMPSON, Piano, Theory; EDMUND W. WINSTON, Clarinet, Saxophone, Director of Jazz Band.

INSTRUCTORS: JANET NEAL, Piano (Part-time); HELEN WOOLDRIDGE, Accompanist, (Part-time).

Louisiana Tech University Department of Music is a fully accredited member of the National Association of Schools of Music. Requirements for entrance and for graduation are in accordance with the published regulations of this Association.

Transfer students are given validation requirements in theory and in their applied areas.

Students desiring to major in music can elect piano, voice, violin, viola, violoncello, string bass, flute, oboe, bassoon, clarinet, saxophone, trumpet, horn, trombone, euphonium, tuba, theory, and composition; or vocal, piano or instrumental music education as a major.

The Department of Music offers the following degrees:

Bachelor of Arts
Bachelor of Fine Arts
Master of Arts

In cooperation with the College of Education the Bachelor of Arts and Master of Arts degrees are offered in the curriculum Music Education.

REQUIREMENTS FOR THE BACHELOR OF Fine Arts Degree—Applied Music

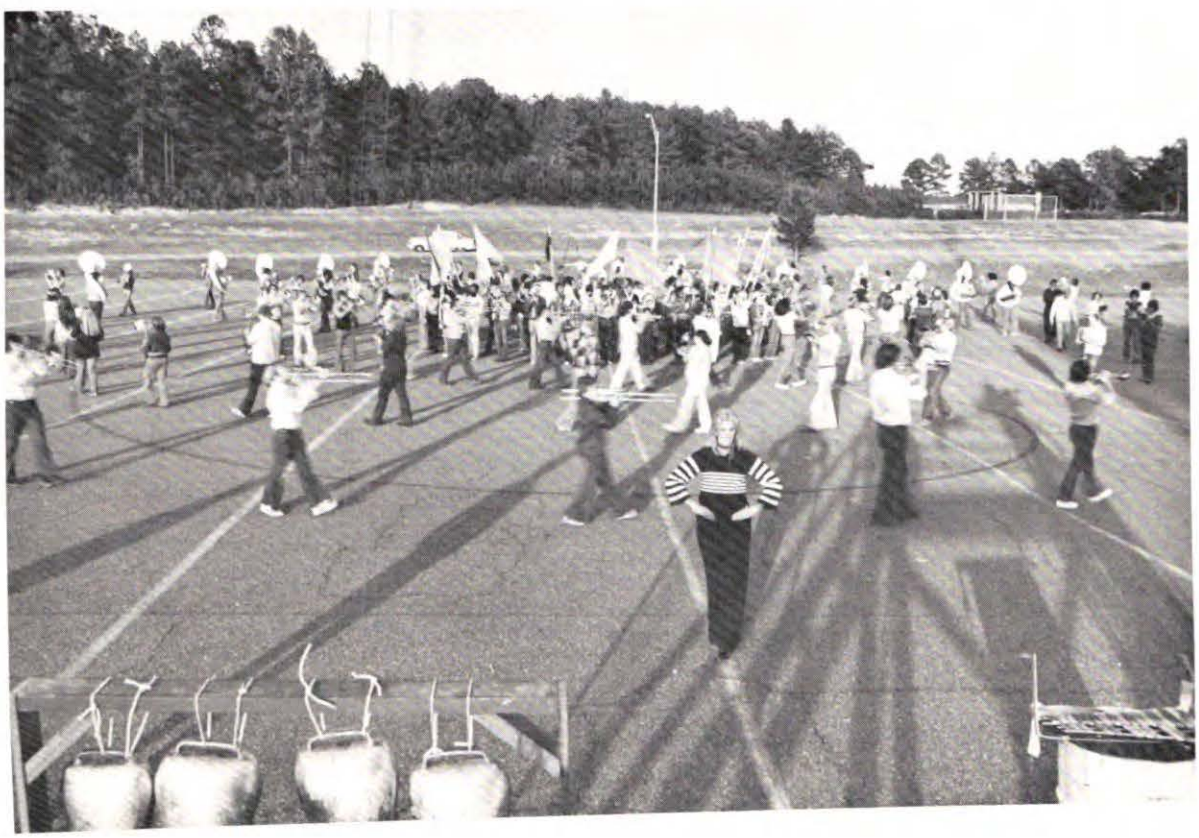
	Semester Hours
Theory, Conducting and Literature	32
Applied & Ensemble Music	41
TOTAL SEMESTER HOURS	73

In addition, students will complete the rest of the work indicated in the Music curriculum to make a total of 129 semester hours .

REQUIREMENTS FOR THE BACHELOR OF Arts Degree—Music

	Semester Hours
Theory and Literature	20
Applied & Ensemble Music	22
TOTAL SEMESTER HOURS	42

In addition, students will complete the rest of the work indicated in the Bachelor of Arts in Music curriculum to make a total of 131 semester hours.



Music Minor Program

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

The requirements are as follows:

32 semester hours - 16 applied music; 16 basic music

Basic music to include:

- 6 hours Theory
- 6 hours Literature & History
- 1 hours Conducting
- 1 hour Ensemble
- 2 hours music academic elective

Applied music to include:

16 hours in two or more areas

Ensembles

VOCAL:

- University Chorus
- Concert Choir
- Madrigal Singers
- Opera Workshop

INSTRUMENTAL:

- Symphonic Band
- Concert Band
- Marching Band
- Jazz Band
- Woodwind Choir
- Brass Choir
- Percussion Choir
- Ruston-Tech Civic Symphony Orchestra
- String Ensembles

Ensemble Requirements

Full time music majors will enroll in at least one major ensemble every quarter they are students in the Music Department. Vocal and piano majors will enroll in University Choir or Concert Choir; Wind and percussion majors will enroll in band and string majors will enroll in orchestra. All other music majors may select the major ensemble of their choice. The students will be allowed to participate in one other ensemble. Permission for participation in more than two ensembles or other music activity must be granted by the student's applied teacher and Head of the Department.

Every music major is required to attend the weekly recital and seminar classes and perform a minimum of once each quarter. It is recommended that piano majors enroll in Music 464, 465 and 467.

MUSIC CURRICULUM

(Leading to the Degree of Bachelor of Fine Arts)

ROBERT H. FERRINGTON, Advisor

This curriculum is designed for those who wish to stress the performing aspects of their training in any major - in voice, piano or in some instrument of the Symphony Orchestra or Band. All majors are required to take a minimum of two quarters of a foreign language. Other academic electives are approved according to individual needs. Each student must confer once each quarter with his/her advisor to check on his academic status and to plan future work. A senior recital is required. See departmental handbook for upper division requirements in applied music.

Freshman Year	Semester Hours
English 101, 102	6
Music 101	2
Music 102, 103, 104, 105	7
Music Applied Major	4
Music Applied Minor	2
Music Ensemble	3
Health & Physical Education	3
Science	3
	30
Sophomore Year	
English, Foreign Language or Speech	3
Music 201, 202, 203	6
Music 204, 305, or 306	3
Music Applied Major	5
Music Applied Minor	3
Music Ensemble	3
Music or Related Elective	3
Science	3
Health or Physical Education	1
Psychology 102	3
	33
Junior Year	
Foreign Language	3
Music or Related Elective	3
Music 310	3
Music 317, 318, 319	6
Music Applied Major	5
Music Applied Minor	2
Music Ensemble	3
Music 303 or 314	2
Social Science	6
	33
Senior Year	
Academic Elective	10
Foreign Language	3
Music or Related Elective	6
Music Theory Elective	3
Music Applied Major	6
Music Applied Minor	2
Music Ensemble	3
Music 455 (Recital)	0
	33
TOTAL SEMESTER HOURS	129

MUSIC MAJOR CURRICULUM

(Leading to the Bachelor of Arts Degree)

ROBERT H. FERRINGTON, Advisor

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 chosen with the approval of the head of the department and the dean. In addition to their major and minor, they will complete the rest of the work indicated in the curriculum below, to make a total of 131 semester hours.

Freshman Year	Semester Hours
English 101, 102	6
History 101, 102	6
Mathematics 107, 108	4
Music 101	2
Music 102, 103, 104	6
Music Applied	3
Music Ensemble	3
Health & Physical Education	1
Science	3
	34

Sophomore Year	
History 201, 202	6
Mathematics 109	2
Minor Subject	9
Music 201, 202, 203	6
Music Applied	3
Music Ensemble	3
Health & Physical Education	1
Science	3
	33

Junior Year	
Elective (Music Ensemble recommended)	3
English 201, 202	6
Foreign Language	3
Minor Subject	9
Music Applied	4
Music 317, 318, 319	6
Health & Physical Education	2
	33

Senior Year	
Elective (Music Ensemble recommended)	4
Elective (Music 204, 305 or 306 recommended)	3
Foreign Language	9
Minor Subject	3
Music Applied	6
Science	6
	31

TOTAL SEMESTER HOURS....131

DEPARTMENT OF PHYSICS

WILLIAM H. BRUMAGE

Professor and Head of Department

PROFESSORS: W. H. BERNARD, TUCSON DUNN, A. J. GALLI, RICHARD L. GIBBS, PAUL B. STEPHENSON.

ASSOCIATE PROFESSORS: ROBERT L. CASON, ROBERT ELIOFF.

ASSISTANT PROFESSOR: ROBERT E. HAMBURG.

This curriculum is designed to give a broad and fundamental knowledge of the principles of physics, as well as an introduction to the techniques of physics research. Although the primary aim of the basic curriculum is to prepare the student for graduate work in physics, sufficient specialized courses are available to prepare the graduate for jobs in industry and in various government laboratories. The student is encouraged to pursue advanced courses in other fields to assure a broad scientific background.

Requirements For A Major In Physics

Each student who majors in physics is required to follow the physics curriculum leading to the Bachelor of Science degree in physics, or to follow the Applied Physics Option.

Applied Physics Option. The curriculum in applied physics is designed to equip its graduates with a flexible background of basic scientific knowledge with which to meet the ever changing problems of modern research and development. The program provides a sound basic foundation for study toward advanced degrees in either physics or the engineering sciences.

For students interested in interdisciplinary fields involving physics, it is suggested that the physics curriculum be followed with all electives taken in the other field of interest. Some interdisciplinary fields are listed with the appropriate elective field in parentheses: Astrophysics (Astronomy), Geophysics (Geology), Materials Science (Chemistry and Engineering), Biophysics (Zoology and Microbiology), Mathematical Physics (Mathematics), Solid State (Chemistry and Engineering).

Requirements For A Minor In Physics

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

PHYSICS CURRICULUM[1]

(Leading to the Bachelor of Science Degree)

W. H. BRUMAGE, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Mathematics 230, 231	6
Elective	1
Health & Physical Education[2]	3
English 101, 102	6
History 202	3
Speech 110	3
	30

Sophomore Year	
Health & Physical Education[2]	1
English 202, 303	6
Physics 201, 202, 261, 262	8
Mathematics 232, 230, 350	9
Foreign Language 120, 121[3]	6
Liberal Arts Elective[4]	3
	33

Junior Year	
Physics 304, 410, 411	11
Technical Electives[5]	12
Foreign Language 220, 221[3]	6
Liberal Arts Electives[4]	3
	32

Senior Year

Physics 307, 401, 402	5
Physics 404, 405, 422, 423	14
Chemistry 424	3
Technical Electives[5]	7
Liberal Arts Electives[4]	6
	35

TOTAL SEMESTER HOURS....130

[1]See also Applied Physics Option.

[2]Only four semester hours of physical education activity courses may count toward graduation.

[3]The student may substitute French or Russian for German.

[4]Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, Psychology, or Social Sciences.

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

APPLIED PHYSICS OPTION[1]

(Leading to the Bachelor of Science Degree)
W. H. BRUMAGE, Advisor

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Engineering 102, 151, 162	6
Health & Physical Education[2]	3
Mathematics 230, 231	6
Elective	1
English 101, 102	6
	30

Sophomore Year

Physics 201, 202, 261, 262	8
Mathematics 232, 330, 350	9
Health & Physical Education[2]	1
Engineering Mechanics 201	2
Electrical Engineering 213, 214	6
English 202, 303	6
	32

Junior Year

Physics 304, 410, 411	11
Engineering Mechanics 203	2
Electrical Engineering 315[3], 302, 303	7
Mechanical Engineering 433	3
Speech 110	3
Technical Electives[4]	8
	34

Senior Year

Physics 307, 401, 402	5
Chemistry 424	3
Physics 404, 405, 422, 423	14
Economics 315	3
Engineering 401	3
Liberal Arts Electives[5]	6
	34

TOTAL SEMESTER HOURS....130

[1]See also Physics curriculum.

[2]Only four semester hours of physical education activity courses may count toward graduation.

[3]The student may substitute Electrical Engineering 353 for Electrical Engineering 315.

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

[5]Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, History, Psychology or Social Sciences.

DEPARTMENT OF PROFESSIONAL AVIATION

A. L. MILLER
Assistant Professor and Head of Department

ASSISTANT PROFESSORS: SAM E. WEST, P. A. TURGI, G. J. SCHNEIDER.

INSTRUCTORS: W. A. JONES, ROY A. KING.

The Program

The Professional Aviation curriculum combines flight training with both aviation technical courses and non-aviation university studies.

Requirements For Admission

The student must pass an appropriate physical examination administered by a Federal Aviation Administration designated medical doctor.

Requirements For A Major In Professional Aviation

A major in Professional Aviation consists of 38 semester hours of aviation courses as follows: Professional Aviation 103, 113, 201, 202, 203, 204, 300, 301, 302, 313, and at least eight semester hours of 400-level courses including 413.

Requirements For A Minor In Professional Aviation

Two minors are offered in Professional Aviation. A minor in Aviation flight consists of Professional Aviation 103, 113 and 16 semester hours of advanced courses. A minor in Airport Administration consists of 23 semester hours in the following courses: Accounting 203, 204; Business Law 355; Economics 315; Marketing 300; Professional Aviation 321, 322, 421, 424 and 425.

Special Flight Fees

Fees are required for each flight course. A listing of these fees can be obtained by writing the Department Head.

PROFESSIONAL AVIATION CURRICULUM

(Leading to the Degree of Bachelor of Science)
A. L. MILLER, Advisor

Freshman Year	Semester Hours
English 101, 102, 201	9
Mathematics[1]	6
Health & Physical Education[2]	2
Psychology 102	3
Professional Aviation	12
	32

Sophomore Year

English 202	3
Health & Physical Education	2
Physics 205, 206	6
Social Sciences[3]	6
Professional Aviation	16
	33

Junior Year

English 303	3
Speech 377	3
Social Sciences[3]	6
History 201, 202	6
Professional Aviation	10
Minor Field	9
	34

Senior Year	
Natural Science Elective	6
Minor Field	12
Speech Elective	3
Electives	9
	30

TOTAL SEMESTER HOURS....129

[1]Either Mathematics 111 and 112, or 107, 108 and 109 may be taken depending on results of ACT and mathematics placement test.

[2]Only four semester hours of physical education activity courses may count toward graduation.

[3]Social Sciences electives must be taken from courses offered by the Department of Social Sciences.

DEPARTMENT OF SOCIAL SCIENCES

WILLIAM J. CONWAY
Professor and Head of Department

ASSOCIATE PROFESSORS: RILEY E. BAKER, JOHN F. LEICH, ROBERT K. TOBUREN.
ASSISTANT PROFESSORS: ROSE M. DAIGLE, H. LESLIE CLENDENEN, RALPH PIERCE, JOHN K. PRICE, GARY M. STOKLEY
INSTRUCTOR: CHRISTINE J. DELMAR.

Requirements For A Major In The Department Of Social Sciences

Thirty semester hours in one of the following subjects constitute a major in the Department of Social Sciences: geography, political science, and sociology. Thirty hours of prescribed courses in sociology will satisfy the requirements for a major in the Pre-Professional Curriculum in Social Welfare. Every departmental major will consult with his/her advisor during each registration period and throughout the term as need arises.

Requirements For A Minor In The Department Of Social Sciences

(For Students in Other Departments)

GEOGRAPHY: Any seven courses in geography constitute a minor.

POLITICAL SCIENCE: Any seven courses in political science constitute a minor.

SOCIOLOGY: Any seven courses in sociology constitute a minor.

GEOGRAPHY CURRICULUM

(Leading to the Degree of Bachelor of Arts)
RALPH PIERCE, Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201	9
Geography 200, 203	6
History 101, 102, 201	9
Mathematics 107, 108, 109	6
Health & Physical Education	2
	33
Sophomore Year	
English 202	3
Foreign Language	6
Geography 225, 226	6
History 202	3
Health & Physical Education	2
Political Science 201, plus Elective	6
Science	8
	34
Junior Year	
Economics 315	3
Electives	6
Foreign Language	6
Geography 380	3
Geology 111, 121	4
Sociology 201, 460	6
	28
Senior Year	
Political Science 302	3
Electives	16
Geography	15
	34

TOTAL SEMESTER HOURS....129

POLITICAL SCIENCE CURRICULUM

(Leading to the Degree of Bachelor of Arts)
ROBERT K. TOBUREN, Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201	9
History 101, 102, 201	9
Mathematics 107, 108, 109	6
Health & Physical Education	2
Speech 110	3
	30
Sophomore Year	
English 202	3
Foreign Language	6
Geography 203	3
History 202	3
Health & Physical Education	2
Political Science 201, 302, plus Elective	9
Science	8
	34
Junior Year	
Economics 203	2
Elective	3
Foreign Language	6
Political Science	9
Science	4
Sociology 201, 222	6
	30
Senior Year	
Economics 204, 205	4
Electives	19
Political Science	12
	35

TOTAL SEMESTER HOURS....129

PRE-LAW CURRICULUM

RILEY E. BAKER, Advisor

OPTION I (3 Year Program)

Students intending to study law would do well to complete a degree before entering law school. Those who cannot do so should follow the curriculum given below.

Students who satisfactorily complete the first year of work in an accredited law school, and who have previously completed this three-year curriculum, may receive the Bachelor of Arts degree at Louisiana Tech University provided the usual academic standards have been maintained.

Freshman Year	Semester Hours
English 101, 102	6
Management 105	3
History 101, 102	6
Mathematics 107, 108, 109[a]	6
Health and Physical Education	2

Electives: Economics 100, History 201, Psychology 102 or Speech 110	6
	29

Sophomore Year

Economics 203, 204, 205 (or Acct 203, 204, 205)	6
Sociology 201, (or History 202)	3
English 201, 202	6
Foreign Language	6
Health and Physical Education	2
Political Science 201	3
Science (two courses plus labs)	8
	34

Junior Year

Business Law 355 (or Philosophy 201)	3
Political Science 325, 326	6
English 332	3
Sociology 202, 205, (or 314)	6
Geography 203	3
Science (one course plus lab)	4
Electives (Management 311, Philosophy 251, 252, 305, 350-351, Political Science, Business Law, English 303, 321, 336, 423, or Foreign Language	9
	34

TOTAL SEMESTER HOURS..... 97

* Choice of Mathematics 111 and 112 or Mathematics 107, 108, 109 will depend upon Mathematics Placement scores.

OPTION II (4 Year Program)

In addition to the courses listed above, a student desiring to receive a degree before entering law school should follow the course of study outlined below.

Senior Year	Semester Hours
Business Law 356(or 441 or 445)	3
English 401, 423	6
Philosophy 305 (or 424)	3
Political Science 426, 427, (or 327 or 310)	6
Sociology 314 (or 304 or 306 or 318)	3
Electives (Psychology 202 or 304, or English 415, 416, 417, 422, 440, 450, 481, 484, or Economics 315*, 401, 406, 408, 410, 411, 418, or Political Science 302, 303, or 304, 312, or Sociology 304. 308, 318, 430)	9
	30

TOTAL SEMESTER HOURS....127

*Credit for Economics 315 or Economics 201, 202 but not both.

PRE-PROFESSIONAL CURRICULUM IN SOCIAL WELFARE

(Leading to the Degree of Bachelor of Arts)
W. J. CONWAY, Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102	6
Foreign Language	6
History 101, 102	6
Mathematics 107, 108	4
Health & Physical Education	2
Speech 110	3
Zoology	4
	32

Sophomore Year

English 201, 202	6
Foreign Language	6
History 201, 202	6
Mathematics 109	2
Health & Physical Education	2
Political Science 201, 304	6
Sociology 201, 202	6
	34

Junior Year

Economics 200, 315	6
Geography 225, 310	6
History 460	3
Political Science 312	3
Psychology 102, 310	6
Social Welfare 200	3
Sociology 308, 314	6
	33

Senior Year

Electives	12
Physical Education	3
Sociology 304, 312, 330 or 340, 460 and one elective	15
	30

TOTAL SEMESTER HOURS....129

SOCIOLOGY CURRICULUM

(Leading to the Degree of Bachelor of Arts)
W. J. CONWAY, Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102	6
Foreign Language	6
History 101, 102	6
Mathematics 107, 108	4
Health & Physical Education	2
Science	8
	33

Sophomore Year

English 201, 202	6
Foreign Language	6
Geography 225	3
History 201, 202	6
Mathematics 109	2
Health & Physical Education	2
Science	4
Sociology 201, 202	6
	35

Junior Year

Economics 315	3
Electives	9
Political Science 201, 304	6
Sociology	12
Speech 110	3
	33

Senior Year

Electives	13
Psychology 300	3
Sociology 460 and nine additional sociology hours	12
	28

TOTAL SEMESTER HOURS....129

DEPARTMENT OF SPEECH

GUY D. LEAKE, JR.
Associate Professor and Acting Department Head

ASSOCIATE PROFESSORS: MARY F. BEASLEY, ROBERT C. MEYER, GLADYS B. MOORE.

ASSISTANT PROFESSORS: WILLIAM S. CARTER, JOHN A. ONUFRAK, KATHRYN ROBINSON.

INSTRUCTORS: PAXTON E. OLIVER, S. LYNN ROWE.

Requirements For A Major In Speech

A major in speech consists of 33 hours which should include Speech 110, 200, 210, 211, 222, 315, 340, and 406 plus nine additional hours of speech, approved by the department head.

Requirements For A Minor In Speech

A minor in speech consists of 24 hours which should include Speech 110, 200, 210, 211, 222, 315, 340, 406.

Facilities For Speech Activities

Courses which include instruction in the techniques of television and motion pictures are taught in the studio facilities of Madison Hall. These courses involve actual operation of equipment by all students enrolled.

Extra-curricular experience is provided through participation in the production of programs for Louisiana Tech's closed-circuit instructional television system.

The Louisiana Tech University Forensic Program is directed by members of the Speech Faculty. This program is available to all Tech undergraduate students who are interested in participating in competitive Speech activities, including Debate. Tech debaters enter ten or more college tournaments each year, and travel into at least nine states.

The Louisiana Tech Theatre Players organization is available to all Tech students who are interested in the Theatre.

Speech And Hearing Center Facilities

The Louisiana Tech Speech and Hearing Center is housed in Robinson Hall near the center of the campus. This modern facility 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 Pathology and/or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

SPEECH CURRICULUM

(Leading to the Degree of Bachelor of Arts)

GUY D. LEAKE, JR., Advisor

Freshman Year	Semester Hours
Elective	1
Speech 110, 201, 340	9
Science	4
Mathematics 107, 108, 109	6
Health & Physical Education (Activity or ROTC)	2
Foreign Language	6
English 101	3
	31
Sophomore Year	
English 102, 201	6
Speech 200, 211, Speech Elective	9
Foreign Language	6
Health & Physical Education (Activity or ROTC)	2
Science	4
History	3
Elective or Minor	3
	33
Junior Year	
English 202	3
Speech 315, 406, 407, 416	12
Science	4
History	3
Electives	9
Social Science	3
	34

Senior Year

Electives or Minor	26
Social Science	3
Speech Elective	3
	32

TOTAL SEMESTER HOURS....130

PRE-PROFESSIONAL SPEECH PATHOLOGY CURRICULUM

(Leading to the Degree of Bachelor of Arts)

GUY D. LEAKE, JR., Advisor

Freshman Year	Semester Hours
Elective	1
English 101, 102	6
History 101, 102	6
Mathematics 107, 108, 109	6
Speech 110, 210, 222	9
Zoology 111	3
	31

Sophomore Year

English 201 or 202, 332	6
Physics 205, 465	6
Psychology 102	3
Special Education 300	3
Speech 411, 413, 418, 420, 470	15
	33

Junior Year

Foreign Language	9
Political Science 201	3
Speech 212, 312, 443, 444, 445	17
Sociology 201	3
Zoology 225	3
	35

Senior Year

Foreign Language	3
Health & Physical Education 321	2
Psychology 205, 206, 310	9
Special Education 301, 340, 490	9
Speech 412, 425, 446	10
	33

TOTAL SEMESTER HOURS....132

Students in speech pathology and audiology should be aware that the following requirements must be met before they will be allowed to register for Speech 212: Introduction to Clinical Procedures:

1. The student must have completed 25 hours of observation of clinic activities, speech and hearing evaluations, and therapy sessions (either actual or video-taped).
2. The student must have an overall grade point average of 2.5 in the following courses, Speech 210, 222, 411, 413, 418, 420, and 470.
3. The student must file with the head of the department a formal application for permission to register for Speech 212. This application must be submitted the quarter for which the student is registered for Speech 411: Diagnostic Procedures.

College of Education

College of Education

B. J. COLLINSWORTH, Dean

W. L. BERGERON, Associate Dean, Research and Service and Director, Special Education Center
JAMES B. AKERS, Area Coordinator, Health and Physical Education
R. E. HEARN, Director, A. E. Phillips Lab School
G. C. MILLER, Director, Graduate Studies
D. R. NELSON, Area Coordinator, Teacher Education
C. E. SUTTON, Director, Laboratory Experiences
J. M. WILLIAMS, Area Coordinator, Behavioral Sciences

PROFESSORS

JAMES B. AKERS, Health and Physical Education; W. L. BERGERON, Research and Service; B. J. COLLINSWORTH, Education; W. M. CROW, Teacher Education; S. V. DAUZAT, Teach Education; G. C. MILLER, Teacher Education; D. R. NELSON, Teacher Education; J. C. OWEN, Teacher Education; C. E. SUTTON, Teacher Education; J. M. WILLIAMS, Behavioral Sciences.

ASSOCIATE PROFESSORS

ARCHIE CRAIG, Health and Physical Education; C. L. FOXWORTH, Teacher Education; GARLAND GREGORY, Health and Physical Education; R. E. HEARN, A. E. Phillips; SYBIL LEACHMAN, Health and Physical Education; M. A. McCREADY, Teacher Education; BETTY MARKHAM, Health and Physical Education; J. L. MILLER, Teacher Education; GARY E. MILFORD, Behavioral Science; J. C. RAMSUR, Behavioral Sciences; SYLVIA STROOPS, Health and Physical Education; BILLY JACK TALTON, Health and Physical Education; S. J. TULLOS, Behavioral Sciences.

ASSISTANT PROFESSORS

LOU ALBRITTON, Health and Physical Education; HERMIONE DRISKELL, Teacher Education; DANIEL ECKSTEIN, Behavioral Sciences; LEE ELWINGER, Behavioral Sciences; TOMMY GRAFTON, Health and Physical Education; TOMMIE HERREN, Teacher Education; DOROTHY HINES, A. E. Phillips; DAVID JORDAN, Health and Physical Education; MARY LIVINGSTON, Behavioral Sciences; THOMAS LOLLEY, Behavioral Sciences; E. J. MILLER, Teacher Education; MINNIE MIZE, Health and Physical Education; JACQUE NEWSOM, A. E. Phillips Lab School; G. E. NIPPER, Teacher Education; MYRTIS C. ORR, A. E. Phillips Lab School; C. E. PYLE, JR., Health and Physical Education; JACKIE PYLE, Health and Physical Education; W. B. ROPER, Behavioral Sciences; THOMAS P. SPRINGER, Behavioral Sciences; J. J. TOBACYK, Behavioral Sciences.

INSTRUCTORS

ERA CHANDLER, A. E. Phillips Lab School; SARA COLVIN, A. E. Phillips Lab School; ELFREDA HUMPHRIES, A. E. Phillips Lab School; LOUISE JAMES, A. E. Phillips Lab School; JERALD E. JOHNSON, A. E. Phillips Lab School; R. A. LANEY, A. E. Phillips Lab School; BARBARA MAULDIN, A. E. Phillips Lab School; A. R. MOORE, A. E. Phillips Lab School; BILLIE SMITH, A. E. Phillips Lab School; EVELYN B. WARNER, A. E. Phillips Lab School.

SPECIAL EDUCATION CENTER PERSONNEL

RICHARD GIESSE, Psychologist
HARIETT LEAKE, Speech & Hearing Consultant
JOE SANDERS, Social Worker
JANET SMITH, Education Consultant

SUPPORTIVE STAFF

ZILLA DOUGHTY, CAROLE FOWLER, JEANETTE LOGAN, ELAYNE MILLER, SHIRLEY NORMAN, GLENDA PATTERSON, LINDA REDDELL, Secretarial-Clerical.

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana State Board of Education, is accredited by the Southern Association of Schools and Colleges. 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 Accreditation of Teacher Education for the preparation of elementary and secondary teachers at the undergraduate and master's degree levels.

HISTORY AND ORGANIZATION

Since the founding of Louisiana Tech in 1894 the education of teachers has been a primary aim of the institution. The Laboratory School, A. E. Phillips Elementary School, was created by the Legislature in 1916. On November 12, 1925, the State Board of Education approved teacher education curricula, and on March 15, 1926, the State Board recognized the reorganization of these curricula. A Department of Education was recognized by the State Board in 1933 and in April of the following year authorization was granted for the organization of a separate school. In July, 1970, the School was elevated to the level of a College of Education.

In 1948, physical education was transferred from the School of Arts and Sciences to the School of Education as a department. In 1955, the offerings in education were divided, forming departments of elementary and secondary education; and the Department of Special Education was created to service schools in the parishes of Bienville, Claiborne, Jackson, Lincoln, Union, and Webster to train teachers in working with the various areas of exceptionality. Bossier Parish was added to the work area in 1959. In 1965 the organization was further 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.

By action of the State Board of Education on December 17, 1957, January 31, 1958, April 3, 1958, April 18, 1961, and July 29, 1968, authorization was given to grant the Master of Arts degree in Art Education, Elementary Education, English Education, Music Education, Social Studies Education, Special Education, Speech Education, and Vocational Guidance, and the Master of Science degree in Biology Education, Business Education, Chemistry Education, Mathematics Education, Physics Education, and Health and Physical Education. In April, 1967, the State Board of Education granted approval to offer the Specialist Degree and on November 1, 1968, authority was granted to offer extension or off-campus courses.

OBJECTIVES

The College of Education functions as an integral part of Louisiana Tech University. From its founding in 1894, one of the purposes of the University has been the preparation of elementary and secondary teachers. Teacher education has continued to maintain an important position within the institution. The purposes of the College of Education, therefore, are consonant with those of the University: to prepare qualified practitioners, to facilitate learning, to conduct research, and to perform public services. These purposes find expression in the following objectives:

1. To assist undergraduates to become competent, qualified teachers by providing quality programs in teacher education;
2. To maintain teacher-education programs which, through reading, research, and professional meetings, embody the best of current educational ideas and practices;
3. To provide a variety of experiences which will prepare the prospective teacher to assume the professional role of the teacher;
4. To implement learning through the continuous development of facilities such as learning laboratories and library resources which are relevant to educational processes at all levels;
5. To research, develop, use, and disseminate knowledge of human behavior and relevant teacher-learning processes;
6. To provide at the graduate level educational experiences which will develop the individual's knowledge in both breadth and depth;
7. To provide needed diagnostic services to educationally disadvantaged children, their teachers, and their parents;
8. To provide professional consultation service, workshops, seminars, extension courses, and contract research to teachers, administrators, school boards, and other community agents interested in human development and education; and
9. To continually evaluate the curricula, course offerings, and community services of the College in the light of new knowledge, contemporary career requirements, and opportunities for college graduates.

ADMISSION AND RETENTION

Admission and retention policy for the College of Education is set and administered by the College of Education Admission and Retention Committee.

Students desiring to enter the College of Education must make an application in which they show at least a 2.0 on all college work earned, in addition to freedom from disqualifying physical handicaps.

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

Students placed on academic probation and/or suspension four times will be dropped from the College of Education. Any student re-entering the College of Education after being suspended for academic, attendance, or disciplinary reasons must re-apply to the Admission and Retention Committee.

UPPER DIVISION

After a student has earned 30 semester hours of university credit, the student may apply for Upper Division. An application must be made in which the student gives evidence of meeting the following qualifications:

1. Applicant must have earned at least 30 semester hours of college or university credits which include the following courses or their equivalents: Education 101, 200; English 101, 102; physical education activity (2 semester hours); science (3 semester hours); and Speech 110. (Speech 110 requirements do not apply to Speech, Language and Hearing Therapy Majors.)
2. Applicant must have an over-all earned grade point average of 2.0 with a grade of at least "C" in Education 200; English 101, 102; and Speech 110.
3. Applicant must be free from physical and emotional impediments which would prevent the person being an effective teacher.

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

Applicants may be asked to appear before the Admission and Retention Committee of the College of Education to explain or defend their applications, to present additional information, or to demonstrate ability in certain areas. Students may re-apply once for upper division admittance if the first application is refused. Students will be dropped from the College of Education if refused admittance twice unless the committee feels there are extenuating circumstances.

CREDITS THROUGH COLLEGE ENTRANCE EXAMINATION BOARD

For information concerning this section, contact the office of the Dean.

DEGREES

Students who complete a four-year teacher education curriculum in the College of Education are granted the bachelor's degree, and 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 the curricula in business education, mathematics education, science education, and health and physical education. The degree of Bachelor of Arts is awarded to students finishing all other undergraduate curricula. The Master of Arts degree is awarded in the following areas: art education, counseling education, elementary education, English, human relations and supervision, music, reading, social studies, special education and speech education. The Master of Science degree is awarded in the following: biology, business, chemistry, physics, mathematics, and physical education. The Specialist degree in Education is awarded in the following areas: elementary, reading, business, counseling, mathematics, music, science, social studies, and English.

GRADUATION REQUIREMENTS

In addition to completing the general graduation requirements of Louisiana Tech, students pursuing a degree program which leads to Louisiana teacher certification must fulfill current Louisiana certification 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.

State certification requirements do not permit the substitution of credit for ROTC and band for health and physical education activities requirements. Health and physical education activity credit accepted by the University for military service can be applied to satisfy this requirement, except in cases where a specific activity is required in a curriculum.

Correspondence courses and off-campus work which a student in the College of Education wishes to apply toward a degree must be approved by his/her advisor and dean in advance of registration in writing.

SECOND TEACHING AREAS AVAILABLE TO EDUCATION MAJORS

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

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

English:

Education 403, English 101, 102, 201, 202, 332, 336, 415, 422, and 3 hours of English electives.

Foreign Language - a minimum of 24 semester hours in a language or 18 semester hours if taken above the first year college level.

Journalism:

101, 455, 2 of the following courses: 350, 353, 355; and 11 hours of electives.

Library Science:

201, 210, 301, 302, 303, 305, Education 420.

Mathematics:

111, 112, 113, 230, 231, 232, and 307.

Science:

6 hours of Biology (Botany, Zoology, or Bacteriology)
6 hours of Chemistry
6 hours of Physics
6 hours of Earth Science
Plus 8 hours in any one of the above fields.

Health and Physical Education:

310, 320, 321, 326, Zoology 225, plus 15 hours in activities, methods, and techniques with consent of advisor.

Social Studies:

History 101, 102, 201, 202, 460.
Political Science 201, Sociology 201, Geography 203, 225.
Economics 200 or 315.

Speech:

110, 200, 211, 222, 315, 340, 406, plus 3 hour Speech Elective.

STUDENT TEACHING AND LABORATORY EXPERIENCES

The capstone of all teacher education curricula is the professional laboratory experience. In the College of Education this experience is provided in two phases: (1) directed observation and participation experiences (Education 415), and (2) student teaching (Education 416). Also, several curricula require additional laboratory experiences in practicum courses.

Professional laboratory experiences are provided both in a campus laboratory school and in off-campus elementary and secondary laboratory schools in area parishes.

Prerequisites for student teaching are as follows:

A. General Prerequisites
   1. Must be registered in the Upper Division of the College of Education.
   2. Must have an overall grade point average no lower than 2.2 on all hours earned.
   3. Must be recommended for student teaching by faculty advisor and approved by the Student Teacher Screening Committee.
   4. Education 390 and Education 402 must be taken before or during student teaching.
   5. Must have earned a grade no lower than "C" in all education and psychology courses taken before student teaching.
   6. Must have successfully completed Education 415 and Psychology 204.

B. Additional Prerequisites for Elementary Education Majors
   1. Must have successfully completed Education 320, Education 322, Education 323, Education 324 and Psychology 205.

C. Additional Prerequisites for Secondary Education Majors
   1. Must have successfully completed Education 306 and Psychology 206.
   2. Must have earned a grade point average no less than 2.2 in the subject area(s) in which student teaching is planned.
   3. The special methods course(s) in student teaching area(s) must be completed before or during student teaching.

The course(s) scheduled in addition to student teaching may be only those course(s) which may be scheduled without conflict with student teaching. The hours involved in student teaching will be approximately 8 a.m. to 3 p.m., Monday through Friday.

While one and seven semester hours credit, respectively, are awarded for observation and student teaching, no conventional grades or quality points are given.

SPECIAL EDUCATION CENTER

The Special Education Center, a major unit of the College of Education, has the responsibility for developing, encouraging, and improving special educational and training facilities, services, and classes for exceptional children. The Grambling-Louisiana Tech Center provides services to the public school systems in the parishes of Bienville, Claiborne, Jackson, Lincoln, Union, and Webster. These services are provided through a wide variety of activities including psychoeducational assessment; consultation with school administrators, teachers, and parents; development and provision of special instructional materials; contingency management of behavior problems; and research. Undergraduate and graduate students in special education utilize the resources of the Center for clinical teaching experiences.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICE

The Division of Educational Research and Service was officially created in 1970. All faculty members in the College of Education are members of the Division. The purpose of the Division is to encourage research, writing, and demonstration projects by the faculty of the College and to assist in identifying appropriate avenues for the dissemination of the results.

The College of Education research committee is chosen from the academic department and division chairmen, with the director of the Division of Research and Service serving as chairman. The committee is charged with establishing general policies and procedures for the Division and is responsible to the Dean of the College of Education.

Financial support for the activities of this Division is derived through the regular operating budget and from special grants of local school districts, state and federal agencies.

THE GRADUATE PROGRAM

Candidates seeking a graduate degree in any of the teaching areas must hold a valid teacher's certificate. Students seeking a graduate degree with a major in a subject field or in elementary education must have completed all requirements for certification in that field. Students enrolling with insufficient preparation to meet this requirement must regard as deficiencies all courses needed to meet the standard.

In addition to the 2.50 overall pursued undergraduate grade point average or 2.75 on the last 60 hours attempted for unconditional admission and 2.25 overall or 2.50 on the last 60 hours attempted for conditional admission to Graduate School, the College of Education requires the submission of a satisfactory Miller Analogies Test score for admission to the master's degree programs in education.

The College of Education offers the master's degree and the specialist's degree in several areas. The master's degree may be obtained in art, business, counseling, elementary education, English, human relations and supervision, mathematics, music, physical education, reading, science, social studies, special education, speech, and speech and hearing therapy. The specialist's degree may be obtained in elementary education, reading, business, counseling, mathematics, music, science, social studies, English, and speech.

More complete details concerning the gradute programs in education can be found in the Graduate School Section of this Bulletin.

ART EDUCATION CURRICULUM

Freshman Year	Semester Hours
Architecture 115, 116, 125, 126	12
Art 120	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	3
Mathematics 107, 108	4
Speech 110	3
	35
Sophomore Year	
Architecture 215, 216, 366	9
Art 121, 220	6
Biological Science	3
Education 200	3
English 202	3
Health & Physical Education 321	2
Health & Physical Education Activity	1
History 201, 202	6
Mathematics 109	2
	35
Junior Year	
Architecture 367	3
Art 225, 240, 308	9
Education 306, 360, 390	7
Health & Physical Education 290	3
Physical Science	3
Political Science 201	3
Psychology 204	3
Science Elective	3
	34
Senior Year	
Art 241, 320	6
Art Elective	3
Education 402, 415, 416	10
Psychology 206	3
Science Elective	3
Social Studies Elective	3
	28
TOTAL SEMESTER HOURS	132

BUSINESS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Accounting 203	2
Biological Science Elective	3
Economics 203, 204	4
Education 101	1
English 101, 102	6
Health & Physical Education Activities	2
Mathematics 107, 108	4
Office Administration 202, 203	4
Physical Science Elective	3
Speech 110	3
	32
Sophomore Year	
Accounting 204, 205	4
Business Law 355	3
Economics 205	2
Education 200, 390	4
Electives	6
English 201	3
Health & Physical Education Activities	2
Marketing 300	3
Mathematics 109	2
Psychology 204	3
	32
Junior Year	
Accounting 310	3
Education 306	3
Electives	12
English 202	3
History 201, 202	6
Office Administration 305	3
Psychology 206	3
Science Elective	3
	36
Senior Year	
Education 358, 402, 415, 416	13
Electives	2
Management 311	3
Office Administration 307, 310	5
Political Science 201	3
Quantitative Analysis 220	3
Science Elective	3
	32
TOTAL SEMESTER HOURS	132

SHORTHAND OPTION (15 hours)

Office Administration 206, 207, 208, 303, 304

BUSINESS ADMINISTRATION OPTION (15 hours)

Business Law 356	3
Economics 312	3
Finance 318	3
Office Administration 250	3
3 Hours from following:	3
Finance 414	
Economics 330, 344, 472	

ELEMENTARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 101, 102	4
Botany 101	4
Education 101	1
Elective	3
English 101, 102, 201	9
Health & Physical Education 290	3
Health & Physical Education Activities	2
History 201	3
Speech 110	3
	32

Sophomore Year

Botany 225	3
Education 200	3
English 202	3
Geography 203, 225	6
Health & Physical Education 130, 321	3
History 202	3
Library Science 201	3
Music 230	2
Political Science 201	3
Psychology 204	3
Zoology 111, 112	4
	36

Junior Year

Education 320, 322	6
Elective	3
English 332	3
Health & Physical Education 340	3
Health & Physical Education Activity	1
Mathematics 303, 304	6
Music 234	2
Physics 205	3
Psychology 205	3
Speech 330	3
	33

Senior Year

Education 323, 324, 390, 402, 415, 416, 420	19
Elective	3
History 460	3
Home Economics 223	2
Special Education 300	3
	30

TOTAL SEMESTER HOURS....131

OPTIONS IN ELEMENTARY EDUCATION

In lieu of the basic elementary education curriculum, students in the field may choose to follow one of the following options:

EARLY CHILDHOOD EDUCATION

In addition to the basic elementary curriculum the following courses will be required to complete this option: Education 420, 431, 432, 441, and Psychology 408 or Home Economics 301.

The following courses found in the basic elementary curriculum will not be required for this option: Electives (9), English 332 and Geography 225.

SPECIAL EDUCATION—LEARNING DISABILITIES

In addition to the basic elementary education curriculum, the following courses will be required to complete this option: Art 201, Education 420, Special Education 301, 305, 375, Special Education Elective (3), and Zoology 225.

The following courses found in the basic elementary education curriculum are not required for this option: Botany 101, Electives (8), English 332, Health & Physical Education Activitity (1 hour), Speech 330, and Zoology 112.

SPECIAL EDUCATION—NONSENSORY PHYSICAL HANDICAPPED

In addition to the basic elementary curriculum, the following will be required to complete this option: Art 201, Education 420, Special Education Elective (3), Special Education 301, 335, 375, Zoology 225.

The following courses found in the basic elementary curriculum will not be required for this option: Botany 101, Electives (8), English 332, Speech 330, Health & Physical Education Activity (1 hour), Zoology 112.

SPECIAL EDUCATION—MENTAL RETARDATION

In addition to the basic elementary curriculum the following courses will be required to complete this option: Art 201, Education 420, Special Education Elective (3), Special Education 301, 325, 375, Zoology 225.

The following courses found in the basic elementary curriculum are not required for this option: Botany 101, Electives (8), English 332, Health & Physical Education Activity (1 hour), Zoology 112, Speech 330.

SPECIAL EDUCATION—BEHAVIOR DISORDERS

In addition to the basic elementary curriculum the following courses will be required to complete this option: Art 201, Counseling 400, Education 420, Special Education Elective (3), Special Education 340, 375, Zoology 225.

The following courses found in the basic elementary curriculum are not required in this option: Botany 101, Electives (8), English 332, Health & Physical Education Activity (1 hour), Speech 330, Zoology 112.

ENGLISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
Physical Science	3
Speech 110	3
	33

Sophomore Year

Education 200	3
Elective	3
English 202, 332	6
English Elective	3
Health & Physical Education 290	3
Health & Physical Education Activity	1
Political Science 201	3
Psychology 204	3
Science Electives	6
Social Science Elective	3
	34

Junior Year

Education 306, 350	6
Electives	6
English 415, 422	6
English 336 or 484	3
Health & Physical Education 321	2
Health & Physical Education Activity	1
Library Science 303, 305	6
Psychology 206	3
	33

Senior Year

Education 390, 402, 403, 415, 416	14
Electives	12
English 400 Level Elective	3
	29

TOTAL SEMESTER HOURS....129

FRENCH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201	9
Foreign Language 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108	4
Speech 110	3
	34

Sophomore Year

Biological Science	3
Education 200	3
Elective	3
English 202, 422	6
Foreign Language 202, 300, 301	9
Mathematics 109	2
Health & Physical Education Activities	2
Physical Science	3
Science Elective	3
	34

Junior Year

Education 306, 351	6
Electives	6
Foreign Language 203, 302, 306	9
Health & Physical Education 290, 321	5
Psychology 204, 206	6
Science Elective	3
	35

Senior Year

Education 390, 402, 415, 416	11
Electives	6
Foreign Language 307	3
Political Science 201	3
Social Studies Elective	3
	26

TOTAL SEMESTER HOURS....129

HEALTH AND PHYSICAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	4
Education 101	1
English 101, 102 201, 202	12
*Health & Physical Education Activities	3
History 201, 202	6
Mathematics 107, 108, 109	6
Speech 110	3
	35

Sophomore Year

Education 200	3
*Elective	3
*Health and Physical Education Activities & Techniques	6
Health & Physical Education 290, 291, 321	8
Physical Science	3
Psychology 204, 206	6
Zoology 111, 112	4
	33

Junior Year

Education 306, 357	7
*Health & Physical Education 300, 305, 310, 320, 340 and 5 hours methods and techniques	20
Political Science 201	3
Social Studies Elective	3
Zoology 225, 226	4
	37

Senior Year

Education 390, 402, 415, 416	11
*Electives	9
Health & Physical Education 326	3
Methods in Second Teaching Field	3
	26

TOTAL SEMESTER HOURS....131

*With Consent of Advisor

HEALTH AND PHYSICAL EDUCATION CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, 201	9
*Foreign Language	6
Health & Physical Education Activities	2
History 101, 102	6
Mathematics 107, 108, 109	6
Speech 377	3
	32

Sophomore Year	
Botany 101	4
English 202	3
Health & Physical Education 207, 290, 291, 304, 321	13
Health & Physical Education Activities	2
Physics 205, 206	6
Electives (minor)	6
	34

Junior Year	
Health & Physical Education 310, 320	6
History 201, 202 or Political Science 201, 302	6
Zoology 111, 112	4
Electives (minor)	15
	31

Senior Year	
Physical Education (Health, Safety, or Recreation)	5
Health & Physical Education 326	3
Psychology 102	3
Zoology 225	3
Electives (minor)	17
	31

TOTAL SEMESTER HOURS....128

*With Consent of Advisor

HEALTH AND PHYSICAL EDUCATION CURRICULUM

RECREATION OPTION

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
Botany 101	4
English 101, 102, 201	9
Health & Physical Education 262, 321	3
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
	30

Sophomore Year	
Accounting 203	2
English 202	3
*Foreign Language	6
Health & Physical Education 207, 281 or 284, 290, 304	9
Health & Physical Education Activity	2
Journalism 101	3
Sociology 201	3
Zoology 111, 112	4
	32

Junior Year	
Health & Physical Education 225, 226, 241, 300, 355	13
Horticulture 220 or 307	3
Health and Physical Education Elective	1
Political Science 201	3
Psychology 206	3
Speech 110	3
Zoology 225	3
Electives (minor)	6
	35

Senior Year	
Art 216 or 240	3
Health & Physical Education 130, 326, 404, 410, 415	16
Electives (minor)	15
	34

TOTAL SEMESTER HOURS....131

*With Consent of Advisor

LIBRARY SCIENCE

To meet the needs of Louisiana schools, courses in library science are offered which prepare teachers and librarians in conformity with the requirements of the State Departent of Education and the Southern Association of Colleges and Schools. Students completing the 18 hours of library science qualify for public library subprofessional positions in the state and are eligible for employment as public library assistants. Students may follow the library science curriculum, completing a major in library science and a minor in a subject matter field. Students interested in continuing their studies in library science at the graduate level are advised to elect 12 semester hours in a foreign language.

LIBRARY SCIENCE ELEMENTARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 101, 102	4
Biological Science	3
Education 101, 200	4
English 101, 102, 201	9
Health & Physical Education Activity	2
History 201, 202	6
Music 230	2
Speech 110	3
	33

Sophomore Year	
English 202	3
Geography 203	3
Health & Physical Education 130, 321	3
Health & Physical Education Activity	1
Library Science 201, 210, 303	9
Mathematics 303	3
Music 234	2
Physical Science	3
Psychology 204	3
Political Science	3
Science Elective	3
	36

Junior Year	
Education 320, 322, 323	8
Geography 225	3
Library Science 301, 302, 305	9
Library Science Elective	3
Mathematics 304	3
Psychology 205	3
Science Elective	3
Special Education 300	3
	35

Senior Year	
Education 324, 390, 402, 415, 416	14
Education 420 (Library Science, Reading)	6
English 332	3
Health & Physical Education 340	3
History 460	3
Home Economics 223	2
Library Science Electives	6
	37

TOTAL SEMESTER HOURS....141

LIBRARY SCIENCE SECONDARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
Science Elective	3
Speech 110	3
	33

Sophomore Year

Education 200	3
English 202	3
Electives	6
Health & Physical Education Activity	1
Library Science 201, 210, 303	9
Political Science 201	3
Psychology 204, 206	6
Science Elective	3
	34

Junior Year

Education 306	3
Electives	12
Health & Physical Education Activity	1
Library Science 301, 302, 305	9
Library Science Elective	3
Sociology 201	3
Special Methods	3
	34

Senior Year

Education 390, 402, 415, 416, 420	14
Elective	3
Health & Physical Education 321	2
Library Science Electives	6
Physical Science	3
	28

TOTAL SEMESTER HOURS....129

LIBRARY SCIENCE CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, 201	9
*Foreign Language	6
Health & Physical Education Activities	2
History 101, 102	6
Mathematics 107, 108, 109	6
Science	3
	32

Sophomore Year

English 202	3
*Foreign Language	6
History 201, 202 or Political Science 201, 302	6
Library Science 201, 210, 303	9
Health & Physical Education	2
Science	3
Speech 110	3
	32

Junior Year

Library Science 301, 302, 305	9
Library Science Elective	3
Science	4
Electives or minor	16
	32

Senior Year

Library Science 404	3
Library Science Elective	6
Science	2
Electives or minor	21
	32

TOTAL SEMESTER HOURS....128

To be elected from the following:
Library Science 315, 330, 410, 440, 450

*With Consent of Advisor

MATHEMATICS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	3
History 201, 202	6
Mathematics 111, 112, 113	9
Speech 110	3
	31

Sophomore Year

Botany 101	4
Education 200	3
Elective	3
English 202	3
Health & Physical Education Activity	1
Health & Physical Education 290	3
Mathematics 230, 231, 232	9
Psychology 206	3
Zoology 111, 112	4
	33

Junior Year

Education 306, 356	6
Electives	7
Mathematics 307, 318, 401	9
Physics 205, 206	6
Political Science 201	3
Psychology 204	3
	34

Senior Year

Education 390, 402, 415, 416	11
Electives	9
Health & Physical Education 321	2
Mathematics Electives	6
Social Studies Elective	3
	31

TOTAL SEMESTER HOURS....129

MUSIC EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102	6
Mathematics 107, 108	4
Health & Physical Education Activities	1
Music (Applied)	10
Music 101, 102, 103, 104, 105	9
Speech 110	3
	34

Sophomore Year

Biological Science	3
Education 200	3
English 201	3
Health & Physical Education Activities	1
History 201, 202	6
Mathematics 109	2
Music (Applied)	6
Music 201, 202, 203, 317, 318, 319	12
	36

Junior Year

English 202	3
Health & Physical Education Activities	1
Music (Applied)	9
Music 304, 310, 303 or 314	8
Physical Science Elective	3
Physics 465	3
Political Science 201	3
Psychology 204, 206	6
	36

Senior Year

Education 306, 390, 402, 415, 416, 466	17
Health & Physical Education Activities	1
Music (Applied)	5
Music 204, 306	3
Science Elective	3
Social Science Elective	3
	32

TOTAL SEMESTER HOURS....138

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 below. The plan, or plans, pursued will be determined by individual desire for certification.

The curriculum for Vocal and Instrumental Certificate includes both Music 303 and 314, Education 465 and 466, and 20 additional music hours. Ensemble requirements for Music Majors listed under the College of Arts and Sciences should be noted.

PSYCHOLOGY CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, and 201 or 202	9
*Foreign Language	6
Health & Physical Education	3
Mathematics 111	3
Psychology 102	3
Science Elective	3
Zoology 111, 112	4
	31

Sophomore Year

Electives	6
English 303	3
Health & Physical Education	1
History 101, 102 or 201, 202	6
Political Science	3
Psychology 202, 300, 301	9
Sociology 201	3
Zoology 225	3
	34

Junior Year

Computer Science 102	3
Electives	9
Life Sciences 300	3
Psychology 302, 304, 307, 310, 312, 321	18
	33

Senior Year

Electives	6
Psychology 407, 418, 459, 465	12
Psychology Electives	9
Zoology 426	3
	30

TOTAL SEMESTER HOURS....128

Requirements for a minor in Psychology:

21 hours approved by the Psychology advisor

*With Consent of Advisor

SCIENCE EDUCATION CURRICULUM

Freshman Year	Semester Hours
Botany 101	4
Chemistry 101, 103	4
Education 101	1
English 101, 102	6
Health & Physical Education Activities	2
Geology 111, 121	4
Mathematics 111, 112	6
Speech 110	3
Zoology 111, 112	4
	34

Sophomore Year

Bacteriology 210	3
Biological Science Elective	3
Chemistry 102, 104	4
Education 200	3
English 201, 202	6
Health & Physical Education Activities	2
History 201	3
Political Science 201	3
Psychology 206	3
Zoology 115	4
	34

Junior Year

Biological Science Electives	6
Education 306	3
Geology 112, 122	4
History 202	3
Physics 360, 361	8
Psychololgy 204	3
Physical Science Electives*	6
	33

Senior Year

Education 352, 390, 402, 415, 416	14
Electives	9
Health & Physical Education 321	2
Social Studies Elective	3
	28

TOTAL SEMESTER HOURS....129

* These physical science electives must be taken in the same discipline—chemistry, geology, or physics.

SOCIAL STUDIES EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
English 101, 102, 201	9
Health & Physical Education Activities	2
History 101, 102, 201	9
Mathematics 107, 108	4
Science Elective	3
Speech 110	3
	34

Sophomore Year

Education 200	3
English 202	3
Geography 203	3
Health & Physical Education 321	2
Health & Physical Education Activity	1
History 202	3
Mathematics 109	2
Physical Science Elective	3
Psychology 204	3
Science Elective	3
Sociology 201	3
Sociology Elective	3
	32

Junior Year

Economics 200, 315	6
Education 306, 390	4
Elective	3
Geography 225, 226	6
Health & Physical Education Activity	1
History 460	3
Library Science 305	3
Political Science 201, 304	6
	32

Senior Year

Education 353, 402, 415, 416	13
Elective	9
History Electives	6
Psychology 206	3
	31

TOTAL SEMESTER HOURS....129

SPANISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102, 201	9
Foreign Language 160, 161, 260	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108	4
Speech 110	3
	34

Sophomore Year

Biological Science	3
Education 200	3
English 202, 422	6
Elective	3
Foreign Language 261, 360, 361	9
Health & Physical Education Activities	2
Mathematics 109	2
Physical Science Elective	3
Science Elective	3
	34

Junior Year

Education 306, 351	6
Electives	6
Foreign Language Electives	9
Health & Physical Education 290, 321	5
Psychology 204, 206	6
Science Elective	3
	35

Senior Year

Education 390, 402, 415, 416	11
Electives	6
Foreign Language Elective	3
Political Science 201	3
Social Studies Elective	3
	26

TOTAL SEMESTER HOURS....129

SPEECH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Education 101	1
Elective	3
English 101, 102, 201	9
Health & Physical Education Activities	2
Mathematics 107, 108, 109	6
Speech 110, 210, 222	9
	33

Sophomore Year

Education 200	3
Electives	6
English 202	3
Health & Physical Education 321	2

Health & Physical Education Activity	1
History 201, 202	6
Science Electives	6
Speech 200, 211	6
Speech Elective	3
	36

Junior Year

Education 306	3
Elective	3
Health & Physical Education 290	3
Health & Physical Education Activity	1
Library Science 305	3
Physical Science Elective	3
Political Science 201	3
Psychology 204, 206	6
Speech 315, 406	6
Speech Elective	3
	34

Senior Year

Education 354, 390, 402, 415, 416	14
Electives	6
Social Studies Elective	3
Speech 340	3
	26

TOTAL SEMESTER HOURS..129

SPEECH, LANGUAGE AND HEARING THERAPY CURRICULUM

Freshman Year	**Semester Hours**
Education 101	1
English 101, 102, 201 or 202	9
Health & Physical Education Activities	2
History 201, 202	6
Mathematics 107, 108, 109	6
Speech 210, 222, 440	9
Zoology 111	3
	36

Sophomore Year

Education 200	3
Physical 205, 465	6
Political Science 201	3
Psychology 204	3
Speech 411, 413, 418, 420, 470	15
Special Education 300	3
Zoology 225	3
	36

Junior Year

Education 323, 324	5
English 332	3
Psychology 205, 206	6
Social Studies Elective	3
Speech 212, 312, 443, 444, 445	17
	34

Senior Year

Counseling 400	3
Education 355, 390, 415, 416	12
Health & Physical Education 321	2
Psychology 310	3
Special Education 490	3
Speech 425, 446	6
	29

TOTAL SEMESTER HOURS....135

College of Engineering

College of Engineering

JACK THIGPEN, Dean

H. L. Henry, Associate Dean

DEPARTMENTS AND FACULTY

AGRICULTURAL ENGINEERING

JACKIE W. D. ROBBINS
Professor and Head of the Department
ASSOCIATE PROFESSORS: CLYDE G. VIDRINE, CHARLES W. WILSON
ASSISTANT PROFESSOR: JAMES V. ALBRITTON

BIOMEDICAL ENGINEERING

DANIEL D. RENEAU
Professor and Head of the Department
ASSOCIATE PROFESSORS: JAMES D. GREEN, ROY W. SCHUBERT
ASSISTANT PROFESSORS: C. R. HORTON, F. S. KNOX, III, ANDREW SZETO
RESEARCH ASSOCIATE: NELSON O'YOUNG

CHEMICAL ENGINEERING

JAMES W. MALONE
Professor and Head of the Department
PROFESSOR: HOUSTON K. HUCKABAY
ASSISTANT PROFESSOR: NORMAN F. MARSOLAN

CIVIL ENGINEERING

JOE R. WILSON
Professor and Head of the Department
PROFESSORS: C. H. EDWARDS, W. O. HADLEY, R. W. McLEANE, G. W. MIDDLETON, J. T. PAINTER, B. E. PRICE, M. T. WILKINSON
ASSOCIATE PROFESSOR: C. A. LEMKE
ASSISTANT PROFESSOR: ALBERT CHEN

ELECTRICAL ENGINEERING

DAVID L. JOHNSON
Professor and Head of the Department
PROFESSORS: B. F. BROWN, M. R. JOHNSON, JR., E. N. ROOTS, JR., R. M. STEERE, THOMAS WILLIAMS, JR.
ASSOCIATE PROFESSORS: R. H. NEWELL, J. D. WISTERMAN
ASSISTANT PROFESSORS: G. B. BADEAUX, D. H. COWLING, NITIA SCHROEDER, DEAN L. SMITH

GEOSCIENCES

LEO A. HERRMANN
Professor and Head of the Department
PROFESSOR: W. R. HIGGS
ASSOCIATE PROFESSOR: R. E. DAVENPORT

INDUSTRIAL ENGINEERING AND COMPUTER SCIENCE

ROBERT R. LITTLE
Professor and Head of the Department
PROFESSORS: JOHN B. KEATS, H. L. HENRY
ASSOCIATE PROFESSORS: P. N. HALE, JR., C. N. SCHROEDER, D. R. SULE.
ASSISTANT PROFESSOR: ROBERT F. KELSO.

MECHANICAL ENGINEERING

R. D. HOLSTEAD
Professor and Head of the Department
PROFESSORS: R. F. BARRON, A. C. BRUCE, JOHN D. CALHOUN, JACK CANTERBURY, E. M. KILLGORE, J. D. LOWTHER, G. J. TRAMMELL
ASSISTANT PROFESSOR: B. F. BLACKWELL

PETROLEUM ENGINEERING

R. M. CARUTHERS
Professor and Head of the Department
ASSOCIATE PROFESSOR: R. E. STORMS
ASSISTANT PROFESSOR: MEHMET M. OSKAY

GENERAL INFORMATION

HISTORY AND ORGANIZATION

Engineering education at Louisiana Tech University began in September 1895 in the Department of Mechanical Arts of the Louisiana Industrial Institute. Throughout its history the College of Engineering has kept pace with advances in education and industry, consistently turning out top quality graduates.

The growth and development of engineering education at Louisiana Tech is outlined below:

1910 February, curriculum offering the Bachelor of Industry degree in General Engineering, replaced curriculum in Mechanic Arts.

1921 Louisiana Industrial Institute changed to Louisiana Polytechnic Institute. Bachelor of Science degree in General Engineering offered.

1927 Bachelor of Science degree in Mechanical and Electrical Engineering and Bachelor of Science degree in Civil Engineering offered, replacing the curriculum in General Engineering.

1939 Bachelor of Science degree in Mechanical and Electrical Engineering replaced by offering the Bachelor of Science degree in Mechanical Engineering and the Bachelor of Science degree in Electrical Engineering.

1940 Bachelor of Science degree in Chemical Engineering offered.

1948 Bachelor of Science degree in Petroleum Engineering offered.

1953 Department of Engineering Research created. A curriculum leading to the Bachelor of Science degree in Geology initiated. The curriculum was incorporated into the newly named Department of Petroleum Engineering and Geology.

1955 Bachelor of Science degree in Geological Engineering offered and the granting of bachelor's degree in geology removed from the School of Arts and Sciences. The Department of Petroleum and Geological Engineering established.

1956 The General Engineering Department established as a non-degree granting department to administer the engineering courses that are not identified with a particular branch of engineering.

1957 A Bachelor of Science degree in Industrial Engineering offered in the Department of General Engineering. A cooperative plan arrangement developed with certain industrial firms, thereby providing for students a plan of alternate work in college and industry.

1958 The State Board of Education authorized the School of Engineering to offer courses and curricula leading to the Master of Science degree.

1963 The Department of Industrial Engineering replaced the Department of General Engineering. In addition to the Industrial Engineering offerings, the Department continued to offer the courses that were common to all engineering curricula.

1966 The Division of Continuing Engineering Education established.

1967 The Department of Civil Engineering renamed Department of Civil Engineering and Geology and administered the curriculum in Geological Engineering. The Department of Petroleum and Geological Engineering renamed Department of Petroleum Engineering. The Aerospace Option in Mechanical Engineering offered. The Bachelor of Science degree in Geology continued to be granted by the School of Arts and Sciences.

1968 The Department of Civil Engineering and Geology offered the Construction Technology curriculum and the Geological Engineering option. The Department of Industrial Engineering offered a degree in Computer Science. The School of Engineering was authorized to grant the Doctor of Philosophy degree beginning in September 1968.

1970 The Department of Civil Engineering and Geology offered a certificate of proficiency in land surveying. The Department of Industrial Engineering and Computer Science offered an Operations Research option to the Master of Science degree program in Industrial Engineering. The official designation changed from School of Engineering to College of Engineering.

1971 The Geology curriculum was added to the Department of Civil Engineering and Geology (from the College of Arts and Sciences).

1972 The Department of Biomedical Engineering and the Department of Geosciences were established. The undergraduate and graduate programs in geology moved to Department of Geosciences. Department of Civil Engineering and Geology renamed Department of Civil Engineering. The Bachelor of Science degree in Electro-Technology (presently called Electrical Engineering Technology) was offered.

1973 Associate of Science degrees (2-year) in Environmental Technology, Instrumentation Technology, Petroleum Technology, Technical Drafting, and Pulp and Paper Technology offered.

1974 Associate of Science degree (2-year) in Mechanical Technology.

1976 Aerospace Option in Mechanical Engineering dropped. Associate of Science Program in Environmental Technology dropped. The entire program in Agricultural Engineering moved to the College of Engineering from the College of Life Sciences.

ACCREDITATION

The curricula of Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical and Petroleum Engineering are accredited by the Engineers' Council for Professional Development.

DEGREES

ASSOCIATE OF SCIENCE In: Instrumentation Technology, Land Surveying Technology, Mechanical Technology, Petroleum Technology, and Technical Drafting. These programs are administered by the College of Engineering and are listed in this bulletin under the Division of Basic and Career Studies.

BACHELOR OF SCIENCE in: Agricultural Engineering; Biomedical Engineering; Chemical Engineering; Civil Engineering; Computer Science; Construction; Electrical Engineering; Electrical Engineering Technology; Geology; Industrial Engineering; Mechanical Engineering; and Petroleum Engineering.

ADMISSION

A first-term freshman enters the Division of Admissions, Basic and Career Studies and transfers from that Division to the College of Engineering when the student has demonstrated a satisfactory scholastic achievement. The scholastic achievement required for admission into the College of Engineering is:

after one quarter, 8 hours and 3.0 grade point average
after two quarters, 16 hours and 2.5
after three quarters, 24 hours and 2.0
after four or more quarters a 2.0 grade point average on hours pursued, or the student may be admitted by the Dean of the College of Engineering.

A student planning to pursue a curriculum in engineering must meet the general University entrance requirements and it is recommended that the student obtain the high school credits listed below. However, any deficiency in these may be remedied while the student is enrolled in the Division of Basic and Career Studies.

English	4 units
Algebra	2 units
Plane Geometry	1 unit
Trigonometry	½ unit
Chemistry	1 unit
Physics	1 unit

SCHOLASTIC REQUIREMENTS

The College of Engineering is aware of its responsibility of training men and women for public service; therefore, it must hold exacting standards of achievement for those students to whom it gives its approval. Since the sciences, especially physics, chemistry, and mathematics, and the communication skills are the basis of any sound engineering curriculum, satisfactory work is essential in these departments during the first two years.

To continue in an engineering curriculum a student who has been enrolled for six quarters must have achieved an over-all grade-point average (quality points divided by semester hours) of at least 1.75 on the total semester hours pursued. This requirement will apply each quarter thereafter to continue in the College of Engineering.

In order to remain in good standing in the College of Engineering, the student must maintain a grade average of "C" or higher for the total pursued semester hours. The College of Engineering reserves the right to accept toward graduation only credits with a "C" or higher grade in engineering courses, and if the student receives a grade of "D" in any non-terminal mathematics course required in the curriculum the course must be repeated before proceeding in the sequence. During any quarter in which an engineering student is on scholastic probation, the student may enroll in no more than 9 semester hours.

GRADUATION REQUIREMENTS

In addition to the requirements listed in the general information section of this bulletin, all engineering majors must have a "C" average or better in their major field, calculated on the semester hours earned basis.

All majors in the College of Engineering must take at least 27 of the last 36 hours of the curriculum while registered in the curriculum major in the College of Engineering.

ELECTIVES

All electives must be approved by the appropriate department head. A free elective cannot be a prerequisite for a course specifically required in a student's curriculum.

TRANSFER STUDENTS

A candidate for admission to the College of Engineering by transfer from another institution or college must submit a satisfactory record in scholarship and in conduct from the institution(s) or college(s) from which the student wishes to transfer.

If the subjects satisfactorily passed cover in time and content certain of the required subjects in the engineering college curriculum which the student expects to enter, equivalent credit will be allowed.

Transfer students having completed six or more quarters of college work will be required to have an over-all "C" average in order to enroll in an engineering curriculum. All students transferring to an engineering curriculum must have an average grade of "C" in all courses for which credit may be allowed. For all students transferring to an engineeering curriculum a one-year probationary period will follow entrance, during which time an over-all "C" average must be maintained in required courses or the student will not be permitted to continue in an engineering curriculum.

NON-ENGINEERING MAJORS

A non-engineering major who meets prerequisite requirements may take without special approval from the Dean of Engineering the following engineering courses: Engineering 151, 300, 401, 431, Agricultural Engineering 105, 110, 206, 209, 210, 211, 214, 215, 216, 303, 320, 325, 340, 415, 418, 431, Biomedical Engineering 200, Electrical Engineering 203, 326, Industrial Engineering 201, 301, Petroleum Engineering 200, Mechanical Engineering 200, 251, Aerospace Engineering 301, or any engineering course required in the curriculum.

A non-engineering major who meets prerequisite requirements and who obtains written approval from the Dean of Engineering (or the Dean's representative) may (a) take any one engineering course per quarter, or (b) take any two engineering courses per quarter if the student has maintained an over-all "C" average and has not previously failed to meet scholastic requirements while enrolled as a student in the College of Engineering.

MILITARY STUDIES CREDIT IN ENGINEERING CURRICULA

The various engineering curricula make provision for use of credit for Air Force Aerospace Studies to the following extent:

For engineering students enrolled in the Air Force ROTC program the lower division courses in Air Force Aerospace Studies will be accepted in lieu of 3 hours of free elective.

The twelve semester hours of advanced Air Force Aerospace Studies, when successfully completed, will be accepted upon approval of the major department head and dean, for three semester hours of non-technical elective toward the engineering degree being pursued. Should the student, upon successful completion of the first six semester hours of advanced studies, be prevented from enrolling in and completing the remaining six semester hours, credit shall be granted upon approval of the major department head and dean for the aforementioned three semester hours of elective.

The above rules will be interpreted within the following rulings:

1. A student whose military contract with the Air Force ROTC is voided for reasons beyond the student's control will receive credit in the curriculum for advanced ROTC courses completed.
2. A student whose military contract with the Air Force ROTC is voided for reasons within the student's control, including poor scholarship and misconduct, will not receive credit in the curriculum for advanced ROTC courses completed.

Students in the Naval Reserve Officer Candidate program may obtain a maximum of three semester hours of non-technical elective credit for the successful completion of one or more eight-week summer training periods at the Officer Candidate School, Newport, Rhode Island, provided:

1. The chief of Naval Personnel, upon the request of the individual student, forwards an accreditation transcript to the Registrar, and
2. The major department head and the dean approve.

Students in the Marine Platoon Leaders Class (MPLC) program may obtain a maximum of three semester hours of non-technical elective credit for the successful completion of one or more summers training, provided:

1. The military Personnel Procurement Branch, Headquarters, U. S. Marine Corps, upon the request of the individual student, forwards an accreditation transcript to the Registrar, and
2. The major department head and the dean approve.

EXPENSES

In addition to the regular collegiate expenses the student in engineering is required to purchase drawing equipment and a pocket electronic calculator of a quality approved by the faculty. All engineering students are required to pay $1.95 per quarter to cover the subscription cost of the "Tech Engineer" and membership dues in the Louisiana Tech Engineers' Association. All students, on reaching the junior level, should have free access to a typewriter for the purpose of preparing laboratory and other reports. This machine may be either portable or desk model. Graduating seniors in College of Engineering are required to complete an Engineering Graduate Data Form and to supply the Office of the Dean with three recent application-type photographs approximately 2" x 2 ½".

CORRESPONDENCE COURSES

Students in the College of Engineering are permitted to include no more than six semester hours of correspondence course for credit toward graduation in any curriculum. Prior to pursuing the correspondence work the student must obtain written approval of the Dean of Engineering. Approval will be granted only for courses in areas such as the humanities or economics (English courses are excluded).

CREDIT BY EXAMINATION

The College of Engineering recognizes the outstanding student and encourages exceptional students to advance as rapidly as possible. Therefore, a student may receive up to a maximum of thirty semester hours of degree credits by scoring high on special examinations.

General Examinations (CLEP)

With the approval of the department head and the Dean, the College of Engineering will accept in each of its engineering curricula eighteen semester hours credit by CLEP General Examninations, provided the subject(s) for which credit is allowed has not already been taken by the student. Six semester hours of degree credit may be allowed in English (English 101 and 102). Six semester hours credit may also be allowed in English and American Literature (English 201 and 202). In addition, six semester hours credit may be allowed for Humanities or Social Sciences electives (History 101 and 102). Subject to the approval of the Head of the Biomedical Engineering Department, six additional semester hours may be allowed

for technical elective credit in zoology. In non-engineering curricula administered by the College of Engineering, twenty-four semester hours of credit may be allowed, subject to the approval of the head of the department responsible for that curriculum.

Subject Examinations

With the approval of the department head and the Dean of Engineering, degree credit may be obtained by acceptable scores on Subject Examinations in accordance with the general University policy. An engineering student may receive up to thirty semester hours of degree credit in any one of the engineering curricula by such examinations, if comparable course work has not been taken by the student. The Subject Examinations may be of three types: (1) CLEP Examinations, (2) DANTES Subject Examinations, (3) Subject Examinations for credit prepared by Louisiana Tech University faculty members.

STUDENT ORGANIZATIONS

The following engineering organizations are available for student participation:

Louisiana Tech Engineers' Association, Student Branch of the American Institute of Aeronautics and Astronautics Student Branch of the American Society of Agricultural Engineers, Student Chapter of the Association of Biomedical Engineers, Student Chapter of the American Institute of Chemical Engineers, Student Chapter of the American Society of Civil Engineers, Student Chapter of the Association for Computing Machinery, Student Branch of the Institute of Electrical and Electronics Engineers, Louisiana Tech Geological Society, University Chapter of the American Institute of Industrial Engineers, Student Section of the American Society of Mechanical Engineers, Student Chapter of the Society of Petroleum Engineers of A.I.M.E., Student Chapter of the Associated General Contractors of America.

STUDENT HONOR SOCIETIES

The following honor societies are available to those students who excell academically and are elected to membership:

Alpha Pi Mu—Industrial Engineering Honor society; Chi Epsilon—Civil Engineering Honor Fraternity; Eta Kappa Nu—Electrical Engineering Honor Society; Omega Chi Epsilon—Chemical Engineering Honor Society; Upsilon Pi Epsilon—Computer Science Honor Society; Pi Epsilon Tau—Petroleum Engineering Honor Society; Pi Tau Sigma—Mechanical Engineering Honor Fraternity; Sigma Gamma Epsilon—Earth Sciences Honor Society; Tau Beta Pi—all engineering.

SCHOLARSHIPS

In addition to the financial aid mentioned elsewhere, certain engineering students will be eligible for the scholarships listed below:

AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS, SHREVEPORT SECTION: An outstanding student in industrial engineering.

AMERICAN PETROLEUM INSTITUTE, SOUTH ARKANSAS CHAPTER: An outstanding student in petroleum engineering.

AMERICAN PETROLEUM INSTITUTE, MONROE, LA., CHAPTER: An outstanding student in petroleum engineering.

. AMOCO FOUNDATION, INC.: An outstanding beginning freshman student and an outstanding minority student in petroleum engineering.

AMOCO FOUNDATION, INC.: An outstanding senior student and an outstanding junior student in mechanical engineering.

R. C. BAKER FOUNDATION: An outstanding senior student and an outstanding junior student in mechanical engineering.

R. C. BAKER FOUNDATION: An outstanding senior student and an outstanding junior student in petroleum engineering .

BEN T. BOGARD SCHOLARSHIP: An outstanding engineering student who has completed at least 92 semester hours, but who has at least 3 quarters remaining before graduation at the beginning of the fall quarter.

FRANK BOGARD SCHOLARSHIP: An outstanding student who has completed at least 60 semester hours but not more than 91 semester hours at the beginning of the fall quarter.

CHEMICAL ENGINEERING DEPARTMENT: In addition to designated scholarships the Department of Chemical Engineering has unspecified scholarships from Atlantic Richfield Foundation; Conoco Chemicals: E. E. DuPont de Nemours and Company; Exxon USA Foundation; Monsanto Company; Texaco, Inc.; and Union Carbide Corporation.

CONSTRUCTION INDUSTRY ADVANCEMENT FUND OF SHREVEPORT AND VICINITY: Four outstanding junior or senior students in construction or construction management option of civil engineering.

CONTINENTAL CAN CO., INC.: An outstanding undergraduate student in chemical engineering.

CONTINENTAL OIL COMPANY: An outstanding student in petroleum engineering.

DATA PROCESSING MANAGEMENT ASSOCIATION, SHREVEPORT CHAPTER: An outstanding student in computer science. Preference given to those from Shreveport/Bossier area.

DIAMOND SHAMROCK CORPORATION: Two outstanding female or minority students in chemical engineering.

DRESSER FOUNDATION: An outstanding beginning freshman student in petroleum engineering.

GEOSCIENCES DEPARTMENT: Four outstanding geoscience students.

GETTY OIL: An outstanding undergraduate student in petroleum engineering (a U. S. citizen).

A. J. HODGES INDUSTRIES: An outstanding geosciences student.

JOHN R. HORTON: A deserving sophomore, junior, or senior student.

T. L. JAMES COMPANY: An outstanding student in each of the freshman, sophomore, junior and senior classes.

KAISER ALUMINUM AND CHEMICAL CORPORATION: A deserving student in geosciences.

KAISER ALUMINUM AND CHEMICAL CORPORATION: Outstanding minority students in chemical engineering.

H. A. LOTT, INCORPORATED: Two outstanding students.

LOUISIANA ENGINEERING SOCIETY, WOMEN'S AUXILIARY, MONROE SECTION: An outstanding senior student from the Fifth Congressional District.

LOUISIANA ENGINEERING SOCIETY, WOMEN'S AUXILIARY, SHREVEPORT SECTION: An outstanding senior student from Caddo or Bossier Parishes.

THE LOUISIANA LAND AND EXPLORATION COMPANY: An outstanding junior or senior student in geosciences who is a Louisiana resident and U. S. citizen.

THE LOUISIANA LAND AND EXPLORATION COMPANY: An outstanding junior or senior student in petroleum engineering who is a Louisiana resident and U.S. Citizen.

LOUISIANA POWER AND LIGHT COMPANY: One outstanding junior or senior student in electrical engineering .

LOUISIANA TECH ENGINEERING FOUNDATION, INC.: An outstanding graduate student.

MARTHON OIL FOUNDATION, INC.: Offered to three minority students who are entering freshmen in petroleum engineering.

R. A. McFARLAND: An outstanding junior student in civil engineering.

MOHR & ASSOCIATES: An outstanding minority student in civil engineering.

MONSANTO COMPANY: An outstanding junior or senior student in mechanical engineering.

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION, OUACHITA VALLEY CHAPTER: Three outstanding students in electrical engineering, one in each of the sophomore, junior and senior classes.

NORTHWEST LOUISIANA PLUMBING AND AIR CONDITIONING INDUSTRY: An outstanding junior or senior student in mechanical engineering.

OLINKRAFT, INC.: Outstanding senior mechanical engineering student for summer research program.

PETROLEUM ENGINEERING DEPARTMENT: Approximately twenty deserving students in petroleum engineering.

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION SCHOLARSHIP FOUNDATION: Personal loans to deserving junior, senior, or graduate students in electrical engineering.

RELCO EXPLORATION CO.: An outstanding petroleum engineering student.

SHELL OIL COMPANIES FOUNDATION INC.: An outstanding undergraduate in petroleum engineering, chemical engineering, and mechanical engineering.

SOUTHWESTERN ELECTRIC POWER COMPANY: An outstanding senior student in electrical engineering whose home is in the company service area.

SOUTHWESTERN ELECTRIC POWER COMPANY: An outstanding student in mechanical engineering whose home is in the company service area.

STAUFFER CHEMICAL COMPANY: Two outstanding seniors and two outstanding juniors in chemical engineering.

SUN OIL COMPANY: An outstanding geosciences student.

WESTERN ELECTRIC FUND: An outstanding junior or senior student.

WYLY AND ALUMNI: Outstanding beginning freshmen.

SAMUEL McCAIN YOUNG: An outstanding student in civil engineering from metropolitan New Orleans area who is a U. S. citizen.

COMPUTER FACILITIES

The College of Engineering has long been active in computer technology and applications. The Department of Electrical Engineering began teaching a sequence of courses in switching and digital control theory in 1955. In 1957 a digital computer was purchased and courses in computer programming were offered by the department. The B.S. degree in electrical engineering has computer engineering as one of its options, including both hardware and software. Since 1968 the Department of Industrial Engineering and Computer Science has offered a curriculum leading to the B.S. degree in computer science to meet the demand for software specialists. The Electrical Engineering Technology program in the Department of Electrical Engineering includes courses in analog and digital computer circuitry, maintenance and use.

All majors in the College of Engineering make extensive use of the IBM digital computers in the University Computing Center. They have ready access to analog computers in the various engineering departments and also to the computers in the Electrical Engineering Department: a Digital Equipment Corporation PDP-9 digital computer, a Univac Solid-State 90 digital computer, and Applied Dynamics AD-40 and AD-80 analog computers. A remote terminal has recently been added to allow those doing research in the Department of Biomedical Engineering to use the AD-80 even though their laboratory is in another building.

DIVISION OF ENGINEERING RESEARCH

RANDALL F. BARRON, Director

The Division of Engineering Research was created in 1953 in recognition of the importance of fundamental and applied research to the world of technology and to the professional development of a competent faculty. The purpose of the division is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The activities of the division are directed by the Research Coordinating Committee, composed of the Engineering Academic Department Heads with the Director of Engineering Research serving as chairman of the group. This committee is responsible to the Dean of the College of Engineering.

The financial support of research projects is derived from two primary sources: (a) the operating budget of the Research Department, and (b) sponsorship of a project by an interested outside agency.

ENGINEERING GRADUATE STUDIES

H. K. HUCKABAY, Director

The College of Engineering offers the Master of Science and the Doctor of Philosophy Degree with majors (specializations) available in biomedical, chemical, civil, electrical, industrial (with an operations research option at M.S. level), mechanical and petroleum engineering. A Master of Science in Geology and in Agricultural Engineering is offered by the College of Engineering.

THE COOPERATIVE PLAN

MILTON R. JOHNSON, JR., Coordinator

The College of Engineering is cooperating with certain industrial firms in a plan of alternate periods of work and university study for students in engineering. The Cooperative Plan provides one of the best methods for integrating technical theory and practical industrial experience in a five-year educational program. Another important purpose for maintaining the Cooperative Plan is to provide promising engineering students who find it financially difficult to complete their formal education an opportunity to earn money that can pay a large part, or possibly all, of their college expenses.

Although the College cannot guarantee work or stipulate compensation, every effort will be made to place the students to their best educational and financial advantage. The Cooperative Plan will allow the student to have approximately a year of practical experience by the time of graduation. In cases where the student accepts permanent employment with the cooperating company, the necessity for taking special company orientation and training courses after graduation is usually eliminated. The Cooperative Plan graduate is not obligated to accept employment with the cooperating company nor is the company obligated to offer permanent employment.

Each student participating in the Cooperative Plan is required to register at Louisiana Tech during the work phase.

Students from any department within the College of Engineering will be considered for participation in the Cooperative Plan provided they have completed three quarters of university work successfully with at least a grade-point average of 2.5 and are specifically recommended by the head of the department in which they plan to complete requirements for a degree. Requirements for graduation and the degree earned are the same as those for regular students pursuing a four-year program. Individuals interested in further details should contact the Coordinator of the Cooperative Plan, College of Engineering, Louisiana Tech University, Ruston.

DIVISION OF CONTINUING ENGINEERING EDUCATION

GROVER J. TRAMMELL, Director

The Division of Continuing Engineering Education sponsors and coordinates various special program other than the regular academic and research programs. These include conferences, short courses, lectures, seminars, continuing education programs and summer institutes. These programs are designed to aid the practicing engineers, technicians and others in this area 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.

JOINT CURRICULA OFFERED BY THE COLLEGE OF ENGINEERING AND COLLEGE OF ADMINISTRATION AND BUSINESS

The College of Engineering in cooperation with the College of Administration and Business has arranged four curricula which will enable students who desire to do so, to obtain a degree in one of four fields of Engineering and a degree in Business Administration. This program of study requires five years and one quarter for completion, at which time the two degrees are awarded. These curricula are jointly administered by the two colleges. The four departments of the College of Engineering offering these joint curricula are: Chemical, Civil, Electrical, and Mechanical.

DEPARTMENTAL INFORMATION

ENGINEERING FRESHMEN

CALVIN A. LEMKE, Advisor

The courses in the first three quarters are common to all engineering curricula and are intended to provide an opportunity for the student to become acquainted with basic scientific and engineering fundamentals. This permits the engineering student to delay in choosing the engineering department in which the student proposes to pursue a degree until later in the freshman year.

FRESHMAN ENGINEERING CURRICULUM

(Same for all engineering disciplines)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Engineering 102[1], 151	4
English 101, 102	6
Mathematics 230, 231, 232	9
Non-Technical Elective[2]	6
TOTAL SEMESTER HOURS	33

[1] Agricultural engineers take Agricultural Engineering 161 and 186 in lieu of Engineering 102 .

[2] All Non-Technical electives must be approved by the engineering freshman advisor and must be selected from courses offered in the departments of English, Foreign Languages, History, or Social Sciences.

AGRICULTURAL ENGINEERING

JACKIE W. D. ROBBINS
Head of the Department

Agricultural Engineering serves exclusively the engineering needs of the world's largest and most basic industry—agriculture. It is engineering that applies energy, materials and mechanisms to multiply the effectiveness of man's activities. And it is Agricultural Engineering that applies these to improve the effectiveness of the food and fiber industry.

The Agricultural Engineering curriculum is designed to give the student basic training in both engineering and agriculture; broad education in the biological, physical and social sciences; and fundamental experience in the application of engineering principles to the diverse and unique requirements of biological systems. The curriculum is organized to present a general knowledge of all major phases of Agricultural Engineering: power and machinery; structures and environment; soil and water conservation; electric power and processing; and food engineering. By selecting electives judiciously, the student can specialize in such areas as forest engineering, biological engineering, aquacultural engineering, ecological engineering, land use engineering, food engineering, environmental engineering and safety engineering.

Graduates of the Agricultural Engineering curriculum are broadly trained to understand natural phenomena and to apply the fundamentals of engineering, plant, soil and animal sciences to the production, transportation, processing and distribution of agricultural products and to the conservation of our natural resources. Their unique background in pure and applied life sciences combined with a strong preparation in mathematical, physical, earth and engineering sciences qualifies them to creatively deal with the growing engineering challenge of producing more and better food and fiber for an increasing population at reasonable costs while maintaining the quality of the environment at a high level.

Graduates of the Department's curriculum work as engineers in a wide variety of governmental agencies and private industries. They are also prepared to study toward higher degrees in Agricultural Engineering. Some pursue advanced training in professional schools such as law, medical, business and in other branches of engineering.

AGRICULTURAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Agricultural Engineering 266, 276, 286	4
Agronomy 202	4
Botany 101	4
Engineering Mechanics 201, 202, 203	6
Mathematics 330	3
Physics 201, 261	4
Agricultural Engineering Elective	1
Humanities and Social Sciences Electives	3
Technical Elective	2
	31
Junior Year	
Agricultural Engineering 301, 307, 308	7
Electrical Engineering 213	3
Engineering Mechanics 301, 321	5
Mathematics Elective (300 or 400 level)	3
Mechanical Engineering 315, 316	4
Physics 202, 262	4
Speech 377	3
Technical Elective	3
	32
Senior Year	
Agricultural Engineering 403, 405	6
Humanities and Social Sciences Elective	8
Free Elective	3
Technical Elective	15
	32
TOTAL SEMESTER HOURS	128

All electives must effect a rationale and be approved by the Head of the Department.

BIOMEDICAL ENGINEERING

DANIEL D. RENEAU
Head of the Department

Biomedical Engineering is formally defined as that field which deals with the interaction between the engineering sciences and biology and medicine. The nature of the undergraduate program at Louisiana Tech University is to combine the practical aspects of engineering with biology and medicine to produce a new type of engineer capable of conducting biomedical work. The program allows medical and biological instruction to be obtained in the life sciences (i.e., general biology, genetics, comparative anatomy, embryology, microbiology, physiology, etc.) and engineering instruction to be obtained from selected standard engineering courses. The aspects of the biological training is combined with the engineering training by means of a series of coordinated biomedical engineering courses taught at the sophomore, junior and senior academic levels.

The training program leading to a Bachelor of Science degree in Biomedical Engineering is designed along broad lines that permit a student to obtain an overall education in Biomedical Engineering, and a specialty in one of the following areas: Electronics, Systems Analysis, Design, or Life Sciences.

The biomedical engineers of today are working in many rewarding areas. For example, some are involved in the design and construction of artificial internal organs; others are clinically involved in the electronics and instrumentation associated with hospital operating rooms, intensive care rooms and automated clinical laboratories; others are involved in biomedical computer systems; and some are conducting basic research using engineering analysis principles aimed at understanding the basic mechanisms that regulate the human body. Among others, employment opportunities exist in hospitals, national research foundations, governmental research institutes, chemical companies, pharmaceutical companies, and the electronics and computer industries.

One special characteristic feature of the biomedical engineering program is that upon graduation, or at the end of the first three years of study, the student will have completed the basic requirements necessary for admission to medical school. The program is viewed as having strong quantitative background for one who wishes to pursue a future medical career.

An internship program has been developed with hospitals in the state. The program is optional, and the student may spend one quarter of study in the hospital system.

Another feature of the program is that upon completion of the biomedical engineering degree program in any of the specialties, the student will be adequately prepared to continue his/her education at the graduate level by pursuing either a Master of Science and/or the Doctor of Philosophy degree in Engineering.

BIOMEDICAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Biomedical Engineering 201 and 210	5
Mathematics 330 and 350	6
Physics 201, 202, 261, 262	8

English 201 or 202	3
Technical Elective[1]	3
Zoology 202	4
	29

Junior Year*

Biomedical Engineering 301 and 320	6
Chemistry 250, 251, 253 and 254	6
Economics 203	2
Electrical Engineering 213	3
Engineering Mechanics 201	2
Technical Elective	9
Zoology 320	4
	32

Senior Year**

Biomedical Engineering 401, 402, and 403	9
Economics 204	2
Electrical Engineering 325	3
Free Elective	3
Non-Technical Elective	6
Technical Elective	9
Zoology 410	3
	35

TOTAL SEMESTER HOURS....129

[1] All electives must be approved by the Head of the Department of Biomedical Engineering. Non- technical electives are to be selected from courses offered in the Departments of Art, Economics, English, Foreign Languages, or Social Sciences. Technical electives are to be selected from courses offered in the Departments of the College of Engineering or in the Departments of Mathematics, Chemistry, Physics, or in the Life Sciences. (A minimum of four semester hours of credit is required in thermodynamics.) The student must select, in conjunction with the Department Head, a series of courses consisting of a minimum of 12 hours which specialize in one of the following areas:

a) Electronics

b) Design

c) Systems analysis

d) Life Sciences

* At the end of the ninth quarter, the student can complete the basic requirements necessary for admission to medical school and may elect to apply for entrance.

**One quarter may be spent as an intern in an associated hospital.

CHEMICAL ENGINEERING

JAMES W. MALONE
Head of the Department

Chemical Engineering is that branch of engineering concerned with the development, application, and operation of the manufacturing process in which chemical and/or certain physical changes of material are involved. The work of the chemical engineer is to develop, design, construct and supervise the operation of equipment and plants in which raw products are processed into finished bulk chemicals. A chemical engineer is one who can make scientific applications of mathematics, physics, chemistry, and chemical engineering principles to the development, design and safe, efficient operation of such equipment and plants within economic restraints.

The training of the chemical engineer must cover pure and applied sciences—chemistry, physics, mathematics, general engineering, analog and digital computer applications, and fundamental chemical engineering. The latter is best presented by a study of material balances, energy balances, equilibria, rates of reaction, and the associated equipment. These are the basic studies that may be applied to any industry. The study of many chemical processes are included in the laboratory and classroom work.

In order to meet newly developed interests in the chemical and related fields, elective courses are offered in radio-active isotopes, industrial waste treatment, specialized computer techniques and environmental problems.

The fundamental objective of the curriculum in chemical engineering is to prepare young men and women for careers in the field of chemical manufacturing and allied industries.

The graduate in chemical engineering enters industrial work as an engineer in the production or operating departments of chemical or allied plants (such as metals, paper, petroleum, plastics, forest products, pharmaceuticals or food processing), or in the technical service or process improvement sections of such industries. Additional opportunities exist in the research and development sections of such industries, or in private or governmental research organizations. Market research or technical sales service positions are also available. In all these endeavors, an engineering education has been established as a valid route to top management. Graduates also are prepared to enter graduate study at accredited schools throughout the nation.

CHEMICAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33

Sophomore Year

Chemical Engineering 201, 202, 254, 306	8
Economics 203	2
Electrical Engineering 213	3
English 201 or 202, and 303	6
Mathematics 330, 350	6
Physics 201, 202, 261, 262	8
	33

Junior Year

Chemical Engineering 301, 303, 321, 322, 350, 351, and 352	11
Chemistry 250, 251, 253, 254, 311, 312, 313, and 314	14
Economics 204, 205	4
Engineering Mechanics 201, 202	4
	33

Senior Year

Chemical Engineering 401, 402, 407, 424, 432, 434, 451, and 452	16
Electrical Engineering 325	3
Free Elective[1]	3
Non-Technical Electives[1]	6
Technical Electives[1]	6
	34

TOTAL SEMESTER HOURS....133

[1] All electives must be approved by the Head of the Department of Chemical Engineering. Non-Technical electives are to be selected from courses offered in the fields of history, government, literature, sociology, philosophy, psychology, fine arts or foreign languages. Technical electives must be selected from courses offered in the departments of the College of Engineering or in the departments of Chemistry, Mathematics, or Physics.

CIVIL ENGINEERING

JOE R. WILSON
Head of the Department

The civil engineer is in the forefront providing construction counsel on matters vital to mankind. Most people can only talk about urban congestion, environmental pollution, droughts and floods. Civil engineers help to eliminate or greatly reduce the destructive power of these plagues. They are primarily responsible for planning, design, and construction of all the world's constructed facilities.

Approved by the Engineers' Council for Professional Development, the curriculum in civil engineering is designed to produce graduates who have the background necessary for the practice of civil engineering and the capacity for further development of mind and character to assume the highest responsibilities of citizenship and of professional engineering.

The up-to-date curriculum provides the fundamentals of engineering and teaches the application of those fundamentals in engineering design. It also develops the ability to communicate, and helps the student develop a personal value system and a sense of social responsibility and concern for the needs and problems of mankind and the environment today and in the future. Well-equipped laboratories enhance the classroom lectures: Environmental Engineering, Hydraulics, Materials Testing, Remote Sensing, Soil Mechanics, Stress Analysis and Surveying.

The graduate will have competence in all of the following areas with emphasis on at least one: structural design, environmental pollution control, hydraulics, hydrology, surveying, transportation, and soils engineering. Through choice of electives, optional programs are available in Construction, Foundations, Structures, Surveying and Water Resources.

CIVIL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Civil Engineering 254, 332	7
Engineering Mechanics 201, 202	4
English 202, 303	6
Humanities Elective[1]	3
Mathematics 330, 350	6
Physics 201, 202, 261, 262	8
	34
Junior Year	
Civil Engineering 302, 310, 314, 324, 346, 391	15
Engineering Mechanics 203, 301, 321	7
Geology 317	3
Humanities Elective	3
Mechanical Engineering 315, 316	4
	32
Senior Year	
Civil Engineering 424, 443, 444, 465	9
Economics 315	3
Electrical Engineering 213	3
Engineering 401	3
Humanities Elective	3
Mathematics Elective	3
Speech 377	3
Technical Electives	8
	35
TOTAL SEMESTER HOURS	134

[1]All electives must be approved by the head of the Department of Civil Engineering.

CONSTRUCTION

JOE R. WILSON, Advisor

The construction industry accounts for 15 out of every 100 jobs and consumes more basic and finished materials than any other industry in the United States. It is essentially a service industry converting the plans and specifications prepared by engineers and architects into finished products. With increasing demand for its services the construction industry continues to expand technologically and geographically.

This four-year curriculum leading to the degree of Bachelor of Science in Construction is offered by the Department of Civil Engineering. The program 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 sciences.

Although not trained to be professional engineers, graduates of this program are qualified to fill many professional positions in construction departments of government agencies; in construction departments of industrial concerns; in manufacturers of construction supplies and equipment; and in construction firms. These jobs might involve contract supervision, inspection or sales as well as supervised design of construction projects. The undergraduate business and management training should provide a big asset in moving up the executive ladder to success.

CONSTRUCTION CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
English 101, 102, 202	9
Mathematics 111, 112, 220	9
Technical Drafting 101	3
Civil Technology 102	1
Physics 209, 261	4
Civil Engineering 254	4
	30
Sophomore Year	
Accounting 203, 204	4
Engineering Mechanics 206, 207	6
Physics 210, 262	4
Economics 315	3
Political Science 201[2]	3
Mechanical Technology 215	3
Management 201[2]	3
Electives[1]	6
	32
Junior Year	
Civil Engineering 371, 372	6
Civil Technology 210, 341	6
Electrical Engineering 203, 326	5
English 303	3
Electives[1]	6
Business Law 355, 356[2]	6
	32
Senior Year	
Civil Engineering 424, 438, 439, 471, 472, 473	16
Engineering 401, 431	5
Finance 318	3

Industrial Engineering 427	3
Civil Engineering Elective	3
	30
TOTAL SEMESTER HOURS	124

[1]All electives must be approved by the Construction advisor.

[2]Courses in the College of Administration and Business cannot exceed 24 semester hours. Students interested in the MBA degree after completing the B.S. in Construction should make the following substitutions:

(a) Sociology 201 for Pol Sci 201
(b) Mgmt 311 for Mgmt 201
(c) Econ 408 for Bus Law 356
(d) Mgmt 350, QA 335 and QA 336 for 5 sem. hrs. of electives

LAND SURVEYING TECHNOLOGY

The Land Surveying Technology curriculum, a two-year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

ELECTRICAL ENGINEERING

D. L. JOHNSON
Head of the Department

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; communication and information transmission or 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 elements. 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 Engineers' Council for Professional Development (E.C.P.D.). Graduation from an E.C.P.D. 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 E.C.P.D. accredited curriculum the graduate has maintained a relatively good scholastic record, he/she may qualify for further study in the advanced degree program.

The College of Engineering offers the opportunity for graduate study leading to the degrees of Master of Science and Doctor of Philosophy. These programs seek to build on the basic foundations established by the undergraduate course of study. Each is in large measure an individual matter developed jointly by the student and an advisory committee. The study plan may reflect a desire for more specialized undertakings or a continuing interest in the broad, underlying theories of the profession. In each case, the culmination of the program is the required graduate research project, with thesis or dissertation, accomplished with the aid and guidance of a research adviser.

The Master of Science program requires approximately one year to complete when pursued on a full-time basis. The requirements for the Doctor of Philosophy degree may be completed in a minimum of two additional years of full-time study. Those who attain either of these advanced degrees will find a wide range of opportunities for rewarding careers in many areas of business, industry, government and education.

ELECTRICAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Electrical Engineering 203, 213, 214, 302, 303	11
Engineering Mechanics 201, 202	4
English 201 or 202	3
Mathematics 308, 330, 350	9
Physics 201, 202, 261, 262	8
	35
Junior Year	
Economics 315	3
Electrical Engineering 301, 308, 309, 313, 353, 354, 355, 401	18
Engineering Mechanics 202, 203	4
English 303	3
Mechanical Engineering 315, 316	4
Physics 380	3
	34
Senior Year	
Electrical Engineering 420, 424, 426, 432, 442	15
Speech 377	3
Humanities Electives[2]	9
Technical Electives[3]	6
	33
TOTAL SEMESTER HOURS	134

All electives (Humanities, Mathematics, and Technical) must be approved by the head of the Department of Electrical Engineering.

[1]Mathematics electives must be selected from the following: Mathematics 308, 407, 414, 418, 445, 448.

[2]Humanities electives must be selected from courses offered in the Departments of Art, Economics, English, Foreign Languages, History of Social Sciences.

[3]Technical electives must be selected from courses offered in the College of Engineering or in the Departments of Mathematics or Physical Science.

ELECTRICAL ENGINEERING TECHNOLOGY

DAVID COWLING, Advisor

The increasing complexity of the industrial processes and the expansion in research and production has created demand for a new group of specialists known as engineering technologists. These technologists work with professional engineers and scientists, or assume independent responsibility in the production, installation, operation and maintenance of complex technical apparatus. The engineering technologist organizes the personnel, materials and equipment to design, construct, operate and manage technical projects. The engineering

technologist coordinates people, materials and machines, and must possess a variety of skills and practical and theoretical knowledge to get things done.

Electrical Engineering Technology includes the areas of computers, electrical power, communications, instrumentation and control systems. The program combines course work coordinated laboratory work so that graduates will be capable of performing the variety of technical tasks demanded of them. The course and laboratory work emphasizes the latest in solid state transistors and integrated circuit technology throughout. The graduate will also have received training in technical writing, public speaking, documentation, and general industrial practices resulting in rapid advancement in a typical industrial organization. Thus, the program produces graduates qualified for a wide variety of commercial and industrial employment in the rapidly developing electrical-electronics technology field.

ELECTRICAL ENGINEERING TECHNOLOGY CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Electro-Technology 160, 161, 170, 171, 180, 181	12
English 101, 102	6
Mathematics 111, 112, 220	9
Mechanical Technology 251	2
Non-Technical Elective[1]	3
	32
Sophomore Year	
Electro-Technology 182, 260, 261, 264, 270, 274, 280	17
Physics 209, 210, 261, 262	8
Technical Drafting 101	3
Non-Technical Elective[1]	3
	31
Junior Year	
Civil Technology 206	3
Electro-Technology 284, 285, 360, 361, 370, 371	12
Basic Science Electives[1]	8
Free Elective[1]	3
Non-Technical Elective[1]	3
Mechanical Technology 215	3
	32
Senior Year	
Electro-Technology 262, 390, 460, 461, 470, 471, 472	11
Electro-Technology Elective[1]	3
Free Electives	8
Non-Technical Electives[1]	9
	31

TOTAL SEMESTER HOURS....126

[1]All electives must be approved by the Head of the Department of Electrical Engineering or an authorized representative.

INSTRUMENTATION TECHNOLOGY

(Leading to the Degree of Associate of Science)

The Instrumentation Technology curriculum, a two year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of the catalog.

DEPARTMENT OF GEOSCIENCES

L. A. HERRMANN
Head of the Department

Geosciences encompasses many scientific disciplines including geology, geophysics, oceanography, geochemistry, and astrogeology. These fields touch every facet of modern civilization from the discovery of mineral wealth to the more exotic exploration of the moon and planets.

The Department of Geosciences at Louisiana Tech specializes in the training of geologists. In the past decade there has been a strong demand by the petroleum industry for our graduates and we expect this demand to continue. Employment opportunities are also available with the U. S. Geological Survey, the Environmental Protection Agency, other branches of the Federal Government and state geological surveys. A number of geosciences majors participate in a Co-op program sponsored by the Water Resources Branch of the U. S. Geological Survey.

The department offers the bachelor's and master's degrees in geology.

The Geology curriculum is planned to give broad and fundamental training in the major areas of geology, with a background in mathematics, physics, chemistry, and zoology. It is designed for those students planning for a professional career in geology and the earth sciences.

Students in other departments who wish to minor in geology are required to take Geology 111, 112, 121, 122, 209, 210, 211, and six additional hours of geology.

GEOLOGY CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201 (or 202)	9
Geology 111, 112, 121, 122	8
Mathematics 111, 112	6
	31
Sophomore Year	
Engineering 151	2
Geology 209, 210, 211	9
History 101 (or 201), 102 (or 202)	6
Mathematics 230	3
Physics 209, 210, 261, 262	8
Zoology 111, 112	4
	32
Junior Year	
Botany 101	4
Civil Engineering 304	2
Computer Science 102	3
English 303	3
Geology 206, 305, 315	8
Geology 320 (Summer Field Camp)	6
Electives[1]	9
	35
Senior Year	
Economics 315	3
Geology 302, 408, 412, 413, 421	15
Speech 377	3
Electives[1]	9
	30

TOTAL SEMESTER HOURS....128

[1]Electives to be chosen with consent of advisor.

INDUSTRIAL ENGINEERING

R. R. LITTLE
Head of the Department

Industrial Engineering involves decision making related to the best use of people, material, equipment, and energy to achieve the aims of the organization. The organization may be an entire corporation, a hospital, a government office, an individual department, or any other group organized to make, produce or perform a service. Usually, the aims of the organization include reducing costs. Hence, the Industrial Engineer is often very much concerned with cost analysis and control.

If there is one phrase that summarizes the activities of Industrial Engineering it would have to be "the search for a better way." For example, a better way to perform assembly operations on a product, a better way to ship the product to the distributors, a better way to recover the cost of scrap from the manufacturing process, a better way to motivate employees, a better way to assure product quality and reliability, and so on.

For several years, national leaders have been calling for increased productivity by the American people. Industrial Engineers are specially trained to engage in efforts to bring about increased productivity, for finding a better way usually results in more productivity with the same, or less, effort on the part of the individual worker.

The Industrial Engineering Curriculum has been designed to prepare young men and women to find a meaningful career in this branch of engineering. The success of the program is evidenced by the accreditation granted by the Engineers' Council for Professional Development, the demand for graduates by industry, government and others, and the professional activities of the faculty.

INDUSTRIAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Chemical Engineering 306	2
Economics 315	3
Electrical Engineering 213	3
Engineering Mechanics 201, 202	4
Industrial Engineering 201	3
Mathematics 330	3
Mathematics Elective[1]	3
Mechanical Engineering 251	2
Physics 201, 202, 261, 262	8
Psychology 102	3
	34
Junior Year	
Electrical Engineering 325	3
Engineering Mechanics 203, 321	5
Engineering Science Electives[1]	6
English 303	3
Industrial Engineering 301, 400, 401, 408	12
Mechanical Engineering 315, 316	4
	33
Senior Year	
Economics Elective[1]	3
Engineering 401	3
English 201 or 202	3
Free Elective	3
Industrial Engineering 402, 404, 409, 411, 412, 424	14
Political Science 201	3
Speech 377	3
Technical Elective[1]	2
	34
TOTAL SEMESTER HOURS	134

[1]All electives must be approved by the Head of the Department of Industrial Engineering and Computer Science.

COMPUTER SCIENCE

R. R. LITTLE
Head of the Department

Computer Science at Louisiana Tech is the study of information processing systems. The curriculum is designed to meet three objectives: (1) a general education in mathematics, science, and the humanities; (2) a broad introduction to information processing systems, including the practical and theoretical aspects of the hardware (equipment) and software (procedures) of these systems; (3) an opportunity to prepare a base for specialization in an area of computer application.

Computer Science at Louisiana Tech places emphasis on the basic concepts of information processing systems and the development of professional techniques. The goal is to expose the student to a depth of knowledge sufficient to form the basis for professional competence and to promote the intellectual maturity required to keep abreast of developments in computer science and to interact with other disciplines.

Students in other departments who wish to minor in computer science are required to take Computer Science 102, 104, 106, 201, 206, 214, 303, 450, 451, and 453.

COMPUTER SCIENCE CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Computer Science 102, 104, 106	6
English 101, 102	6
Mathematics 111, 112, 230	9
Non-Technical Elective	3
Science Electives	8
	32
Sophomore Year	
Computer Science 201, 206, 214	6
Economics 315	3
English 201 or 202	3
Mathematics 231, 232, 308	9
Non-Technical Elective[1]	3
Physics 209, 210, 261, 262	8
	32
Junior Year	
Computer Science 303, 450, 452	8
Electrical Engineering 442	4
Industrial Engineering 400, 402	6
Mathematics 313	3
Non-Technical Elective[1]	3
Speech 377	3
Technical Electives[1]	5
	32
Senior Year	
Computer Science 424, 451, 453	7
English 303	3
Free Electives	6
Non-Technical Electives[1]	6
Technical Electives[1]	8
	30
TOTAL SEMESTER HOURS	126

[1]All electives must be approved by the Head of the Department of Industrial Engineering and Computer Science

Technical Electives MUST contain one of the following blocks:

	Hours
Computer Science 460	3
Computer Science 461	2
Computer Science 462	2
	7

	Hours
Accounting 203	2
Accounting 204	2
Business Elective	3
	7

	Hours
Mathematics 330	3
Mathematics 414	3
	6

TECHNICAL DRAFTING

The two-year Associate of Science Degree Curriculum in Technical Drafting is described in the catalog under Division of Admissions, Basic and Career Studies.

MECHANICAL ENGINEERING

R. D. HOLSTEAD
Head of the Department

The curriculum in mechanical engineering is designed to give the student a basic knowledge of the fundamentals required in the field of mechanical engineering and to give an opportunity to develop ability to use these fundamentals in the analysis and solution of practical problems. This curriculum is approved by the Engineers' Council for Professional Development and provides a course of study of 12 quarters and leads to the degree of Bachelor of Science in Mechanical Engineering. Emphasis is placed on the basic studies of mathematics, chemistry, physics, and English. A number of courses in the social sciences and humanities are included to broaden the outlook of the student. The course work in engineering begins with a group of core courses that are fundamental to all branches of engineering and progresses into more advanced studies of particular interest to mechanical engineers. The mechanical engineering laboratories are well equipped and the instruction is planned so that the student's laboratory work is correlated with the lecture courses. Laboratories in the Department of Mechanical Engineering include the materials of engineering, manufacturing processes, thermal engineering, stress analysis, cryogenic engineering, and machine design. The mechanical engineering graduate has a broad latitude in choosing a career. Some major fields of interest are aeronautics and space, air conditioning and refrigeration, atomic energy, automation and instrumentation, energy conversion, plant engineering, power generation, and transportation. The successful completion of the undergraduate curriculum also prepares the student to enter a program of graduate study in mechanical engineering.

MECHANICAL ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Chemical Engineering 306	2
Economics 315	3
English 201 or 202, 303	6
Engineering Mechanics 201	2
Mathematics 330 and 350	6
Mechanical Engineering 201, 251	4
Physics 201, 202, 261, 262	8
Speech 377	3
	34
Junior Year	
Electrical Engineering 213, 324	6
Engineering Mechanics 202, 203, 301, 321	9
Mathematics 375	3
Mechanical Engineering 307, 309, 315, 316, 317, 351, 353, 354, 421	16
	34
Senior Year	
Electrical Engineering 325	3
Engineering 401	3
Mechanical Engineering 402, 404, 405, 410, 424, 431, 452	15
*Non-Technical Electives	6
*Technical Electives	6
	33
TOTAL SEMESTER HOURS	134

*All electives must be approved by the Head of the Department of Mechanical Engineering.

MECHANICAL TECHNOLOGY

(Leading to the Degree of Associate of Science)

The two-year Associate of Science Degree curriculum in Mechanical Technology is presented in the Division of Admissions, Basic and Career Studies section of the catalog.

PETROLEUM ENGINEERING

R. M. CARUTHERS
Head of the Department

The Petroleum Engineering curriculum is designed to prepare its graduates for useful employment or graduate study in the petroleum and natural gas industry, particularly in the areas concerned with drilling, production, and transportation, by emphasizing the application of basic studies in mathematics, chemistry, physics, geology, and engineering sciences. The curriculum provides for a four-year course of study leading to the Bachelor of Science degree in Petroleum Engineering. Briefly, the petroleum engineer is concerned with the drilling of oil and gas wells, the completion of oil and gas wells, the lifting and production of oil, gas deliverability, the development and further planning of future drilling and lifting operations, secondary recovery of petroleum, movement through pipelines of oil and gas from the well to the refinery or market, the taking of information and estimating present value economics or future worth, and the removing of sand, water, gas or other undesirables from the oil before it is moved through the pipelines.

The laboratory is designed to familiarize the student with the practical and theoretical problems encountered in the production of oil and gas. Throughout the course of study, whenever practical, inspection trips are utilized to illustrate equipment and problems studied.

Although not a requirement, students are encouraged to find summer employment with oil and gas companies and to spend at least one ten-week period so employed.

PETROLEUM ENGINEERING CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33
Sophomore Year	
Electives	6
Mathematics 330, 350	6
Petroleum Engineering 200, 202, 311	8
Physics 201, 202, 261, 262	8
Speech 377	3
	31
Junior Year	
Chemical Engineering 321	2
Chemistry 311, 312	6
Engineering Mechanics 201, 202, 203, 321	9
English 201 or 202	3
Geology 111, 121	4
Petroleum Engineering 305, 404, 414, 415	10
	34
Senior Year	
Economics 315	3
Electives	6
Electrical Engineering 213	3
English 303	3
Geology 112, 315	6
Petroleum Engineering 402, 403, 405, 406, 425	12
	33
TOTAL SEMESTER HOUR	131

ELECTIVES: Twelve semester hours of electives must be approved by the Head of the Department of Petroleum Engineering. Six must be selected from the fields of history, government, literature, sociology, philosophy, psychology, fine arts or foreign languages; three must be selected from courses offered in the College of Engineering or in the Departments of Chemistry, Mathematics, or Physics; and three, selected by the student as a "free elective," cannot be a prerequisite for a course specifically required in the student's curriculum.

PETROLEUM TECHNOLOGY

The Petroleum Technology curriculum, a two-year program leading to the Associate of Science Degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

College of Home Economics

College of Home Economics

ELIZABETH G. HALEY, Dean

NANCY M. TOLMAN, Associate Dean,
Director of Research and Graduate Studies

PROFESSORS: Elizabeth G. Haley, Nancy M. Tolman, Jeanne M. Gilley

ASSOCIATE PROFESSORS: June W. Dyson, Addie H. Knickerbocker, Shirley Reagan, Linda E. Sivils

ASSISTANT PROFESSORS: Mary Belle K. Tuten, Janet B. Wright

INSTRUCTORS: Diana Hughes, Mary Etta Jones, Penelope S. Kupsinel, H. Denise LeBlanc, Paula Rhoades, Harried F. Walker

CLINICAL CONSULTANT: Lois M. Jackson

NURSERY SCHOOL TEACHER: Katherine W. Carter, Lucinda B. Wilson

SUPERVISORS: Patricia Aswell, Betty Harrison, Frances Harrison, Mary Kirkley, Jo Ann W. Sanders, Norma S. Taylor, Norma W. Taylor

HISTORY AND OBJECTIVES

Home economics is an applied field of study, built upon many disciplines to promote the welfare and well-being of homes and families in an ever-changing society. The College of Home Economics provides educational and cultural experiences which prepare students for citizenship, for a profession, and for family life.

The importance of home economics has been recognized at Louisiana Tech University since its beginning. At that time provision was made to include home economics among the limited number of courses. The decision was a progressive move since no other college in Louisiana and only three in the South were teaching home economics at that time. When the college was authorized to grant standard baccalaureate degrees, the Bachelor of Science in Home Economics was one of those approved. The importance of home economics was again recognized with the creation of the School of Home Economics in 1939, and the granting of college status in 1970 when Louisiana Tech was named a University.

Home economics courses have always been planned to meet the highest standards in the profession. Graduates of the Teacher Education curriculum have been certified to teach in the vocational high schools of the state from the beginning of the vocational program. The Home Economics Education Option in Early Childhood Education: Nursery School was approved June 5, 1973 for certification. The following year the option was revised to meet nursery and kindergarten certification in Louisiana schools.

Since its introduction in 1939 the Dietetics Curriculum has met the requirements of the American Dietetic Association. The College of Home Economics was one of 28 in the nation which completed pilot studies of curriculum revision for the American Dietetic Association in 1971. The Coordinated Undergraduate Program in general dietetics was accredited by the American Dietetics Association in 1976 with the first graduates completing the revised curriculum in May, 1977.

In 1973 the first course in fashion merchandising international was offered. The College of Home Economics was granted full accreditation by the American Home Economics Association in 1975. Louisiana Tech University was among the first twenty-one universities in the nation so recognized when AHEA became the professional accrediting body for home economics programs.

DEGREES

The College of Home Economics confers Bachelor of Arts, Bachelor of Science, and Master of Science degrees. The Bachelor of Arts degree is conferred on those completing options in consumer services, fashion merchandising, or general home economics. The Bachelor of Science degree is conferred on those who major in dietetics (Coordinated Undergraduate Program) or home economics education with emphasis on secondary teaching or early childhood education: nursery-kindergarten.

The two-year associate degree program in food service offered in the College of Home Economics is outlined in this bulletin under the Division of Admissions, Basic and Career Studies.

ADMISSION

General admission requirements to the University apply to entering freshmen students and transfers. All entering freshmen will enroll in the Division of Admissions, Basic and Career Studies and will remain in this division until they have met the requirements for admission to the College of Home Economics. While in that division, students interested in home economics should identify home economics as the major and should be advised by home economics faculty members. Transfer students who meet the grade point average requirements set for students entering from the Division of Admissions, Basic and Career Studies will be admitted to the College of Home Economics. Those not meeting these requirements will be placed in the Division of Admissions, Basic and Career Studies. A choice of curriculum should be made as soon as possible. Home Economics 107 is designed to assist the student in a curriculum and career choice.

Students may enroll only by permission of instructor for audit of laboratory classes.

UPPER DIVISION: Students are eligible to apply for upper division status when they have earned with a C average or above at least thirty semester hours credit including the following: English (6 hours with grade of C or above), Home Economics (6 hours including Home Economics 107 or equivalent with grade of C or above), Speech (3 hours with grade of C or above), and Health and Physical Education (2 hours).

Additionally, those majoring in the Home Economics Education options must complete math (2 hours), Education 200 (3 hours with a grade of C or above), and science (3 hours) and have an overall grade point average of 2.2 on all hours earned.

Students enrolling in any education or psychology courses or home economics courses numbered 300 or above must have upper division status. Exceptions are Education 200 and Psychology 102.

SCHOLASTIC STANDARDS

Requirements for entrance to Louisiana Tech University are also requirements for the College of Home Economics. Students transferring into home economics from another institution should request that the Office of Admissions, Basic and Career Studies forward a copy of official transcripts to the College of Home Economics. ACT scores are required of all students. A grade of C or better is considered acceptable for transfer of credit for required or equivalent courses in the home economics degree programs. Transfer students are required to complete at least one course at Louisiana Tech University in each of three of the four major subject matter areas of home economics.

All students are advised to repeat home economics courses in which they have grades less than C before undertaking the next course of the subject matter series. For teacher certification, a grade of C or better is required in all home economics and professional education courses.

CATALOG REQUIREMENTS AND CHANGES

Home Economics Policy, curriculum, and course changes are posted on the bulletin board next to the dean's office (CTH 257-261). Posted notices officially update the University bulletins and are binding on students as if in the published documents. In addition, job and scholarship announcements, test dates, and planned course schedule changes are displayed in the hall. Students are advised to check the boards frequently.

Each student is responsible for meeting catalog requirements for graduation, including scheduling of infrequently offered courses and completing courses in sequence. Students should consult with their advisors during preregistration, registration, and when problems arise. Students with 60-70 hours credit should complete and secure advisor's approval of an up-to-date plan of study for their remaining quarters at Tech.

ELECTIVES AND THE MINOR IN GENERAL HOME ECONOMICS

Courses in home economics are open to non-majors and appropriate experience may substitute for prerequisites. Minors in fashion merchandising and early childhood, and food service have been outlined. Other minors consisting of 21 hours in general home economics or a specialized area may be planned with approval of the Dean of Home Economics and the student's adviser. Suggested electives for men and women in other colleges include Home Economics 100, Marriage and Family Living; 103, Nutrition and Weight Control; 118, Clothing Construction; 128, Clothing Selection; 201, Introduction to Child Development and Early Childhood Education; 202, Collegiate Cooking; 203, Nutrition; 213, Group Nutrition; 219, Textiles; 223, Nutrition Education; 236, Household Equipment; 300, Parenting; 301, Early Childhood Development; 401, Creative Activities for Early Childhood; 416, Home Furnishings; 426, Housing; 438, Historic Costume; and 498, Fashion Merchandising International.

MINOR IN FASHION MERCHANDISING

A minimum of 21 hours to be selected from: Home Economics 128, 219, 258, 317, 327, 358, 406, 416, 426, 428, 438, 498.

MINOR IN EARLY CHILDHOOD

Required home economics courses include 201, 301, 401, 411, 203. Seven additional hours may be selected from Home Economics 100, 300, 327, 400, 406, and 421. Minor does not meet certification requirements.

SCHOLARSHIPS AND LOANS

Students who expect to major in home economics may apply for Greater Tech Foundation, State Board of Education, and T. H. Harris Scholarships. High school achievements and ACT test scores of applicants are considered several months prior to the high school graduation date. Interested persons should therefore take ACT tests before, and not later than, October of the graduation year. Direct inquiries about these and other kinds of financial aid should be addressed to: School of College Services, Division of Financial Aid.

A number of freshman scholarships, ranging from $200 to $1,000 are available to students majoring in home economics. These scholarships are provided by contributions from home economics alumni, the Wyly Brothers Scholarship Funds and profit from sale of the Agnes C. Miller Scholarship Dressing Mix. The selections are based on high school academic records, ACT scores and extracurricula activities. Consideration of applicants is not limited to those who have had high school home economics. Deadline for applying is March 1.

The Clyde and Mildred Mobley and Kola Mobley Fouche Memorial Scholarship ($1,500 for six quarters) is awarded to an incoming freshman home economics major who is a Louisiana resident. Factors considerel are high school grade point average, participation in high school and community activities, belief in capitalistic system, and dedication to the goal of becoming a home economics professional.

The Rhoda L. Chambless Scholarship award was established to recognize proven ability in Home Economics. One scholarship is awarded annually to a junior Home Economics student.

A limited number of scholarships are available for graduate students. The Helen Graham Fund offers loans up to $500 to Louisiana Tech home economics graduates enrolled in graduate study.

Awards through private funding grants are occasionally available. Address requests for applications for scholarships and the Helen Graham loan fund to the College of Home Economics.

CURRICULA

Curricula in home economics are designed to satisfy requirements for employment in home economics related professions. They include a diversity of subject matter within the home economics areas. Electives, when carefully planned, may be used to secure a minor or a second teaching field and provide for flexibility of employment.

At the time of registration, students should identify a curriculum in which they have the greatest interest. The choice can later be changed by reporting to the advisor and changing the designation on the registration card.

BACHELOR OF ARTS DEGREES

The Bachelor of Arts Curriculum in Home Economics includes options in Consumer Services, Fashion Merchandising and General Home Economics. Students enroll in the core curriculum requirements plus specific courses outlined under the selected option.

B. A. CORE REQUIREMENTS

Freshman Year	Semester Hours
Art 175, 176 (Substitute 115 and 116 if minoring in Art)	4
Courses from Selected Option	2
English 101, 102	6
Health & Physical Education	2
Home Economics 100, 107, 112, 118, 128	11
Mathematics 114	3
Speech 110 or 377	3
	31
Sophomore Year	
Courses from Selected Option	12
Elective	2
English 201, 202	6
History, American	3
Home Economics 203, 212	6
Psychology	3
	32
Junior Year	
Communication Elective	3
Courses from Selected Option	12
Economics 315	3
Electives	6
Home Economics 301	3
Social Science Electives	6
	33
Senior Year	
Courses from Selected Option	14
Electives	12
Home Economics 407 or 317 and 436, 456	7
	33

TOTAL SEMESTER HOURS....129

CONSUMER SERVICES OPTION

This option provides preparation for students who desire employment with governmental and private consumer service agencies and/or businesses related to management and consumer education, household equipment, housing, and home economics extension. Minors in business and journalism combine well with the option.

In addition to the B.A. core requirements, the following courses are to be completed:

	Semester Hours
Accounting 203	2
Electives	8
Home Economics 219, 236, 302, 400, 416, 426, 327	18
Home Economics Elective	3
Science	6
Speech 340, 360, or 361	3
	40

FASHION MERCHANDISING OPTION

Students are prepared for careers in fashion production, retailing, and communications. Minors in business, marketing, art, and journalism are possible. Home Economics courses including 498C, 498I, 428, and 438 are also recommended electives. Students electing Home Economics 498I are required to pay a supervision fee. In addition to core curriculum requirements, the folowing courses are to be completed:

	Semester Hours
Accounting 203	2
Communications Elective	3
Electives	2
Fashion or Clothing Elective	3
Foreign Language	6
Home Economics 219, 258, 358, 416	9
Marketing 300 or 201, and 307, 335	9
Science	6
	40

GENERAL HOME ECONOMICS OPTION

This option provides opportunity for a broad based education which may draw from several areas within home economics or in a secondary field of interest.

Electives should be carefully planned and selected with the advisor's approval. In addition to core curriculum requirements, the following courses are to be completed:

	Semester Hours
Communications Electives	6
Electives	5
Health & Physical Education	2
Home Economics 218 or 219	2
Home Economics Fr./So. Elective	2
Home Economics Jr./Sr. Elective	8
Home Economics 400, 426	6
Science	6
Social Science Elective	3
	40

BACHELOR OF SCIENCE DEGREES

The Bachelor of Science degrees include Home Economics Education options for secondary teaching and Early Childhood Education: Nursery-Kindergarten and Dietetics.

HOME ECONOMICS EDUCATION

The Home Economics Education Curriculum has two options: Teacher Education and Early Childhood Education: Nursery-Kindergarten. The Teacher Education Option prepares a student to teach vocational home economics in Louisiana under the provisions of the federal Education Amendments of 1976 as outlined in the State plan. The Early Childhood Option prepares the student for careers involved with nursery-kindergarten and day care programs.

TEACHER EDUCATION OPTION (Secondary)

Freshman Year	Semester Hours
Art 175, 176	4
*English 101, 102	6
*Health & Physical Education, activity	2
*Home Economics 100, 107, 112, 118, 128	11
*Mathematics 107, 108, 109	6
*Speech 110	3
	32
Sophomore Year	
*Education 200	3
*English 201, 202	6
*History 201 or 202	3
*Home Economics 203, 212, 218, 219, 236	13
*Psychology 204, 206	6
*Science, Biological	3
	34
Junior Year	
*Economics 315	3
*Education 390	1
Electives	6
*Health & Physical Education, activity	2
*Home Economics 301, 338 or 438, 426	8
*Government	3
*Science (to include 3 hrs. Physical)	9
*Social Science Elective	3
	35
Senior Year	
*Education 402, 415, 416	10
Electives	6
Home Economics 405	3
*Home Economics 317 or 407	1
*Home Economics 412, 436, 456	9
	29
TOTAL SEMESTER HOURS	130

*Specified by State Department for certification

EARLY CHILDHOOD EDUCATION: NURSERY-KINDERGARTEN OPTION

Freshman Year	Semester Hours
*Art 101	2
Electives - Home Economics 107 & 201 recommended	3
*English 101, 102	6
*Health & Physical Education	2
Home Economics 100, 112, 118, 128	10
*Science, Biological	3
Social Science Elective	3
*Speech 110	3
	32
Sophomore Year	
*Education 200	3
Elective	2
*English 201, 202	6
*History 201 or 202	3
Home Economics 203, 212, 218 or 219	8
*Library Science 201 or 450	3
*Music	2
*Psychology 204	3
*Science, Physical	3
	33
Junior Year	
*Education 324	3
*Health & Physical Education 321	2
Home Economics 236 or 426	3
*Home Economics 301	3
*Mathematics 303, 304	6
*Social Science Electives	6
*Specified electives from Art, Child Lit., La. History or La. Geography, Music, Speech, Reading, First Aid	5
*Science	6
	34

Senior Year

*Elective, Professional Courses for Child Under Six (Educ. 431 or 432 recommended)	3
Electives	2
*Education 441, 420	6
*History 460 or Geography 310	3
Home Economics 407 or 317	1
*Home Economics 401, 411, 421	10
Home Economics 436, 456	6
	31

TOTAL SEMESTER HOURS....130

*Specified by State Department for certification

COORDINATED UNDERGRADUATE PROGRAM (CUP) IN GENERAL DIETETICS

The dietetics curriculum is a coordinated undergraduate program which is accredited by The American Dietetic Association. The program is designed to prepare fully qualified dietitians within a four year period rather than the traditional five years required in internship and traineeship programs. Course work and clinical experience are integrated at affiliations in Ruston and Shreveport. Upon successful completion of the program, a student is awarded the B.S. degree and meets clinical and academic requirements for membership in the American Dietetic Association. At this time, the student is eligible to take the examination for qualification as a registered dietitian (R. D.).

Opportunities for registered dietitians are excellent. Dietetics graduates are prepared to assume both administrative and therapeutic positions in public health, hospitals, and other health care institutions. With increasing emphasis on total health care, dietitians are assuming a responsible and active role in the health care team. Food industries provide positions for dietitians interested in nutrition as well as management of food service systems. Positions are also available in research and education as they relate to nutrition and management.

The clinical phase of CUP begins at the junior level. Entrants into the program at this point are required to have completed a specific body of course work and to have an overall GPA of 2.50. Summer work experience in a health care facility is strongly recommended during the sophomore or junior years. The senior year in CUP will be spent in Shreveport, where most of the clinical facilities are located. **Students are required to pay a supervision for this year.**

COORDINATED UNDERGRADUATE PROGRAM IN GENERAL DIETETICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 120, 121, 122, 123, 124	8
English 101, 102, 201	9
Home Economics 112, 203, 212	9
Mathematics 107, 108	4
Speech 377 or 110	3
	33

Sophomore Year

Bacteriology 210	3
Chemistry 220, 351 or 271	8
Electives	3
English 202	3
Home Economics 207, 222	3
Home Economics Elective	6
Psychology 204	3
Sociology 205 or 201	3
Zoology 225	3
	35

Junior Year

Economics 315	3
Education 390	1
Health & Physical Education 321	2
Home Economics 313, 352, 362, 405, 412, 423, 433, 443	24
Management 311 or 470	3
Medical Record 102	1
	34

Senior Year

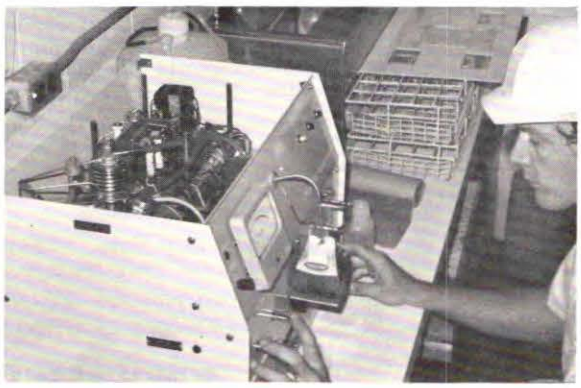
Home Economics 452, 453, 463, 473 482	29

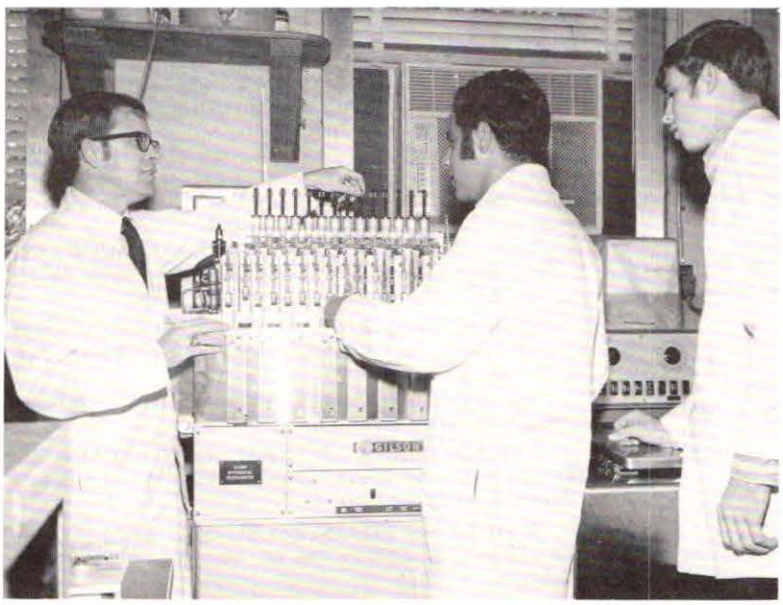
TOTAL SEMESTER HOURS....131

THE GRADUATE PROGRAM

Students may earn a Master of Science Degree with a major in Home Economics and an option in General Home Economics, Home Economics Education or Institution Management (Dietetics). An applicant for admission to the graduate program must have a bachelor's degree from an accredited college or university with a major in home economics or in a related field.

College of Life Sciences





College of Life Sciences

HAL B. BARKER, Dean

JOHN A. WRIGHT, Associate Dean

AIM

The aim of the College of Life Sciences is to give the student a scientific knowledege of the surrounding world, stressing the all-important role of animals and plants in the economy of nature, and to broaden and deepen the student's understanding and appreciation of the environment, thus offering preparation for a professional career and for a happier, more complete, satisfying, and productive life.

ORGANIZATION AND CURRICULA

The College of Life Sciences is organized into the Departments of Agronomy-Horticulture, Animal Industry, Botany-Bacteriology, Agricultural Education and Agriculture-Business, Zoology, the School of Forestry, the Division of Nursing, and the Division of Research. It offers 10 four-year curricula leading to the degree of Bachelor of Science, a two-year Pre-Nursing Curriculum (Interinstitutional with Northwestern State University) leading to a Bachelor of Science degree, a two-year nursing curriculum leading to an Associate of Science degree, a Basic-Life Sciences one-year program and a two-year program in Agricultural Technology leading to an Associate of Science Degree (six options offered). The curricula offered are:

AGRICULTURE-BUSINESS
AGRICULTURAL EDUCATION
AGRICULTURAL TECHNOLOGY - (6 Options)
ANIMAL SCIENCE
AGRONOMY
BOTANY
FORESTRY - (OPTIONS - Forestry-Business, Forestry-Mechanization, Forestry-Recreation, Forestry-Science, Forestry-Wildlife, Wood Utilization)
HORTICULTURE
MICROBIOLOGY (BACTERIOLOGY)
NURSING - (2 Options)
WILDLIFE CONSERVATION
ZOOLOGY - (Pre-Medical and Pre-Dental Options)

The curricula are designed to furnish a well-balanced educational program based on the cultural needs, the practical interests, and the citizenship responsibilities of young men and women. They offer essential instruction in the sciences; namely, botany, bacteriology, chemistry, zoology, physics and business, and the humanities and social studies, as well as a comprehensive education in one or more of the special fields of the College.

Students entering the Professional Officer's Course in Air Force ROTC may use credits earned in the POC (300-400 level) to satisfy general elective requirements. Thus, with proper planning and pre-arrangement with the head of the department, all Air Force aerospace studies courses may be used in satisfying degree requirements.

The Master of Science degree in Life Sciences is offered with (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's-plus-30 may also be earned in Life Sciences.

INTERNSHIP

J. Y. TERRY, Advisor

Students majoring in animal husbandry, agriculture-business, agronomy, dairying, horticulture, wildlife management, and agriculture education may elect to participate in an internship program during one term near the completion of their regular course work. In curricula employing this approach, students will register for 9 semester hours of course work, and be placed on cooperating farms or with business firms where they will receive first-hand practical experiences. In addition to credit received, the student becomes an employee of the cooperating agency and is paid for his/her services.

Internships have as their major purpose the development of professional competency, by imparting general and specific skills, basic and applied knowledge and by assisting the student in the transition from school to job.

More and more students without farm backgrounds are enrolling in agriculture; the colleges must assume the responsibility of providing certain practical experiences to such students. Advances are being made very rapidly in all phases of scientific and business agriculture, thus making it difficult to maintain up-to-date laboratory facilities at reasonable costs on college campuses; the internship program can adequately supplement where the on-campus laboratory ceases to be adequate.

Experience in a real-work environment enables the prospective student employee to apply classroom theory on the job under the supervision of a competent university faculty member and an experienced representative of the cooperating agency or business.

Agricultural Technology, a two-year program, offers 27 semester hours of credit for three terms of internship.

All internship programs require a permission form signed by the intern's parent, spouse or guardian.

SCHOLARSHIPS

Scholarships are available in the College of Life Sciences; some are general and offered to any student in the College of Life Sciences, others are departmental, including several WYLY-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.

THE MARY JARRELL NURSING SCHOLARSHIP is awarded annually to six selected students majoring in A.D. Nursing.

ZOOLOGY-PRE-MEDICAL FUND. An annual award of $300 to one or more beginning Zoology majors pursuing a pre-medical option.

The School of Forestry offers to certain forestry students the scholarships listed below:

THE LOUISIANA TECH FORESTRY ALUMNI ASSOCIATION. An annual award of $300 to one or more selected forestry students.

SCHOOL OF FORESTRY ALUMNI AWARD. An annual award of $300 to one or more beginning forestry freshmen.

The C. G. HOBGOOD MEMORIAL SCHOLARSHIP of $150 is awarded annually to an advanced student in the Department of Agronomy-Horticulture.

RICHARD M. SISK TRUST FUND. An annual award of $300 to one or more beginning forestry freshmen.

THE LOUISIANA FORESTRY FOUNDATION. An annual award of $1,000 to a selected forestry student.

SEEDLING AND SAPLING CLUB OF THE LOUISIANA FORESTRY ASSOCIATION. An annual award of $75-$100 to an outstanding forestry senior.

WILLAMETTE INDUSTRIES. An annual award of $825 to a selected forestry student.

THE WALTER KELLOGG FORESTRY SCHOLARSHIP. An annual award of $500 each to two or more selected forestry students from Ouachita Parish or adjoining area.

THE C. A. REED FORESTRY SCHOLARSHIP. An annual award of $500 each to two or more selected forestry students from Lincoln-Union parishes or adjoining area.

FACILITIES

The main University campus maintains adequate classroom laboratories, a library, and equipment for effective instruction in the basic sciences and in the other cultural subjects which are required in the various curricula in the College of Life Sciences, whereas the agriculture campus, consisting of approximately 825 acres, provides the facilities which are devoted specifically to instruction, research and demonstrational work in the agricultural sciences. Botany and Zoology are domiciled on the main campus in Carson-Taylor Hall.

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.

Also located on the agriculture campus are greenhouses for the departments of Agronomy-Horticulture and Forestry; 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

JOHN L. MURAD, Director

The Division of Life Sciences Research is an integral part of the educational processes of this university. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality.

The Division is the administrative office for the coordination of all phases of research conducted by various units within the College of Life Sciences. General policies and procedures governing the administration of the Division are formulated and governed by the Research Committee. The committee is chaired by the research director and is composed of an elected representative from each department within the College of Life Sciences and the Dean of the College.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contribution by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House projects are strongly encouraged through brief research proposals submitted to the Research Committee for consideration and funding.

BASIC LIFE SCIENCES DIVISION

JOHN A. WRIGHT, Advisor

The Basic Life Sciences Division is designed for the student who is interested in some area of Life Sciences but who does not know what department to choose or what curriculum to pursue. The Associate Dean will advise this student after a counseling session.

BASIC LIFE SCIENCES ONE-YEAR PROGRAM

Freshman Year	Semester Hours
English 101, 102	6
Mathematics (111 & 112) or (107, 108, 109)	6
Science - Botany 101 and Zoology 111, 112	8
Life Sciences 101	1
Professional or Technical Courses	8
Free Elective	3
TOTAL SEMESTER HOURS	32

AGRICULTURAL TECHNOLOGY

The Agricultural Technology Curriculum, a two-year program (with options), leading to the Associate of Science Degree is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

DEPARTMENT OF AGRICULTURAL EDUCATION & AGRICULTURE BUSINESS

J. Y. TERRY
Professor and Head of The Department

The curriculum in agricultural education is organized to prepare students who desire to teach agriculture in secondary schools.

The agriculture teacher training section is administered by the College of Life Sciences in cooperation with the College of Education. Students in agricultural education must meet the same general requirements outlined for those seeking admission to teacher education in the College of Education's upper division.

Service courses in technical agriculture are provided to give the student thorough training in the areas of plant science, animal science, soils, farm management, and farm mechanics.

The curriculum in agricultural education leading to a Bachelor of Science degree requires 134 semester hours, eight of which are earned in selected high schools in the area as apprentice teachers.

Agricultural education graduates have employment opportunities in many other fields such as the cooperative extension service, banking, farm management, federal government, research, sales and service for agricultural businesses, and higher education.

The department sponsors an active collegiate chapter of Future Farmers of America to provide practical experience in this important leadership activity.

AGRICULTURE - BUSINESS

The general Agriculture-Business Curriculum is designed to train students in the basic agricultural sciences, business, and the operation of a farm. Students are qualified for employment in the agricultural-related businesses, and the many specialized jobs in industry requiring fundamental knowledge of these two fields.

AGRICULTURAL EDUCATION CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agriculture 101	4
Animal Science 101	3
Botany 101	4
English 101, 102	6
Health and Physical Education	2
Life Sciences 101	1
Mathematics 107, 108, 109	6
Speech 110	3
Zoology 111	3
	32
Sophomore Year	
Agricultural Engineering 211 or 215	2
Bacteriology 210	3
Chemistry 120, 121, 122, 123, 124	8
Animal Science 102, 201, or Animal Science Elective	6
Education 200, 250	6
English 201, 202	6
Health and Physical Education	1
Political Science 201	3
	35
Junior Year	
Agronomy 202, 211	7
Economics 320	3
Education 390 and 402	3
Forestry 213 or other Plant Science elective	3
Health and Physical Education	1
History 201, 202	6
Horticulture 220 or other plant studies	3
Psychology 204, 206	6
Sociology 201 or Social Studies elective	3
	35
Senior Year	
Agricultural Engineering 320 or Engineering elective	3
Animal Science 301	3
Animal Science electives	6
Economics 402 or 430	3
Education 301, 306	6
Education 415, 416	8
Veterinary Science 401 or 301	3
	32
TOTAL SEMESTER HOURS	134

AGRICULTURE—BUSINESS CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agriculture 101	4
Animal Science 101	3
Botany 101	4
Chemistry 120, 121, 122, 123, 124	8
English 101, 102	6
Life Sciences 101	1
Mathematics 107, 108, 109	6
	32
Sophomore Year	
Agricultural Engineering 110, 206, 209, 210, 211, or 215	3-4
Accounting 203, 204	4
Agronomy 202, 211	7
Bacteriology 210	3
Psychology 102	3
Speech 110 or 377	3
Chemistry 220	4
Zoology 111, 112	4
Electives	1-3
	32-35
Junior Year	
Agricultural Engineering 303, 320	2-3
Agronomy 307	3
Animal Science 301 or Agronomy 315	3
Business Law 355, 356	6
Economics 315, 320	6
Electives	3
Life Sciences 300	3
Technical Agriculture	6
	32-33
Senior Year	
Agriculture 411	1
Agronomy 421	3
Technical Agriculture	7
Economics 402, 430	6
English 303	3
Life Sciences 420	3
Management 201 or Marketing 300	3
Zoology 414	3
Electives	4
	33
TOTAL SEMESTER HOURS	130

DEPARTMENT OF AGRONOMY-HORTICULTURE

JOHN A. WRIGHT
Professor and Acting Head of Department

PROFESSORS: MONTICELLO J. HOWELL, JOHN A. WRIGHT
ASSOCIATE PROFESSOR: BENJAMIN F. GRAFTON
ASSISTANT PROFESSOR: PETER GALLAGHER

The Department of Agronomy-Horticulture offers four years of university training in crops, soils, fruits, flowers, vegetables, and landscape and floral design. In addition to these areas of training, a general Agriculture-Business Curriculum is offered within the Department.

Agronomy

The courses offered in the field of agronomy are divided between crops and soils, and provide the student with a knowledge of production and utilization of crops and a knowledge of the fundamentals of soils and their uses.

The Department sponsors the Agronomy Club, which is a student section of the American Society of Agronomy. The club sponsors soil and crop judging teams which promote closer and professional relationships among students and faculty.

Horticulture

The Horticulture Curriculum offers students both scientific and practical training in the production, utilization, and marketing of fruits, vegetables, flowers and ornamental plants; and emphasizes floral and landscape design.

AGRONOMY CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agriculture 101	4
Animal Science 101	3
Botany 101	4
Chemistry 120, 121, 122, 123, 124	8
English 101, 102	6
Life Sciences 101	1
Mathematics 111, 112	6
	32
Sophomore Year	
Agriculture Engineering 209, 215, 303, or 320	2-3
Agronomy 202, 211	7
Bacteriology 210	3
Botany 205 or 223, 220	6
Chemistry 220	4
Physics 209	3
Psychology 102	3
Zoology 111, 112	4
	32-33
Junior Year	
Agronomy 307, 312, 315, 330	13
Bacteriology 315	3
Economics 315	3
English 303	3
Life Sciences 300 or 377	3
Speech 110	3
Electives	4-5
	32-33
Senior Year	
Agriculture 411, 412 or 413	1
Agronomy 405, 408, 410, 421, 409	16
Botany 330	3
Economics 402	3
Electives	3
Life Sciences 420	3
Zoology 414	3
	32
TOTAL SEMESTER HOURS	130

Students in Agronomy may choose an emphasis either in Crops or Soils. Crops students would be required to follow the curriculum as outlined while soils students would follow the curriculum outline with the following exceptions:

DROP:	ADD:
Chemistry 220 Zoology, 111, 112, and 414	Chemistry 250, 251, 252, 253, 254 Geology 111 Physics 210

In both areas, total semester hours for graduation are 130.

HORTICULTURE CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 105	2
Agriculture 101	4
Botany 101	4
English 101, 102	6
Horticulture 100, 103	4
Life Sciences 101	1
Mathematics 107, 108, 109	6
Speech 110 or 377	3
	30
Sophomore Year	
Agricultural Engineering 215	2
Agronomy 202	4
Bacteriology 210	3
Botany 223	3
Chemistry 120, 121, 122, 123, 124	8
Horticulture 200, 201, 205, 210, 215, 219, 220	14
	34
Junior Year	
Botany 220, 330	6
Chemistry 220	4
Economics 315	3
English 303 or 336	3
History 201 or 202	3
Horticulture 300, 302, 307, 311, 315	12
Life Sciences 300	3
	34
Senior Year	
Agriculture 411, 412 or 413	1
Agronomy 312, 315, 421 or 409	10
Horticulture 400, 403, 404, 409, 410, 412	10

Life Sciences 420	3
Zoology 414	3
Electives	5
	32
TOTAL SEMESTER HOURS	130

On the advice and with the approval of the advisor, a student in Horticulture may choose to place emphasis on Floral or Landscape Design. The following supportive 115, 116, 125, 215, 216, 226, 227, 350; Art 240; Botany 220 and 330; Chemistry 120, 121, 122, 123, 124 and 220; Life Sciences 300 and 420; Mathematics 107, 108, 109 and Zoology 414 are replaced in the Horticulture curriculum by the same number of hours selected from the following courses: Accounting 203, 204; Architecture 115, 116, 125, 215, 216, 226, 227, 350; Art 240; Business Law 355; Civil Engineering 400; Home Economics 438; Management 201; and Marketing 300, 307, 335.

DEPARTMENT OF ANIMAL INDUSTRY

C. REID McLELLAN, JR.
Professor and Head of the Department

PROFESSORS: HAL B. BARKER, GLENN E. CLARK, GORDON STEWART

ASSOCIATE PROFESSOR: HASKELL R. McCLINTON

ASSISTANT PROFESSORS: BILLY GILLEY, KENNETH SANDERLIN

LABORATORY SUPERVISOR: DAVID L. HAYS, JOE LAMB

The Department of Animal Industry is comprised of the fields of animal, dairy, poultry and veterinary science.

The main objective of the Department is to give instruction and practical experience in judging, breeding, feeding, and management of different kinds of livestock and related industries. Through course selection the student may prepare for general livestock farming, management, business or science or elect the pre-veterinary courses for specialization. Directed elective selection permits special training for work with feed companies, milk, egg or poultry operations, food processing industries, managerial or marketing groups, supply and equipment cooperatives, agriculture extension service, agriculture communication, public relations and other organizations associated with agriculture. Graduates are adequately prepared to enter graduate work in their chosen field of specialization.

Opportunities are afforded majors in animal science to obtain practical experience in livestock and dairy herd operation and management through the University herds of registered beef cattle, including Aberdeen Angus and Hereford breeds; registered dairy cattle, including Jersey and Holstein-Friesian breeds; swine, including Landrace and Poland China breeds; a flock of Suffolk sheep; and a flock of White Leghorn chickens. In addition, the department strongly encourages participation in the agriculture internship program.

A modern, automated milking barn; calf barn; beef cattle barns; poultry houses; feed lots; farrowing house; crop lands and pastures are available for instruction and student training.

A meats laboratory for the study of meat and its cutting, curing, preservation, storage and utilization; and the Dairy Processing Plant equipped for processing fluid milk and manufacturing various dairy products such as butter, cheese and ice cream provide students ample opportunities for acquiring scientific and practical education in different aspects of processing meat animal and dairy products.

The Department of Animal Industry has a chapter of the National Block and Bridle Club. The club promotes the improvement and increases the interest of students in animal sciences and brings about closer relationships among students pursuing animal science as a profession.

ANIMAL SCIENCE CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Animal Science 101, 102	6
Botany 101	4
English 101, 102	6
Life Sciences 101	1
Mathematics 107, 108, 109 or 111, 112	6
Zoology 111, 112	4
Electives	4
	31
Sophomore Year	
Agricultural Engineering Elective	2 or 3
Agronomy 211	3
Animal Science Electives	2 or 3
Bacteriology 210 or Dairying 301	3
Chemistry 120, 121, 122, 123, 124	8
English 303; Speech 377	6
Humanities or Social Science Elective	6
	30 or 32
Junior Year	
Agronomy 202	4
Animal Science 301, 307, 315, 318	12
Business Electives	5
Chemistry 220	4
Life Sciences 300	3
Veterinary Science 301	3
Electives	3
	34
Senior Year	
Agriculture 411	1
Agriculture Marketing Elective	3
Animal Science 401, 405	6
Animal Science Production (From 407, 408, 410, 411)	7
Life Sciences 420	3
Veterinary Science 401	3
Electives	10 or 12
	33 or 35
TOTAL SEMESTER HOURS	130

Electives, chosen with career objectives in mind and the counsel and approval of the advisor, allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; those interested in business would select courses in economics, finance and marketing; those interested in dairy manufacturing would select courses in bacteriology and dairying; those interested in research would select chemistry, zoology, or statistics.

Students having a high GPA and having completed the pre-veterinary course requirements may wish to apply to Veterinary School after completing their Junior year. These students may become candidates for the Bachelor of Science degree in Animal Science after completing the first year of professional work at a Veterinary School. The student must arrange for the transfer of credit and follow the accepted procedure applicable for graduation at Louisiana Tech.

PRE-VETERINARY MEDICINE

This course listing is provided to guide the student in meeting the admission requirements of the Veterinary School at Louisiana State University in Baton Rouge. Only residents of Louisiana and Arkansas are eligible to apply for admission at L.S.U. Residence status is determined by L.S.U. and residence status at Tech has no bearings on such determination. In addition, completion of the specific subject matter requirements listed and attainment of a given grade point average (2.5) in these courses are minimum requirements for entrance. The specific course listing will generally qualify residents of other states for application to School of Veterinary Medicine which accept residences that particular state.

Each year the number of applicants is much greater than the number of available spaces. As a result, meeting or surpassing the minimum requirement does not assure acceptance by the Professional program and each student should, early in college, elect a possible alternate career choice.

Application for veterinary school is made in January for admission in August of that year. Although it is possible to complete the pre-veterinary requirements in two years, it is strongly recommended that each pre-veterinary student pursue at least a three-year program.

SUBJECT MATTER REQUIREMENTS FOR ADMISSION TO VETERINARY SCHOOL

	Semester Hours
Animal Science 301	3
Botany 101	4
Chemistry 120, 121, 122, 123, 124 or 101, 102, 103, 104	8
Chemistry 250, 251, 252, 253, 254	8
Economics 315	3
English 101, 102, 303	9
Life Sciences 101, 300	6
Mathematics 111, 112	6
Physics 209, 210, 261, 262	8
Speech 377	3
Zoology 111, 112	4
*Electives	9
TOTAL SEMESTER HOURS	69

*Elective hours must be chosen from Animal Science 101, 102, 201; History 201 or 202; Political Science 201; Sociology 201, 330, 340.

All Louisiana Tech students are strongly encouraged to take Animal Science 101 as one of their electives.

DEPARTMENT OF BOTANY AND BACTERIOLOGY

DALLAS D. LUTES
Professor and Head of the Department

PROFESSORS: WINSTON P. HACKBARTH, HAROLD G. HEDRICK, ALBERT W. LAZARUS, DONALD G. RHODES, JAMES C. WHITE

ASSOCIATE PROFESSORS: CARL DAVIS, JR., JAMES A. CHRISTIAN, RAYMOND E. JONES

ASSISTANT PROFESSOR: STANLEY J. VIATOR

The Department of Botany and Bacteriology offers work leading to the Bachelor of Science degree in Botany, in Microbiology, and in Wildlife Conservation. Also, the Department offers graduate courses leading to the Master of Science degree in Life Sciences in the areas of Botany and Microbiology.

In order to broaden the education programs in the Department, the curricula provides for a substantial amount of required and elective courses outside the major fields of study.

Courses are offered in the Department, not only for majors in botany, in microbiology, and in wildlife conservation and management and minors in botany and in bacteriology, but in fulfillment of the requirements of the curricula in other departments. As botany is the basic science for students entering the applied botanical fields of agronomy, bacteriology, forestry, horticulture, plant breeding, plant pathology, forest pathology, and wildlife conservation, the Department emphasizes the phases of plant science which are fundamental for these applied fields. The Department, recognizing the need for natural science in the elementary and secondary schools, has worked with the College of Education to provide work for prospective teachers that will enhance the presentation of basic science concepts in the lower educational programs.

Botany

Each student who plans to have a major in botany is required to take 40 semester hours of botany, at least 20 hours of which must be in advanced courses, i.e., courses bearing numbers above 300. Before the end of the sophomore year, with the approval of the head of the Department, a minor program of study must be chosen.

For the minor program of study, the student majoring in botany must take 21 semester hours of course work in some related field, such as agronomy, bacteriology, chemistry, forestry, horticulture, or zoology.

Students doing work toward a major in other departments and electing botany or bacteriology as a minor are required to take 21 semester hours in botany or bacteriology, the courses to be chosen in consultation with the head of the Department of Botany and Bacteriology.

The opportunities for graduates in botany are too varied to permit a complete enumeration. In general, graduates are qualified for the following types of work: further study in graduate school; teaching and research in colleges; and positions in experiment stations, in federal agencies—notably the United States Bureau of Plant Industry, the National Park Service, the United States Forest Service, and the United States Bureau of Plant Quarantine—and in commercial greenhouses, nurseries, and florist shops.

Microbiology (Bacteriology)

The program in microbiology is designed for students who are interested in the study of microorganisms. It is arranged both for those students who plan to secure employment after receiving the Bachelor of Science degree and for those who plan to pursue graduate work in microbiology, which is essential for preferred employment in the field.

The curriculum offers, in addition to the general training in microbiology, fundamental training in chemistry, physics, and mathematics, which is necessary for effective work in modern microbiology.

Graduates of this curriculum are eligible to enter graduate schools for advanced training in microbiology and to specialize in one or more of its various branches such as: General Bacteriology, including physiology, instrumentation, and antibiotics; Sanitary Bacteriology, including antiseptics and disinfectants, food storage, and water and sewage; Agricultural Bacteriology, including food, dairy, and soil bacteriology; and Pathogenic Bacteriology, including mycology, immunology, serology, and virology.

Graduates are qualified for positions in federal, state, and municipal laboratories; positions in the fields of medical and public health microbiology; bacteriology work in sanitary, food, dairy, soil, and industrial technology; food preservation work; and positions in experimental stations; research institutions, colleges, or universities.

Wildlife Conservation

The Wildlife Conservation curriculum is designed both for those students who desire a scientific knowledge of the conservation and management of wildlife and for those who expect to make a living in the wildlife field. It is planned further to provide a knowledge of the importance to man of natural resources and to add to the understanding of some of the relationships of those resources to one another. It is designed to train conservation workers as managers, naturalists, and researchers.

BOTANY CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Bacteriology 212	4
Botany 101	4
English 101, 102, 202	9
Mathematics 111, 112	6
Life Sciences 101	1
Social Science Elective	3
Zoology 111, 112	4
	31
Sophomore Year	
Botany 205, 221, 222, 223	12
Chemistry 120, 121, 122, 123, 124	8
English 303	3
Physics 205, 206	6
Social Science Elective	3
	32
Junior Year	
Botany 220, 350, 351	11
Chemistry 250, 251, 252, 253, 254	8
Foreign Language	6
Electives	9
	34

Senior Year

Bacteriology Elective	3
Botany 320, 330, 415, 416	8
Life Sciences 300, 420	6
Electives	16
	33

TOTAL SEMESTER HOURS....130

MICROBIOLOGY (BACTERIOLOGY) CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Bacteriology 212	4
Botany 101	4
Chemistry 120, 121, 122, 123, 124	8
English 101, 102	6
Mathematics 111, 112	6
Life Sciences 101	1
Zoology 111, 112	4
	33

Sophomore Year

Bacteriology Elective	4
Bacteriology 306	3
Botany 350	4
Chemistry 250, 251, 252, 253, 254	8
Physics 209, 210, 261, 262	8
Social Science Elective	3
Elective	3
	33

Junior Year

Bacteriology 330	4
Bacteriology Electives	7
Chemistry Elective	4
English 202, 303	6
Life Sciences 300	3
Social Science Elective	3
Electives	5
	32

Senior Year

Bacteriology 406, 415, 416	6
Bacteriology Elective	4
Foreign Language	6
Life Sciences 420	3
Zoology 401	3
Electives	10
	32

TOTAL SEMESTER HOURS....130

WILDLIFE CONSERVATION CURRICULUM

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 215	2
Bacteriology 210	3
Botany 101, 212	7
English 101, 102	6
Life Sciences 101	1
Mathematics 107, 108, 109	6
Social Science Elective	3
Zoology 111, 112	4
	32

Sophomore Year

Botany 221, 222, 223	9
Chemistry 120, 121, 122, 123, 124	8
Forestry 213, 214	6
Zoology 430	3
Elective	6
	32

Junior Year

Bacteriology 401	3
Botany 345	3
Chemistry 220	4
Life Sciences 300	3
Veterinary Science 301, 401	6
Zoology 317, 429, 433	9
Electives	6
	34

Senior Year

Botany 320, 415, 416, 441, 442, 443	14
Life Sciences 420	3
Zoology 313, 432, 434	9
Electives	6
	32

TOTAL SEMESTER HOURS....130

SCHOOL OF FORESTRY

J. LAMAR TEATE
Professor and Director

PROFESSORS: EDWARD R. ANDRULOT, Forest Management; J. EDWIN CAROTHERS, Forest Economics; F. F. JEWELL, Forest Protection, DONALD G. RHODES, Summer Camp.

ASSOCIATE PROFESSORS: ODIE L. FITZGERALD, Wood Utilization; CLYDE G. VIDRINE, Agricultural Engineering and Forestry.

ASSISTANT PROFESSORS: JOHN C. ADAMS, Silviculture - Forest Genetics. JAMES M. DYER, Forest Recreation - Wildlife Management.

The forestry program at Louisiana Tech University provides a fundamental and professional education of four years leading to the degree of Bachelor of Science.

A student may pursue the Forestry Program in one of the following seven options:

1. Forestry-General
2. Forestry-Business
3. Forestry-Mechanization
4. Forestry-Recreation
5. Forestry-Science
6. Forestry-Wildlife
7. Wood Utilization

These programs are arranged so that a graduate will have both a firm foundation of technical knowledge and a broad educational background upon which to build a satisfying and constructive career in forestry or in allied fields. A student may qualify for graduate work in either program.

Employment opportunities are varied. Graduates are employed by both private industries and governmental agencies. Private industries include pulp and paper companies, wood preservation companies, the lumber industry, other industrial owners, forestry consulting firms, and private land owners who need professional service in forestry, land use, and conservation. Governmental agencies include federal agencies such as the Soil Conservation Service, National Park Service, United States Forest Service, and similar agencies of the state with work not only in technical forestry but also in the professional aspects of land use management, conservation, and wood utilization.

Junior Year Summer Programs

Two summer programs are offered. Successful completion of one of these at the end of the junior year is a prerequisite for senior standing. Those students who have completed all curriculum requirements through the junior year and have not less than an overall "C" average are eligible to participate in these summer programs. General forestry students attend a summer camp where residence is required. The summer session for the Wood Utilization students is conducted from the campus.

Summer Camp

The Louisiana Tech Forestry Camp has dormitory, dining, and classroom facilities equipped, owned and operated by the University. It is located about 30 miles north of Ruston near Corney Lake. Eighteen thousand acres of diverse forest types are made available for use by a longterm agreement with the U. S. Forest Service. The camp program is arranged to give students field experience in the forest in addition to classroom instruction.

A Land Use Seminar and Tour is conducted in conjunction with the summer camp. This includes a five to seven days trip in the Lower Mississippi Valley and allows students to view and discuss the major uses of land in this area.

Satisfactory completion of this summer camp includes the teamwork and sharing of responsibility necessary for successful group activity.

Wood Utilization Summer Session

The session includes considerable plant, forest, and laboratory work as well as classroom instruction. Applied problems in plywood manufacturing, drying, and other wood processing and testing techniques are studied. Visits are made to forests and to a diversity of wood-using plants where analysis and comparisons of operations in logging and processing are made.

Senior Field Trips

During the senior year all day Friday of each week is reserved for required laboratory trips to forest areas or wood-using plants. This enables the senior students to observe and to take part in numerous forestry, research, and wood-using activities being carried on by private companies and governmental agencies. Practically all of the important forest types, patterns of ownership, and a wide variety of wood-using industries are located within traveling distance of the campus.

Expenses

In addition to the regular expenses of the University, each student is required to purchase for use during the junior and senior years: a drawing set and a hand lens. These must be of a quality approved by the School. All students should have access to a typewriter for the purpose of preparing laboratory and other reports. The School recommends, but does not require, that each student have a camera for use on field trips and a pocket calculator during the summer camp. (Consult your instructor before buying a calculator.)

Field trips can not always be arranged within the scheduled laboratory hours which, in some cases, means leaving the campus earlier and returning later than the published schedule. Arrangements for lunches, the purchasing of meals, and the payment of lodging in those instances where overnight trips are necessary are the responsibility of the individual student. This includes the special summer program. In addition to regular summer session expenses, a special fee is charged each student who attends the summer camp or the wood utilization summer session. Summer camp students are charged the dormitory cost on the basis of the regular quarter and do not qualify for any reduced residence hall cost applicable during the summer.

Each student registering for any forestry course involving field laboratory work should have, for self protection an accident insurance policy. Policies are available during registration to all students for a reasonable rate per quarter.

A number of student assistants are employed by the School each year. This enables the students to work part time while attending school.

Professional Organization

The School sponsors the Louisiana Tech Student Chapter of the Society of American Foresters and the student Chapter of the Forest Products Research Society for social and professional activity of forestry students and faculty and with representatives of governmental and industrial organizations.

FORESTRY CURRICULUM

GENERAL FORESTRY OPTION
(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Zoology 111, 112	4
	30

Sophomore Year	
Agronomy 302	4
English 303	3
Chemistry 120, 121, 122, 123, 124	8
Forestry 202, 205, 206	6
Quantitative Analysis	3
Electives	6
	30

Junior Year

Civil Engineering 304	2
Forestry 301, 302, 305, 306, 312, 313	17
Horticulture 307	3
Physics 205	3
Speech 377	3
Zoology 317	3
	31

Summer Session — Forestry Camp

Forestry 315, 316, 320, 321, 322	11

Senior Year

Forestry 401, 402, 403, 407, 409, 410, 411, 416, 420B, 422	22
Life Sciences 420	3
Electives	3
	28

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

BUSINESS OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Zoology 111, 112	4
	30

Sophomore Year

Accounting 203, 204, 310	7
Quantitative Analysis 220	3
English 303	3
Forestry 205, 206, 305	7
Physics 205	3
Electives	6
	29

Junior Year

Forestry 301, 302, 306	9
Horticulture 307	3
Management 311	3
Marketing 300	3
Office Administration 305	3
Quantitative Analysis 335, 336	4
Speech 377	3
Electives	3
	31

Summer Session — Forestry Camp

Forestry 315, 316, 320, 321, 322	11

Senior Year

Business Law 441	3
Forestry 401, 402, 403, 407, 409, 410 411, 416, 420B, 422	22
Electives	4
	29

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

MECHANIZATION OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110, 211, 214	5
Botany 101	4
Chemistry 120, 121, 123	5
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
	29

Sophomore Year

Accounting 203, 204	4
Agricultural Engineering 210, 216, 320	8
Chemistry 122, 124	3
Civil Engineering 304	2
Economics 315	3
Forestry 202, 205	4
Physics 209, 261	4
Political Science 201	3
	31

Junior Year

Accounting 310	3
English 303	3
Forestry 301, 306	6
Management 311, 312, 340	9
Quantitative Analysis 220	3
Speech 377	3
Electives	3
	30

Summer Session — Forestry Camp

Agricultural Engineering 418, 340, 415	7
Electives	3
	10

Senior Year

Agricultural Engineering 431	2
Forestry 401, 403, 407, 409, 416, 420B	16
Industrial Engineering 409	3
Life Sciences 420	3
Electives	6
	30

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

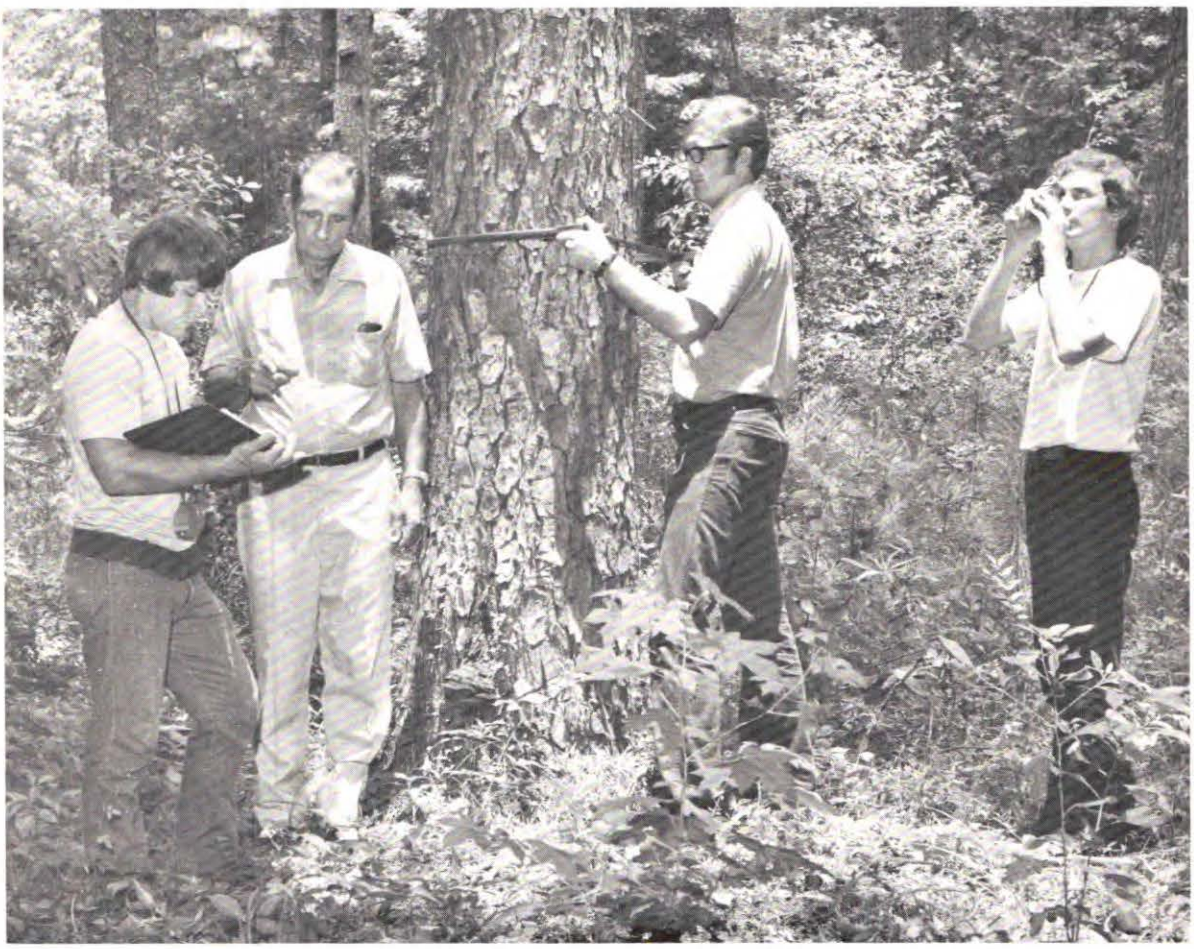
RECREATION OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Zoology 111, 112	4
	30

Sophomore Year

Botany 212, 223	6
Civil Engineering 304	2
English 303	3
Forestry 202, 205, 206	6
Geology 111, 121	4
Health and Physical Education 113	1



Physics 205	3
Psychology 102	3
Sociology 201	3
	31

Junior Year

Forestry 301, 302, 306	9
Health and Physical Education 225	3
Horticulture 307	3
Quantitative Analysis 220	3
Sociology 304, 330, 340	9
Speech 377	3
	30

Summer Session — Forestry Camp

Forestry 315, 316, 320, 321, 322	11

Senior Year

Forestry 401, 407, 409, 410, 411, 420B, 422	16
Geology 201	3
Health and Physical Education 226	3
Life Sciences 420, 456	6
	28

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

SCIENCE OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 230	3
Political Science 201	3
Zoology 111, 112	4
Electives	3
	30

Sophomore Year

Agronomy 302	4
Civil Engineering 304	2
Chemistry 101, 102, 103, 104	8
Forestry 202, 205, 206	6
Physics 209, 261	4
Quantitative Analysis 220	3
Speech 377	3
	30

Junior Year

Botany 220	3
Chemistry 250, 253	3
Forestry 301, 302, 305, 306, 312, 313	17
English 303	3
Zoology 317	3
	29

Summer Session — Forestry Camp

Forestry 315, 316, 320, 321, 322	11
OR	
Quantitative Analysis 310	2
Forestry 321, 322	4
Electives	5
	11

Senior Year

Forestry 401, 402, 403, 407, 409, 410, 411, 416, 420B, 422	22
Life Sciences 420	3
Electives	5
	30

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

WILDLIFE OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Zoology 111, 112	4
	30

Sophomore Year

Agronomy 302	4
Botany 220, 223	6
Chemistry 120, 121, 122, 123, 124	8
Forestry 202	2
Journalism 101	3
Quantitative Analysis 220	3
Zoology 202	4
Elective	1
	31

Junior Year

Botany 320, 345	6
Civil Engineering 304	2
English 202	3
Forestry 301, 302, 306	9
Physics 205	3
Zoology 317, 313	6
	29

Summer Session — Forestry Camp

Forestry 315, 316, 320, 321, 322	11

Senior Year

Forestry 401, 409, 410, 411, 416, 420B	14
Life Sciences 420	3
English 202	3
Zoology 429, 432, 433	9
	29

TOTAL SEMESTER HOURS....130

FORESTRY CURRICULUM

WOOD UTILIZATION OPTION

(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101	4
Economics 315	3
English 101, 102	6
Forestry 101	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Zoology 111, 112	4
	30

Sophomore Year

Chemistry 120, 121, 122, 123, 124	8
Forestry 205	2
History 201	3
Industrial Engineering 301	3
Marketing 300	3
Mathematics 220	3
Physics 209, 261	4
Electives	4
	30

Junior Year

Chemistry 220	4
Civil Technology 206	3
English 303	3
Forestry 305, 306	6
Management 311, 312	6
Quantitative Analysis 220	3
Quantitative Analysis 335	2
Electives	4
	31

Summer Session

Forestry 340, 341	6
Industrial Engineering 410	3
	9

Senior Year

Civil Technology 207	3
Forestry 408, 414, 416, 420B	9
Industrial Engineering 409, 425	6
Quantitative Analysis 336	2
Speech 377	3
Electives	7
	30

TOTAL SEMESTER HOURS....130

DIVISION OF NURSING

VIRGINIA R. PENNINGTON
Associate Professor and Director of the Division

ASSISTANT PROFESSORS: RITA MARCEAUX, LOUISE B. MURPHY

INSTRUCTORS: PATRICIA BOURGEOIS, ROBERTA FULLERTON, SUSAN T. HALEY, LOUISE LAMBERT, SUE PYLES, BETTY ROBBINS, KATHERINE TERRELL TABOR

NURSING CURRICULUM

(Leading to the Degree of the Associate of Science)

The Nursing Curriculum, a two year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

PRE-NURSING CURRICULUM*

(Northwestern State University - Louisiana Tech University Interinstitutional Program for the Bachelor of Science Degree)

*VIRGINIA R. PENNINGTON, Advisor

Freshman Year	Semester Hours
Life Sciences 101	1
Chemistry 120, 220, 351	10

English 101, 102, 201 or 202	9
Mathematics 111	3
Bacteriology 212	4
Speech 110	3
Electives**	6
	36

Sophomore Year

Health and Physical Education 321	2
History 202	3
Home Economics 203	3
Management 201	3
Psychology 102, 408	6
Sociology 201	3
Zoology 111, 225, 226	7
Electives**	3
	30

*After completing above curriculum the student may transfer to the Shreveport campus to complete the requirements for the baccalaureate degree.

**Additional required electives may be taken at NSU.

DEPARTMENT OF ZOOLOGY

MARGARET H. PEASLEE
Professor and Head of the Department

PROFESSORS: BILLY J. DAVIS, JOHN W. GOERTZ, JOHN L. MURAD, SCOTT M. WEATHERSBY

ASSOCIATE PROFESSOR: LARRY G. SELLERS

ASSISTANT PROFESSOR: PAUL R. RAMSEY

Students desiring to complete a degree program in the Department of Zoology will consult with the head of the department.

During the sixth quarter of residence (and later as may be necessary) students will present to their advisors, for discussion and approval, the program of study they intend to pursue during their junior and senior years.

Degree Programs

The degree programs offered through the Department of Zoology are:

(1) Bachelor of Science degree in Zoology. Both students who have a primary interest in zoology and students who plan on applying to medical or dental school will follow the Zoology Curriculum.

(2) Master of Science degree in Life Sciences with a specialty in Zoology.

Requirements For A Major In Zoology

All students majoring in zoology will satisfactorily complete the courses specified in the Zoology Curriculum. The elective subjects will be selected with the advice and approval of the advisor.

The Department of Zoology reserves the right to accept toward graduation only credits with a C or higher grade in Zoology courses.

Requirements For A Minor In Zoology

A student wishing to minor in Zoology may do so by declaring this intention with the Zoology Department Head and by completing the core courses in the Zoology Curriculum, a total of 22 semester hours.

ZOOLOGY CURRICULUM

For Zoology majors and for pre-medical and pre-dental students following the zoology curriculum
(Leading to the Degree of Bachelor of Science)

Freshman Year	Semester Hours
Botany 101	4
Chemistry 120, 121, 122, 123, 124 or 101, 102, 103, 104	8
English 101, 102	6
Life Sciences 101	1
Mathematics 230, 231, or 111, 112	6
*Zoology 111, 112, 115	8
	33

Sophomore Year	
Chemistry 250, 251, 252, 253, 254 and 271	12
English 201, 202	6
*Life Sciences 300	3
Social Sciences (include General Psychology)	6
*Zoology 202, 313	7
	34

Junior Year	
Chemistry 205 or 330	4
Foreign Language (six hours in same language)	6
Speech 110	3
*Zoology 320	4
Zoology Electives	3
Physics 209, 210, 261, 262	8
Continuation of Foreign Language or Advanced Science** or Mathematics**	6
	34

Senior Year

Bacteriology 212	4
Life Sciences 420	3
Social Sciences	6
Zoology 480 (2 quarters)	2
Zoology Electives	8
Free Electives	5
	28
TOTAL SEMESTER HOURS	129

*Core courses should be completed in the first 77 hours.

**Must be selected with the advice and approval of your adviser.

Pre-medical and Pre-dental students are strongly advised to complete their degree programs before entering medical or dental school. Students with an exceptionally high grade point average may apply early in their junior year for admission to medical or dental school upon completion of that year. This practice is not recommended by the Pre-medical/Pre-dental Advisory Committee. If a student successfully completes 98 hours of the Zoology curriculum including the core courses, the first year of medical or dental school, and all other requirements for graduation of Louisiana Tech University and the Zoology Department, the student may become a candidate for the Bachelor of Science degree.

The Graduate School

The Graduate School

ADMINISTRATION

The Dean of Continuing Education and Coordinator of Graduate Studies administers and coordinates the graduate programs of the University. Graduate instruction is supervised by the appropriate academic deans, directors of graduate studies, department heads, and graduate faculty under policies set forth by the Board of Trustees for State Colleges and Universities and the Graduate Council. The Dean of Continuing Education and Coordinator of Graduate Studies chairs the Graduate Council and reports to the Vice President for Academic Affairs. 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 Architecture
- Master of Arts
- Master of Business Administration
- Master of Fine Arts
- Master of Professional Accountancy
- Master of Science
- Specialist
- Doctor of Business Administration
- Doctor of Philosophy

The graduate degrees and curricula, by colleges, are as follows:

COLLEGE OF ADMINISTRATION AND BUSINESS
- Master of Business Administration (Specialties available as follows:)
  - General (no specialty)
  - Accounting
  - Business Education
  - Economics
  - Finance
  - Management
  - Marketing
  - Quantitative Analysis
- Master of Professional Accountancy
- Doctor of Business Administration

COLLEGE OF ARTS AND SCIENCES
- Master of Architecture
- Master of Arts (Curricula available as follows:)
  - English
  - History
  - Music
  - Speech
  - Speech Pathology & Audiology
- Master of Fine Arts
- Master of Science (Curricula available as follows:)
  - Chemistry
  - Mathematics
  - Physics

COLLEGE OF EDUCATION
- Master of Arts (Curricula as follows:)
  - Art Education
  - Counseling and Guidance
  - Elementary Education
  - English Education
  - Human Relations and Supervision
  - Music Education
  - Reading
  - Social Studies Education
  - Special Education
  - Speech Education
  - Speech Pathology & Audiology Education
- Master of Science (Curricula as follows:)
  - Business Education
  - Health and Physical Education
  - Mathematics Education
  - Science Education (Biology, Chemistry, or Physics)
- Specialist

COLLEGE OF ENGINEERING
- Master of Science
- Doctor of Philosophy

A student selects an area of emphasis in concert with the advisory committee. The major engineering disciplines are available, as follows:
- Agricultural Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Geology
- Industrial Engineering (including Operations Research option)
- Mechanical Engineering
- Petroleum Engineering

COLLEGE OF HOME ECONOMICS
- Master of Science (Options available as follows:)
  - General Home Economics
  - Home Economics Education
  - Institution Management

COLLEGE OF LIFE SCIENCES
- Master of Science in Life Sciences (Options in the following fields:)
  - Botany
  - Microbiology
  - Zoology

ADMISSION

A student will not receive graduate credit for any course taken unless he or she has complied with the following admission procedures and has been accepted for admission to the Graduate School.

For admission to Graduate School, the applicant must satisfy all general admission requirements for Louisiana Tech University. Application forms for admission may be obtained from the Admissions Office or the Graduate School. ALL NECESSARY OFFICIAL TRANSCRIPTS, STANDARDIZED TEST SCORES, AND ADMISSION APPLICATION FORMS must be received in the Admissions Office at least 2 weeks in advance of registration for the session in which the student expects to enroll. Policies governing the submission of transcripts for all graduate students are as follows:

(1) Students in pursuit of a master's degree must submit ALL official undergraduate transcripts (regardless of the number of colleges attended in order to earn the baccalaureate degree) so that a full evaluation of the grade point average may be made. In addition, all transcripts of any graduate work attempted at other colleges and universities are required. Students applying for unclassified status must meet the same transcript requirements listed in this section.

(2) Those students in pursuit of a doctoral degree or a specialist degree must submit all official transcripts (undergraduate and graduate) for evaluation of eligibility for these programs.

(3) Those students in pursuit of the "Master's Plus 30" program must submit only the official transcript certifying receipt of the master's degree from a regionally accredited institution.

(4) Those students applying for transient status must submit only an official copy of a transcript certifying that they are actively pursuing an advanced degree at another institution.

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.

UNCONDITIONAL ADMISSION

Unconditional Admission requires that the applicant must have earned a bachelor's degree from a regionally accredited college or university and must have achieved a minimum grade point average of 2.50 (4.0 system) on all work attempted or 2.75 on the last 60 hours attempted. The final decision rests with the Dean of Continuing Education and Coordinator of Graduate Studies and is based upon the recommendation of the Admissions Committee of the academic college the student wishes to enter.

CONDITIONAL ADMISSION

Conditional Admission may be gained by those applicants not qualified for unconditional admission, while satisfying or validating their undergraduate deficiencies, provided that they have a grade point average of 2.25 on all work attempted or a 2.50 average on the last 60 hours attempted and present a satisfactory standardized test score prior to admission. The final decision rests with the Dean of Continuing Education and Coordinator of Graduate Studies 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.

Students who do not meet minimal requirements for admission may be admitted to the Graduate School conditionally, at the discretion of the Graduate Council, provided a satisfactory score on a standardized graduate level examination and/or other information is presented to indicate superior ability, aptitude, and interest.

Each graduate student seeking admission to a degree program will be required to take the standardized test(s) specified by the academic college. Applications for the appropriate test may be obtained from the Counseling Center, Keeny Hall 322. Those students qualifying for unconditional admission who have not submitted a standardized test score may be granted provisional admission and allowed to submit the test score during their first quarter of enrollment as a graduate student. 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 Office.

The Dean of Admissions will receive and expedite the handling of all admission documents. Complete transcripts of the applicant's undergraduate and graduate record, and of all academic work taken at other institutions, must be submitted to the Admissions Office in order to have a doctoral application considered. The applicant should consult the doctoral admission requirements for the appropriate college in order to determine that area's specific requirements as to test scores and other items. Each academic college has the prerogative to be more selective and establish higher standards for its respective graduate students.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A graduating senior at Louisiana Tech University who has a 3.0 or better average on all work attempted may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 10 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted). A graduating senior who has a 2.5 average or better on all work pursued may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 8 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted).

TESTING

All colleges require that a student wishing to enter Graduate School take the appropriate test(s):

College of Administration and Business: Graduate Management Admission Test for both master's and doctoral students.

College of Arts and Sciences: Graduate Record Examination (aptitude).

College of Education: Miller Analogies Test or Graduate Record Examination (aptitude) for both master's and specialist's students.

College of Engineering: Graduate Record Examination (aptitude and advanced in engineering) for both master's and doctoral students.

College of Home Economics: Miller Analogies Test or Graduate Record Examination (aptitude).

College of Life Sciences: Graduate Record Examination (aptitude) for all master's programs plus the following advanced scores: Biology for botany program; Biology for microbiology program; and Zoology for zoology program.

All foreign students are required to submit a score on the test of English as a Foreign Language before their applications can be evaluated.

TEST CALENDAR

TEST	Test Dates	Test Fees
GMAT	* Saturday, October 28, 1978 Saturday, January 27, 1979 Saturday, March 17, 1979 Saturday, July 7, 1979	$12.50
GRE	* Saturday, October 21, 1978 Saturday, December 9, 1978 Saturday, January 13, 1979 Saturday, February 24, 1979 Saturday, April 28, 1979 Saturday, June 9, 1979	Aptitude Test $13.00 One Adv. Test $13.00
MAT	At beginning of each quarter and by appointment.	** $5.50

* Applications should be made at least four weeks prior to testing date.

** If this test is given individually in the Counseling Center, the fee will be $15.00. For additional information and to register for these tests, contact the Counseling Center, Tech Station, Ruston, Louisiana 71272.

SUMMARY OF ADMISSION PROCEDURES

PROCEDURE	INITIATE THROUGH	TIME
1. Obtain Application for Admission forms	Dean of Admissions	At least 4 weeks prior to registration
2. Return completed forms	Dean of Admissions	Must be received at least 2 weeks prior to registration
3. Have all necessary official transcripts and test scores sent to Tech	Dean of Admissions	Must be received at least 2 weeks prior to registration
4. Comply with any additional requirements of individual graduate programs as specified in this Catalog	Director of Graduate Studies in individual college	At discretion of College
5. Follow registration procedure as outlined in the Quarter Bulletin	Registrar's Office	Registration Period

GENERAL REQUIREMENTS FOR ALL ADVANCED DEGREES

COURSES

All 500-level courses, and above, are open only to graduate students. Courses numbered 400 are for seniors but may carry graduate credit. Also, in some cases, a 300-level course may be approved for graduate credit. Students taking 300- and 400-level courses for graduate credit are normally required to undertake additional work in order to bring the course requirements up to graduate level.

The *semester hour* is the unit of credit at Louisiana Tech. Most courses carry a credit of three semester hours and meet three times a week for a quarter. Credit for each course is indicated by the numerical description, as 0-3-3; the first number indicates laboratory contact hours per week; the second, lecture periods per week (90-minute periods with break between classes included); and the third, credit in semester hours.

GRADE REQUIREMENT

To receive a graduate degree a student must have an average of at least 3.0 on *all work pursued for graduate credit while registered at Louisiana Tech.* A student will be dropped from graduate status if either his or her cumulative average and/or his or her average for the quarter is below 3.0 on work pursued for graduate credit for three consecutive quarters in attendance.

The above grade rule applies both to students working toward a graduate degree and to those graduate students who are not seeking graduate degrees.

GRADING SYSTEM

The official grades of graduate students are recorded in the Office of the Registrar. The Registrar provides official transcripts on the same basis as for undergraduate students.

The University's system of grading is as follows:

Grade	Quality Points
A	4 quality points per semester hour
B	3 quality points per semester hour
C	2 quality points per semester hour
D	1 quality point per semester hour
F	0 quality points per semester hour
I	(see explanation below)
S	(see explanation below)
W	(see explanation below)

An "F" is a failure and does not carry credit in the course. The grade "I" plus the average letter grade on all work completed is used to denote failure to complete assigned class work and/or examinations because of conditions beyond the student's control. If the grade "I" has not been removed by the end of the fourth week of the following quarter, a grade of "F" will be recorded, except on research and thesis courses numbered 551 and 580 and on research and dissertation courses numbered 590. The grade "S" (satisfactory) is used for courses numbered 551, 580, and 590. Also, the only grades used for these courses are "I" and "S".

The "W" grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The "W" grade is not included in computing the student's average. If a student resigns from school after the first six weeks, his or her

instructor will submit grades of "W" plus the student's average letter grade at the time of withdrawal. However, if the student resigns during the last two weeks of classes, he or she will be given an "F". These grades ("W" plus average) will be recorded on the graduate student's permanent record but will not be included in the computation of the average. A student who withdraws from a class after the first six weeks of a quarter will receive an "F" in the course.

REGISTRATION AND CLASSIFICATION

All students expecting graduate credit must be enrolled in the Graduate School. 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 will be required to register and pay fees.

Before registering, a graduate student must obtain his or her advisor's approval of his proposed program.

STUDENT LOADS

The maximum graduate credit course load for a graduate student will be 12 semester hours in a regular session. Not more than 9 hours of this total may be 500-level courses which will include, in master's and specialist programs, research and thesis and/or special non-lecture courses, except with the permission of the student's Director of Graduate Studies. Students who hold full-time assistantships in a regular session will be required to reduce the maximum load by 3 hours. In addition, the department may require further load reductions. For sessions shorter than one quarter, the maximum load will be 1 hour of graduate credit for each week of the session.

The minimum load to qualify as a full-time graduate student is 6 semester hours per quarter.

LANGUAGE EXAMINATIONS

Regulations concerning foreign language examinations may be obtained from the Head of the Department of Foreign Languages. Proficiency examinations are given in the areas of French, German, Spanish, and Russian. Candidates for the Ph.D. degrees who wish to take foreign language proficiency examinations should enroll in the appropriate foreign language reading course—00 credit examination section: French—F. Lang. 202; German—F. Lang. 241; Spanish—F. Lang. 261; Russian—F. Lang. 250. When the student receives the —00 section class card, it will be the student's responsibility at that time to identify in writing the field of study. A special list will be kept at the Foreign Languages table for this purpose during registration. If a student wishes to present books or journals for consideration in the selection of examination material, this may be done at least 4 days before the test is to be given. The test will be given during the first week of class. The candidate is advised to talk with the appropriate examiner during the quarter preceding the examination date.

GRADUATION

Commencement exercises are held and advanced degrees may be conferred at the close of any quarter, including the summer quarter. A student who is scheduled to receive a degree at the end of a quarter is expected to attend the commencement exercises. If a candidate is absent from commencement without the approval of the President of the University, he or she will be assessed an absentee fee of $10 and an additional $3 "special handling" fee will be charged persons who do not pick up their diplomas at graduation when they are normally available. Degree candidates are required to arrive at the place of assembly no later than one half hour before commencement exercises are scheduled to begin.

The applicant for graduation must be registered at Louisiana Tech University. Applications for graduation must be reported to the college dean and to the Registrar within the first four weeks of the quarter in which the student expects to graduate. Arrangements for caps, gowns, and hoods should be made in the Student Center Office.

GENERAL REQUIREMENTS FOR ALL MASTERS' DEGREES

Some departments impose degree requirements which are more restrictive than general requirements. The student is advised to check the department or college section of the catalog for the area of study to be pursued.

ADVISORY COMMITTEE

Advisors are assigned each student upon approval for admission to the Graduate School. After consultation with the advisor and/or department head, the academic dean will be requested to appoint an Advisory Committee consisting of three to five members of the graduate faculty. It will be the responsibility of the Advisory Committee to counsel with the student and to develop a Plan of Study which is then filed with the Graduate Office. Any graduate student following a degree program who has not submitted a Plan of Study by the end of the first quarter of graduate study will not be allowed to register as a graduate student until a Plan of Study has been submitted. Any later revision in the Plan of Study should be reported.

MINIMUM CREDIT REQUIREMENT

The minimum credit requirement for the master's degree is 30 semester hours of graduate work, not more than 6 of which may be allowed for research and thesis. In optional programs not requiring a thesis, the standard course requirements should not be less than 30 hours. Students who do not write a thesis must demonstrate acceptable proficiency in research and reporting. A minimum of one-third of the credit for the degree must be in courses open only to graduate students.

RESIDENCE, EXTENSION, AND CORRESPONDENCE CREDITS

No more than 12 credit hours for a master's degree may be earned through extension credits. The programs at Barksdale and Rome, Italy, are not extension operations but are off-campus units granting residence credits. No correspondence credits are applicable toward a master's degree.

TRANSFER CREDITS

A student is required to earn a minimum of 24 graduate credit hours from Louisiana Tech in order to be eligible to receive a master's degree. The additional hours required for the master's degree may be transferred from another institution provided that the institution is regionally accredited, the grade earned is "B" or above, and the credits are accepted as applicable to the master's degree program by the student's academic college.

THE THESIS

The requirement of a thesis varies within the University; therefore, the prospective student should check the college and/or departmental sections of the catalog for their stipulations. General requirements, applicable to all graduate students meeting this thesis requirement (regardless of the field of study in which they pursue their work), are enumerated below.

A thesis subject should be selected by the student — in consultation with the student's advisor — and approved by the Advisory Committee. With permission of the Advisory Committee, a student not in residence but who has satisfied all course requirements may complete the thesis "in absentia."

The research and thesis may not exceed 12 hours credit and 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 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 days before the expected date of graduation and to Prescott Memorial Library 7 days before the expected date of graduation. The Director of Graduate Studies in each academic college will notify the Academic Dean and the Graduate 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 Office. This notification should be made at least one week before commencement and should state that all requirements have been satisfied, contingent upon satisfactory grades for the final quarter. Otherwise, the candidate will be delayed one quarter in receiving his or her degree. A student who does not successfully pass the comprehensive examination is entitled to one repeat examination.

No oral or written comprehensive is required for the MBA and MPA.

TIME LIMIT FOR DEGREE

A time limit for the completion of all requirements for the master's degree has been set at 6 consecutive calendar years from the time of initial enrollment.

A SECOND MASTER'S DEGREE

A student pursuing a second master's degree must earn a minimum of 15 additional graduate hours at Louisiana Tech and must satisfy the requirements for a minimum number of exclusively graduate courses, in addition to the thesis, to be taken in the area in which the second degree is being earned.

GENERAL REQUIREMENTS FOR SPECIALIST DEGREES

Those students interested in pursuit of the Specialist Degree are referred to requirements as listed under the College of Education section of this catalog.

GENERAL REQUIREMENTS FOR ALL DOCTORAL DEGREES

The doctoral degree is not awarded on the basis of completion of a course of study, however well done. Instead, the degree is earned by intensive individual study, inquiry, and original research by a well-qualified candidate under the close supervision of a major professor and an Advisory Committee. The program must be tailored to the needs and interests of the candidate and to the needs and demands, present and future, of his or her profession. As a result, the modern doctoral candidate must expect to exhibit or develop a high level of competency and habits and skills of individual inquiry and original research which characterize the doctorate. Consequently, it is neither possible nor desirable to set firm and rigid requirements.

The student is advised to check the departmental or college section of the catalog for the area of study to be pursued. In some cases, the college or area requirements may be more restrictive than these general requirements for the doctoral programs.

MINIMUM CREDIT REQUIREMENT

Formal course work is of indisputable value to bring the student into a scholarly relationship with members of the graduate faculty and to demonstrate accepted knowledge of a subject. A minimum of 60 semester hours credit of formal course work beyond the baccalaureate degree, exclusive of credit for research and thesis courses and research and dissertation courses, is required.

ADVISORY COMMITTEE

During the first quarter in which students are enrolled in Graduate School, they should report to the appropriate Director of Graduate Studies to request the appointment of an Advisory Committee. The responsibilities of the Advisory Committee include counseling with the student to develop a Plan of Study. A copy of this degree program should be filed with the Graduate 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 and a maximum of 30 semester hours credit is granted for this research and dissertation through the medium of appropriate registrations as guided by the student's Advisory Committee. Grades of "I" and "S" are used for these courses. The dissertation must be submitted to the appropriate Director of Graduate Studies 10 days before the expected date of graduation and to Prescott Memorial Library 7 days before the expected date of graduation.

The publication *Guidelines for the Preparation of Theses and Dissertations* is available in the Graduate Office and should be used as a guide in the preparation of theses and dissertations. The University participates in the service for publication of doctoral dissertations provided by University Microfilms. Each abstract is published in *Dissertation Abstracts,* along with a positive copy which is sent to the Library of Congress. The doctoral candidate is advised to check with Prescott Memorial Library concerning this program.

LANGUAGE REQUIREMENTS

Foreign languages are thought of as instruments of research and continuing access to information about foreign culture and scholarship. A reading knowledge of two foreign languages selected by the student and his Advisory Committee is the general requirement. Substitutions for languages may be permitted in some fields. In the Doctor of Business Administration (DBA) program there is no language requirement.

EXAMINATIONS AND ADMISSION TO CANDIDACY

After completion of a minimum of two full academic years of graduate work and after compliance with the language and/or tool requirements, comprehensive examinations (general examinations) are required to determine whether or not the student is ready to be admitted to candidacy for the doctoral degree. The results of these examinations may also determine additional work to be taken and may determine the feasibility of the dissertation project.

An examination defending the dissertation must be completed successfully at least two weeks prior to the date the degree is expected to be received.

RESIDENCE REQUIREMENT

The minimum residence requirement for the doctoral degree shall be eight quarters beyond the bachelor's degree. The student is required to spend at least three quarters beyond the first year of graduate study in continuous residence. The transfer of course work from a recognized graduate school carries with it the transfer of residence credit, but a minimum of 24 semester hours of graduate credit beyond the first year of graduate study must be earned in residence at Louisiana Tech University.

TIME LIMITATION

The doctoral degree must be completed within 5 consecutive calendar years after the successful completion of the student's comprehensive (general) examinations.

GRADUATE PROGRAMS

College of Administration and Business

GRADUATE SCHOOL PROGRAM OFFICERS OF INSTRUCTION

BOB R. OWENS — *Dean*
PHILIP F. RICE — *Director, Graduate Division*
JAMES R. MICHAEL — *Director, Research Division*
HOMER G. PONDER — *Director, Undergraduate Division*
H. J. SMOLINSKI — *Director, School of Professional Accountancy*
JAMES L. HESTER — *Head, Department of Business*
THOMAS S. SALE — *Head, Department of Economics and Finance*
REBA K. NEEL — *Head, Department of Office Administration*

PROFESSORS

Frank N. Edens, Bobby L. Hamm, James L. Hester, Archer W. Huneycutt, Floyd Langford, Jr., Reba Neel, Bob R. Owens, Homer G. Ponder, Joe M. Pullis, Philip F. Rice, William R. Rives, Thomas S. Sale, Lawrence C. Smith, Harold J. Smolinski, B. Earl Williamson.

ASSOCIATE PROFESSORS

Stephen Blucas, Frank M. Busch, James A. Calloway, Edward Cato, Johnnie Charnetski, Lyndon E. Dawson, Ted L. Fisher, Robert D. Foster, Douglas T. Grider, Jr., Glenn V. Henderson, William A. Holliday, Anthony Jurkus, James N. Mangum, James R. Michael, Douglas W. Mellott, Edward J. O'Boyle, Betty L. Orr, John E. Shaver, Sateesh K. Singh, Stephen Skomp, James E. Townsend.

ASSISTANT PROFESSORS

Norman F. Byers, Phillip E. Fincher, William L. Seaver, Maurice Tassin.

All graduate programs are designed to prepare students to engage in professional and/or administrative careers in business and government and to enter the teaching profession. Students may enter the master's and doctoral programs any quarter. Each graduate student has an Advisory Committee to help plan his/her program and tailor it to individual needs and objectives. In the College, no grade less than "C" will be accepted on courses taken for graduate credit in a student's degree program.

The College of Administration and Business offers the Master of Business Administration degree, the Doctor of Business Administration degree, and the Master of Professional Accountancy degree. The Undergraduate Division provides a broad range of programs with a student body of 1,400 admitted students. The third division of the College, the Research Division, has an extensive and growing research program that adds much to the graduate programs.

ACCREDITATION

The College of Administration and Business is an accredited member of the American Assembly of Collegiate Schools of Business. The assembly standards state that accredited membership in the Assembly shall constitute accreditation for professional collegiate education for business. The accreditation covers all undergraduate programs of the College. Louisiana Tech University is accredited by the Southern Association of Colleges and Secondary Schools, and this accreditation covers the College of Administration and Business as one of the six colleges of the University and includes all curricula now being offered by the College through the doctorate. The Research Division, College of Administration and Business, is an accredited member of the Association for University Business and Economic Research.

GRADUATE ASSISTANTSHIPS AND INSTRUCTORSHIPS

A limited number of graduate assistantships are available each year to students of high academic accomplishment. The stipend for graduate assistants is $3,000. The graduate student who holds an assistantship is expected to carry a reduced classwork load which will vary depending on his/her scholastic record and amount of work required by the assistantship.

Teaching and research assistantships are awarded to doctoral students. The salary paid for these part-time teaching or research assignments is normally $4,600.

RESEARCH DIVISION, COLLEGE OF ADMINISTRATION AND BUSINESS

The Research Division, College of Administration and Business, organized in the spring of 1948, is a member of the Association for University Business and Economic Research (AUBER). All faculty members in the College of Administration and Business are staff members of the Research Division, College of Administration and Business. The purposes of the Division are: To encourage and promote research by faculty members in the various fields in the College of Administration and Business; to render technical assistance to faculty members and graduate students, particularly doctoral students, conducting research and assist in securing funds for research projects; to publish monographs and bulletins where it is deemed they will be of practical use to business and professional people; to plan and promote conferences and seminars conducted in the College of Administration and Business and publish the proceedings; to promote and conduct research on the Louisiana economy, including the preparation of economic and population data series; to develop cases, problems, and special syllabli for use in teaching courses offered in the College of Administration and Business.

MASTER OF BUSINESS ADMINISTRATION CURRICULUM

(Leading to the MBA Degree)

PURPOSE OF THE MBA

The Master of Business Administration degree has, in recent years, come to be the prestige degree in administration; and the number of students pursuing it is expanding quite rapidly. The College of Administration and Business offers this degree program with two objectives in mind. The first objective is to provide graduate instruction for students who have a major at the undergraduate level in one of the fields commonly offered by colleges of business administration. For these students, the program generally takes one year to complete and it offers a modest specialization with most of the work designed to strengthen their knowledge and skills in the area of management and administration.

The second objective is to provide a master's degree program for students whose undergraduate major was in a field outside the College of Administration and Business, in such areas as science, engineering, social science, agriculture, or some other field. For these students, the program generally takes two years except for those students who planned to take the MBA and, therefore, during their undergraduate program elected the foundation courses for the MBA or at least as many of them as they could schedule. For these students, the MBA degree program will take less than two years and for some only one year. Business, industry, governmental agencies, and other organizations are interested in obtaining some employees with a background in liberal education or a specialty at the undergraduate level in some field other than business but who have capped their education with a master's degree with emphasis on the science and art of administration. Significant numbers of such holders of the non-business bachelor's degree are now entering graduate school to pursue the MBA degree. Also, many industries are making it possible for students to return to the University to obtain the MBA degree after they have had work experience so that they can go back to their employment with a greater potential of advancing to a high administrative position.

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 on the MBA program must take.

No grade lower than "C" is normally acceptable on any undergraduate course used to satisfy the foundation requirement on 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 when necessary to meet this requirement.

THE FOUNDATION:

The following undergraduate courses are required as preparation for the graduate courses:

	Semester Hours
*Accounting 203, 204, 205 or 203, 204, 310	6 or 7
Business Law 355	3
Economics 203, 204, 205 or 315, 408	6
Finance 318	3
**Management 311, 350	4
Marketing 300	3
Quantitative Analysis 335, 336, 337, 391	7

*For the student who plans to earn a specialty in accounting, Accounting 303, 304, 305, 307, 308, 411, and 413 are required.

**After graduate admission has been attained, Management 500 and 501, each for two semester hours credit, may be taken in lieu of Management 311 and 350.

THE GRADUATE PHASE:

	Semester Hours
Accounting 505[1]	3
Economics 510	3
Finance 515	3
Management 520	3
Management 521	3
Marketing 530	3
Quantitative Analysis 525	3
Electives[2]	12
Total Semester Hours[3]	35

[1] The student with accounting as a specialty will take Accounting 508 unless six hours of cost accounting have been earned previously.

[2] A thesis is not required, but occasionally one may be approved for a student by the Advisory Committee. The thesis would reduce the elective hours from 12 to 6.

[3] At least 27 semester hours to be 500-level course.

MBA SPECIALTIES

The Business Administration Curriculum leading to the MBA degree is administrative or management oriented and is characterized by breadth of course-field requirements both in the foundation and graduate phase. It does not require and, in fact, does not permit a major in any particular field. It is an interdisciplinary and interdepartmental degree program offered by the Graduate Division and the several academic departments of the College of Administration and Business.

This interdisciplinary characteristic is desirable for future administrators because their work requires some knowledge of many facets of administrative activities. The degree has become a prestigious one in the administrative circles of business, governmental, educational and other organizations.

However, many students desire a modest concentration in one area and the 12 semester hours of electives permit this to be done. In such cases the area of moderate concentration is called a "specialty" to distinguish it from the normal "major" as the term is used in master-of-science or master-of-arts degree programs.

For the convenience of both students and advisors, a group of suggested specialties are given below. If a student desires to take an extra course or two in order to further strengthen his or her specialty, this may be done but no such courses may be substituted for the required courses listed in the curriculum.

GENERAL: The 12 elective hours are "open" for those students who desire no specialty. For these students the elective hours will be chosen with the approval of their advisory committee.

ACCOUNTING: The 12 semester hours will include Accounting 506, 517, 521, and three hours of other approved courses.

BUSINESS EDUCATION: The 12 semester hours will include Education 525, Education 533, and Education 548 or 549, or both.

ECONOMICS: The 12 elective hours will include 12 hours approved by the Advisory Committee.

FINANCE: The 12 semester hours will include Finance 516, 517, 525, and one course chosen from Finance 414, 422, or approved finance elective.

MANAGEMENT: The 12 semester hours will include Management 526, 529, 571, and 572.

MARKETING: The 12 semester hours will be composed of courses approved by the Advisory Committee.

QUANTITATIVE ANALYSIS: The 12 semester hours will include Q.A. 432, 433, 540, and one additional course from Q.A. 535, 541, 532, or 550.

ADMISSION TO MBA PROGRAM

Any person who holds a bachelor's degree, or equivalent, from an accredited college or university will be considered for admission regardless of the undergraduate field of study. An applicant for admission should understand that graduate study is not simply an extension of undergraduate work. Graduate study operates at a definitely higher level, demands scholarship of a high order, and places more emphasis on research and student responsibility.

Applicants must supply a score on the Graduate Management Admission Test (GMAT). Admission to the MBA

program is normally based on the combination of an applicant's test score and previous academic record. Assessment of graduate potential is largely judgmental, and the MBA Admissions Committee grants admission only to those individuals who can demonstrate high accomplishment and/or future promise of success. Conditional admission will apply at the discretion of the Admissions Committee according to the regulations of the Graduate School.

Applicants may arrange to take the GMAT by writing and making applications to: Graduate Management Admission Test, Educational Testing Service, P. O. Box 966, Princeton, N.J. 08540. Applications to take the GMAT may be obtained from the Counseling Center, The Graduate Office, or Director of Graduate Studies office in the College of Administration and Business. In making application, request that a copy of the score on the test be sent to College of Administration & Business, Louisiana Tech University, Ruston, LA 71272.

THE MASTER OF PROFESSIONAL ACCOUNTANCY PROGRAM

The Master of Professional Accountancy (MPA) program is designed to train individuals for accounting careers with a minimum of on-the-job experience, to prepare graduates for entrance examinations into the profession, and to provide the background necessary for holding responsible accounting and/or management positions. Students may be formally admitted to the MPA program at the completion of their fourth year of undergraduate study regardless of whether or not a bachelors degree has been earned.

The MPA program is a five-year curriculum, four years of undergraduate study and a fifth year of graduate-level training. Course requirements in the undergraduate phase of the program must be met either prior to or at the graduate phase (year 5). 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 below.

YEAR 1	Semester Hours
Economics 200—American Industrial Development	3
English 101, 102—English Composition	6
Liberal Education Electives	6
Math 111—College Algebra	3
Math 222—Calculus for Business	3
Political Science 201—National Government in the U.S.	3
Science Elective	3
Social Studies Elective	3
Sociology 201—Prin. & Elements of Sociology	3 33*

* Must pass proficiency exam or show credit for Office Admin. 202 (Typewriting).

YEAR 2	Semester Hours
Accounting 203, 204, 205—Elementary Accounting	6
Economics 203, 204, 205—Economic Prin. & Probs.	6
English 201 or 202—Intro. to American & English Literature	3
English 336—Advanced Composition	3
Psychology 102—General Psychology	3
Quan. Anal. 220—Intro. to Business Info. Systems	3
Quan. Anal. 335, 336, 337—Business Statistics	6
Science Elective	3 33

YEAR 3	Semester Hours
Accounting 303, 304, 305—Intermediate Accounting	6
Accounting 307—Income Taxation	3
Accounting 308—Cost Accounting	3
Economics 312—Monetary Economics	3
Economics 408—Intermediate Econ. Theory	3
Finance 318—Business Finance	3
Management 305—Communications	3
Management 311—Organ. Behavior, Planning, & Control	3
Marketing 300—Marketing Prin. & Policies	3
Speech 377—Oral Communication	3 33

YEAR 4	Semester Hours
Accounting 312—Municipal & Government Accounting	3
Accounting 406—Advanced Income Taxation	3
Accounting 411, 412—Advanced Accounting	6
Accounting 413—Auditing	3
Business Law 355—Legal Environment of Business	3
Business Law 356—Business Law	3
CAB Electives	6
Finance 414—Investments	3
Management 350—Production	1
Computer Programming Language	2 33

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	Semester Hours
Accounting 506—Seminar in Financial Accounting OR Accounting 507—Contemporary Accounting Theory	3
Accounting 508—Advanced Accounting Analysis & Controls	3
Accounting 517—EDP in Accounting	3
Accounting 521—Cases & Probs. in Income Taxes	3
Accounting 541—Accounting Analysis	3
Accounting Electives	6
Economics 510—Managerial Economics	3
Finance 515—Financial Management	3
Quan. Anal. 525—Management Science	3
Management 521—Administrative Policy	3 33

ADMISSION

Admission to the graduate phase of the MPA program is based upon the combination of an applicant's academic record and score on the Graduate Management Admissions Test. Students may enter the program any quarter, and each individual has a major advisor to help plan his/her program. For information concerning admission to the program prior to completion of four years of undergraduate study, contact either the Director of the School of Professional Accountancy or the Director of the Undergraduate Division, College of Administration and Business, Louisiana Tech University, Ruston, LA 71272.

DOCTOR OF BUSINESS ADMINISTRATION

OBJECTIVES OF THE D.B.A

The Doctor of Business Administration degree is a professional degree at the highest level of formal study in business administration. It is intended to develop the breadth and depth of comprehension, the command of research methodology, and the understanding of related disciplines required for careers in university teaching and research, or for high-level professional and administrative positions in business, government, education, or other organizations. The Doctor of Business Administration degree is a broad, interdisciplinary degree. The D.B.A. candidate must expect to exhibit or develop a high level of competence and skills of individual inquiry and original research which characterize the doctorate. He/she will work under the close supervision of a major professor and an Advisory Committee.

FIELD AND RELATED REQUIREMENTS

The Doctor of Business Administration degree program requires a knowledge to be developed in three subject fields, two minor fields and a major field. Also, a Research Tool (Economics and Quantitative Analysis) is required for all students. Subject fields may be chosen from the following: Accounting, Business Education, Economics, Finance, Management, Marketing, and Quantitative Analysis. One of the minor fields may be chosen outside of business provided it is meaningfully related to the student's program and professional goals and is properly approved. The student who uses Business Education as a field, however, will not be approved for an outside field.

Regardless of the specific fields used by the D.B.A. student, he or she must normally show credit for at least one course for graduate credit in each of these: Accounting, Finance, Marketing, and Administrative Policy. In addition, he or she must normally show either graduate credit or undergraduate credit in at least one course in each of the following: management of human resources (organizational behavior), and production or industrial management. There is no requirement of a foreign language for the D.B.A. degree.

ADMISSION TO DOCTORAL PROGRAMS

To qualify to be considered for admission to a doctoral program, applicants must first have either already been admitted to graduate study in the College of Administration and

Business or must meet the graduate admissions requirements of the Graduate School and the College and the doctoral admissions requirements of the Graduate School. If these requirements have been or can be met the application will be reviewed by a doctoral admissions committee to determine their personal characteristics, their research interest and capability, their motivation and perseverance, and their promise of success in high-level advanced study. The following requirements must also be met by applicants:

The academic record must demonstrate sufficient scholastic performance to indicate that they are qualified to perform successfully in a doctoral program. More emphasis will be placed on applicants' graduate record if they have already earned the masters' degree than their undergraduate record.

An acceptable score on the Graduate Management Admission Test (GMAT) must be supplied. In the event that applicants already have taken the Graduate Record Examination (GRE) and cannot take the GMAT before they must have a decision on their admissions application, they may supply the GRE test score and it may be used in the admissions decision. If they are admitted, they must still schedule the GMAT test and supply the score at the next available testing date. Their admission will not be cancelled regardless of the GMAT score, but the score is needed for use in validation and other comparative studies.

Steps in applying for admission and in obtaining an admission decision are:

1. Arrange to take the Graduate Management Admission Test by writing: Graduate Management Admission Test, Educational Testing Service, P.O. Box 966, Princeton, New Jersey 08540. Request that your test score be sent, after the examination is taken, to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, Louisiana 71272.
2. For an application for admission form write to: Director of Admissions, Louisiana Tech University, Ruston, Louisiana 71272. Return the filled-in application to this same address.
3. Request all colleges and universities attended at any time in the past to send official transcripts to the address in No. 2 above.
4. Request three persons who know your qualifications for doctoral study to serve as references. Ask them to mail their letters of recommendation directly to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, Louisiana 71272. These letters should be submitted before or by the time the application is made.
5. When the above four steps have been completed, an invitation may be extended to you to come to the Campus for an Oral Admissions Examination. The admission decision will be made by the Doctoral Admissions Committee after this examination, but all of your admission credentials will be used in making this decision.

HOURS REQUIRED AND GENERAL EXAMINATIONS FOR DOCTORAL PROGRAMS

A minimum of 60 semester credit hours of graduate course work is required beyond the bachelor's degree of which a minimum of 30 credit hours, exclusive of credit for dissertation research, must be beyond the master's course or their equivalent. The Advisory Committee will decide the number of credit hours which a student must take to provide the necessary strength in their field to qualify for the degree.

Upon completion of the course requirements in each field, a written field examination will be scheduled, and after all field examinations have been passed and other requirements met, the student will be given an oral examination which will complete the general examinations and qualify the student for the Certificate of Candidacy. After the completion of the dissertation, there will be administered a final oral examination in defense of the dissertation. All examinations are to be taken on the main campus under the direct supervision of appropriate faculty members.

DISSERTATION

Credit and progress in the dissertation will be provided by registering in Administration and Business 590 until 30 hours of credit are earned. Grades of "S" and "I" will be given for each 3 hours of credit pursued. There will be a final oral examination after the dissertation is completed.

RESIDENCE REQUIREMENTS

A minimum of three consecutive quarters and a minimum of 24 semester credits, exclusive of research and dissertation credit, beyond the master's 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 his or her general examination he or she 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.

RESEARCH TOOL REQUIREMENT

All DBA students must meet the following research tool requirement by earning an acceptable grade or by passing an examination in Quantitative Analysis 390: Quantitative Methods for Business and Economics (calculus & linear algebra), or its equivalent; Quantitative Analysis 310; Fortran Programming; Quantitative Analysis 432; Intermediate Business Statistics, Quantitative Analysis 525; Management Science; Economics 513; Macroeconomic Theory; Economics 520; Theory of Value & Market Structures. Students for whom this tool is required are assumed to have had at least six semester hours of business or economic statistics, but if not, they normally will be required to take Quantitative Analysis 335-336-337.

All tool requirements outlined above must normally be satisfied at Louisiana Tech University after graduate admission is obtained. Tool requirements may be satisfied by the successful completion of stated course work or by making an acceptable score on a proficiency examination or examinations in the tool area or courses listed. Proficiency examinations are administered once quarterly at a time scheduled and announced at the beginning of each quarter.

SUBJECT FIELD AND COURSE REQUIREMENTS FOR THE DOCTORAL DEGREES

The subject field requirements given below assume the student has already earned a master's degree. Some of the required courses may have been taken in earning that degree, and in such cases, these course requirements are already satisfied. In certain fields, however, an alternative course is specified.

MAJOR FIELD FOR THE D.B.A

The major field for the D.B.A. degree normally requires six courses with 18 semester hours of graduate credit. The student will take the courses listed below for the minor field and as many additional courses as necessary to satisfy the 18-hour requirement. Each student's Advisory Committee will modify the requirements to reflect the graduate courses previously taken by the student. Major fields available for the D.B.A. are: Accounting, Business Education, Business Economics; Finance, Management, Quantitative Analysis, and Marketing.

D.B.A. MINOR FIELD REQUIREMENTS

The normal number of courses required in each minor subject is 3 with 9 semester hours of graduate work. The courses listed below are for general guideline purposes but will fit the needs of many students. Each

student's Advisory Committee will modify the requirements to reflect the graduate courses previously taken by the student. However, the program modification will leave at least one course to be taken in each field at the doctoral level at Louisiana Tech. If the student has not already had adequate preparatory courses, he/she will have to take additional preparatory or prerequisite courses in a given field in order to prepare to take the required graduate courses.

ACCOUNTING

Accounting 505 or 508, 507 and one additional course (Accounting 521 is suggested). An undergraduate equivalent required of the MBA specialty in Accounting is required.

BUSINESS EDUCATION

Education 570: Field Problem and Internship
Education 571: Research and Readings in Business Education
Courses to be specified—1
Only students who have had prior emphasis in business education either as an undergraduate or graduate student will qualify to use Business Education as a secondary field.

ECONOMICS

Economics 513: Macroeconomic Theory I
Economics 520: Theory of Value and Market Structures
Courses to be specified—1

FINANCE

Finance 515: Financial Management
Finance 520: Seminar in Financial Theory and Problems
Finance 525: Seminar in Investments

MANAGEMENT

Management 528: Seminar in Management Theory
Management 529: Seminar in Current Management Issues
Management 571: Organizational Behavior

MARKETING

Three of the following courses:
Marketing 531: Marketing Theory
Marketing 532: Seminar in Price Policies
Marketing 533: Advanced Marketing Research
Marketing 534: Marketing Dynamics
Marketing 535: Seminar in Marketing

QUANTITATIVE ANALYSIS

Quantitative Analysis 433: Applied Multivariate Statistics
Quantitative Analysis 525: Management Science
Quantitative Analysis 540: Advanced Management Science Methods

GRADUATE PROGRAMS

College of Arts and Sciences

OFFICERS OF GRADUATE INSTRUCTION

PAUL J. PENNINGTON — *Dean*
PATTERSON B. MOSELEY — *Associate Dean and Director of Research*
JOHN C. TRISLER — *Director of Graduate Studies*
JOSEPH W. STROTHER — *Director, School of Art and Architecture*
CHARLES H. SMITH — *Head, Department of Chemistry*
ROBERT C. SNYDER — *Head, Department of English*
WILLIAM Y. THOMPSON — *Head, Department of History*
BILLY J. ATTEBERY — *Head, Department of Mathematics & Statistics*
RAYMOND G. YOUNG — *Head, Department of Music*
WILLIAM H. BRUMAGE — *Head, Department of Physics*
GUY D. LEAKE, JR. — *Acting Head, Department of Speech*

PROFESSORS

Billy J. Attebery, Jack Beard, William H. Bernard, William H. Brumage, A. Z. Butler, William J. Conway, Kenny S. Crump, Robert Elioff, Ben F. Freasier, Anthony J. Galli, Jackie B. Garner, Richard L. Gibbs, Jimmie D. Gilbert, Billy H. Gilley, Richard B. Howe, Edgar P. Kelly, Lowell F. Lynde, C. Wade Meade, Ted McKinney, Thomas McNulty, H. E. Moseley, P. B. Moseley, Carlos J. Muller, Selma H. Patton, Paul J. Pennington, Kenneth W. Rea, Oneil J. Richard, Donald D. Roberts, Edward Samaha, Morris L. Schopf, Stillman E. Sims, Charles H. Smith, Robert C. Snyder, Paul B. Stephenson, Joseph W. Strother, W. B. Temple, William Y. Thompson, John C. Trisler, John D. Winters.

ASSOCIATE PROFESSORS

Phoebe Allen, Abraham M. Attrep, Riley E. Baker, Mary F. Beasley, S. David Buice, John M. Bush, George M. Butler, Philip C. Cook, Tucson Dunn, Richard L. Ezell, Robert H. Ferrington, Nelle T. Francis, Mark R. Harris, Albino R. Hinojosa, Robert A. Jones, S. S. Kilgore, Sidney J. Landman, Guy D. Leake, John Luce, Jack B. Martin, Jr., Robert C. Meyer, Edwin Pinkston, Ronald Salmon, James D. Spencer, Carole S. Tabor, Charles D. Tabor, Ronald H. Thompson, Grant Tittle, Schuman Yang, Raymond Young.

ASSISTANT PROFESSORS

Jon Barker, Robert J. Berguson, Gary Cawood, Dean Dablow, John P. Ford, Robert E. Hamburg, Robert Jungman, Robert C. Karsten, Jackson Lewis, Floyd L. Martin, Charles A. Meeds, Mary Morse, John A. Onufrak, Kathryn D. Robinson,

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.

SCHOOL OF ART AND ARCHITECTURE MASTER OF FINE ARTS DEGREES AREAS

The Master of Fine Arts degree is offered by the School of Art and Architecture and is particularly designed for those interested in the creative aspects of the arts and those interested in teaching at the college level. Work toward the Master of Fine Arts degree may be undertaken in four areas: (1) Studio (Stu.), (2) Graphic Design (G.D.), (3) Interior Design (I.D.), and Photography (Photo.).

REQUIREMENTS FOR THE DEGREE OF MASTER OF FINE ARTS

In addition to meeting the general admission requirements for the Graduate School and possessing a sufficient undergraduate background in art the student must present an acceptable portfolio. This portfolio should contain 18 slides or photographs of recent work in other art related areas. It is not to exceed a total presentation of 30 original or reproduced pieces. A descriptive listing of all submitted work as to size, media, etc., is to accompany the portfolio. All material must be submitted to the Graduate Coordinator in the School of Art and Architecture six weeks prior to the beginning of the quarter in which the student seeks entrance. Application for admission to the program is made through the University Admissions Office.

The candidate for the Master of Fine Arts degree must complete a minimum of 60 graduate credit hours. There are no foreign language requirements. Advanced degrees offered by the school are not automatically awarded upon the completion of any required number of courses or credit hours. A candidate's status is subject to review at any time.

After one year of residence (or 18 credit hours) the student will present a group of his/her work for consideration by the Graduate Committee in the School of Art and Architecture. If this work shows sufficient promise the student will be permitted to continue with his/her program of study. The student will be expected to present one-person or group exhibition of the final problem which will be accompanied by a written statement and a photography record.

BACHELOR OF ARCHITECTURE

The B.Arch is a five year professional degree that combines the four year pre-professional Bachelor of Arts Degree with an in-depth one-year program of study.

MASTER OF ARCHITECTURE

A student may apply for admission into this program upon completion of the prescribed five year Bachelor of Architecture degree at Tech, or upon completion of a five-year degree program of Architecture at another college or university, plus an acceptable portfolio and graduate school admission requirements. This portfolio should contain 24 slides of recent work in the major field, plus 12 slides of recent work in other related areas. It is not to exceed a total presentation of 36 reproduced pieces. A descriptive listing of all submitted work as to size, media, etc., is to accompany the portfolio. The School of Art and Architecture establishes a date of six weeks prior to the entering quarter for receipt of applications and portfolio from applicants seeking entrance into the Master of Architecture program. Graduate School application should be made well in advance of the portfolio review dates.

The Master of Architecture requirements include a minimum of 33 semester hours beyond the Bachelor of Architecture degree from Tech or from other architectural schools plus a visual and written portfolio presentation.

At the end of 18 semester hours of resident graduate work, the student must pass an oral examination which, along with supporting architecture work, will constitute an evaluation of his capabilities for continuing toward his degree objective.

GRADUATE CURRICULA

The College of Arts and Sciences offers the degree of Master of Arts in the fields of English, history, music, and speech. The degree of Master of Fine Arts is offered in art and the Master of Architecture, in architecture.

The degree of Master of Science is offered in the fields of chemistry, mathematics, and physics. The Master of Science degree with an option in clinical chemistry is offered as a joint venture between the department of chemistry and the Division of Allied Health.

DIVISION OF RESEARCH

The Division of Research in the College of Arts and Sciences realizes that graduate and undergraduate research are an integral part of the College. Their value is to stimulate both the faculty and the students to achieve a higher degree of knowledge and a desire to contribute this knowledge to their particular fields and related fields of study.

The purpose of a university is instruction, research, and public service. The research division is designed to carry out the second responsibility of these important phases of our educational program.

The main sources of funds that are available for research are obtained from Federal and State government agencies, private foundations, and industry. The Division is also designed to provide help and information to those interested in securing funds from these sources.

DEPARTMENT OF CHEMISTRY SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

Research specialties of the Chemistry Department are as follows: the mechanisms of organic reaction, the chemical kinetics of organic reactions, the chemistry of natural products, rosin chemistry, coordination compounds, thermodynamics of solutions, molecular spectroscopy, extraction compounds of metal analysis, and blood lipid chemistry.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE WITH A MAJOR IN CHEMISTRY

In addition to the Graduate School admission requirements, an applicant must have earned college credit for courses as follows: one year each of general chemistry, quantitative analysis, organic chemistry, physical chemistry, and physics; mathematics through calculus, both differential and integral; and organic qualitative analysis.

The candidate for the master's degree must complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduate students only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis. A written examination will be taken in the major field and in other fields if the student's advisory committee requires it.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE WITH AN OPTION IN CLINICAL CHEMISTRY

Candidates who hold a baccalaureate degree from an accredited college in medical technology, chemistry, or in an equivalent field are eligible for this program.

Candidates are required to complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduates only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis.

A graduate committee, appointed for each student, shall review the qualifications of the candidate and set forth the courses required for the Master of Science degree. This committee may also require deficiency courses to be taken without graduate credit upon the basis of each student's transcript.

DEPARTMENT OF ENGLISH SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

The graduate program in English is designed to be thorough, comprehensive, and culturally broad. Graduates of the program are qualified to continue study toward the doctorate degree and to teach English at the college level.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN ENGLISH

In addition to the Graduate School admission requirements, an applicant must have the bachelor's degree from an accredited college, including a minimum of 24 hours of English. At least 12 of these 24 hours must be of junior or senior level.

The candidate for the degree of Master of Arts with a major in English must demonstrate proficiency in the use of at least one modern foreign language — French, German, or Spanish.

The candidate for the degree of Master of Arts with a major in English will follow one of two plans. Under Plan A he must complete a minimum of 30 hours of graduate credit in English, consisting of courses numbered 400 (for graduates and advanced undergraduates) and courses numbered 500 (for graduate students only). Six of the 30 hours credit must be earned in A & S 551, Research and Thesis.

Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 33 hours of graduate credit in English. The student must also successfully complete written comprehensive examinations in four areas of English or American literature.

All English courses numbered 400 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in English.

DEPARTMENT OF HISTORY SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

While course work is offered in many areas of history, the student will generally specialize in some phase of American, European, or Asian history for his/her research assignment.

In addition to providing cultural enrichment, the program prepares a student for further study toward the doctorate degree as well as teaching at the college level.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN HISTORY

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree from an accredited institution, a grade point average of 2.5 or higher on all work pursued, and 21 hours in history. On the recommedation of the head of the History Department, an exception to the 2.5 grade point average can be made in the case of an applicant who has achieved a 3.0 grade point average in his undergraduate history courses.

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. This student must complete 30 hours of graduate credit in history, 6 hours of which will be given for the completion of a thesis. The thesis course is Arts and Sciences 551, Thesis Writing and Research (3 semester hours credit), which may be repeated once for credit. Nine of the remaining 24 hours must be in 500 level courses open only to graduate students. A student following Plan A must demonstrate proficiency in one foreign language.

Plan B: This plan is designed for the student who considers the M.A. as the terminal degree. This 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. No foreign language proficiency is required for the student following Plan B.

Every candidate for the M.A. must pass an oral examination covering his entire program.

All history courses numbered 300 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in history.

DEPARTMENT OF MATHEMATICS AND STATISTICS SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

The Mathematics and Statistics Department offers in-depth studies in Algebra, Analysis, Differential Equations, Probability & Statistics, and Applied Mathematics for the prospective researcher, teacher, or applied mathematician.

REQUIREMENTS FOR THE DEGREE OF 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 an undergraduate major in mathematics of not less than 30 hours.

The candidate for the master's degree must satisfy the conditions in one of the three following plans. Under Plan A, he or she must complete 30 semester hours of graduate credit in mathematics courses, including 3 hours credit for writing an acceptable thesis. Nine hours, excluding thesis credit, must be earned in courses numbered 500 or above.

Under Plan B, he or she must complete 33 semester hours of graduate credit. Twenty-seven semester hours of graduate credit, including 3 hours credit for writing an acceptable thesis, will be earned in mathematics. The remaining 6 hours will be earned in a related field. Nine of the 27 hours in mathematics, excluding thesis, must be in courses numbered 500 or above.

Under Plan C, the candidate must complete 33 semester hours of graduate credit in mathematics of which 15 semester hours are in courses numbered 500 or above. No thesis is required under this plan.

DEPARTMENT OF MUSIC SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

Specialized areas of interest include piano, voice, wind instruments and percussion for those interested in becoming (or increasing their proficiency as) studio or college teachers, accompanists, choir, band or orchestra directors.

To support, augment, and supplement these areas, strong emphasis is laid on music history and literature, advanced theory and composition, sacred music, piano and vocal pedagogy, orchestral and choral conducting, and band and orchestral instruments.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN MUSIC

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree in music or in music education and be approved by the graduate faculty of the Department of Music.

The candidate for the degree of Master of Arts with a major in music must complete a minimum of 30 semester hours in music, or 24 hours in music and 6 hours in a related field, consisting of courses numbered 400 (for graduate and advanced undergraduates) and courses numbered 500 (for graduate students only). Six of the 30 hours of credit must be earned in Music 517 and 518 (Advanced History and Literature of Music).

Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses or Graduate Recital.

In addition to the 9-hour requirement stated in the preceding paragraph, students following the Master of Arts with a major in Music are required to take Music 555 (recital) and Music 550C (Special Problems) for 6 hours credit OR take Arts and Sciences 551 (Research and Thesis) for 6 hours.

A maximum of 8 credit hours of applied music may be applied toward the degree of Master of Arts with a major in music.

Graduate credit not to exceed 6 hours may be earned in courses numbered in the 400 and 500 series in fields related to music. Such credit must be approved by the head of the Department of Music.

Graduate credit not to exceed 6 hours may be earned in courses numbered in the 400 and 500 series in fields related to music. Such credit must be approved by the head of the Department of Music.

DEPARTMENT OF PHYSICS SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

The Department of Physics offers instruction and opportunities for research in the areas of solid state physics, atomic and molecular physics, plasma physics, low temperature physics and many-body theory. The completion of the master's program will prepare the student for further work toward the doctorate degree as well as for employment in government and industry.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE WITH A MAJOR IN PHYSICS

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in physics.

The minimum residence requirement for the master's degree with a major in physics is three quarters.

The candidate for the master's degree must complete a minimum of 24 semester hours of graduate credit in physics plus Mathematics 502 and Mathematics 544, or other courses acceptable to his/her thesis committee. Six of the required 30 hours must be earned by taking Arts and Sciences 551, Research and Thesis, and by completing an acceptable master's thesis.

During the first quarter of residence the student must take a preliminary oral examination over undergraduate physics. In addition, the student must pass an oral examination on his/her thesis.

DEPARTMENT OF SPEECH
SPECIALIZED AREAS OF INTERESTS AND OPPORTUNITIES

The graduate program in speech provides training and experience in the areas of public address, interpretation, theatre and drama, radio-television, speech pathology, audiology, speech education, and debate. The student may choose a program of study which prepares him for career employment as a speech pathologist, audiologist, stage director or technician, or college teacher in his area specialty.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN SPEECH (SPEECH PATHOLOGY AND AUDIOLOGY)

In addition to the admission requirements of the Graduate School, the applicant is expected to have earned 24 semester hours of credit in speech which must be approved by the Department of Speech. Applicants who do not have 24 semester hours of credit in speech are expected to satisfy this requirement in the initial stages of their graduate program.

The graduate student in speech will follow one of two plans of study. Under Plan A he must complete a minimum of 30 hours of graduate credit in speech (speech pathology and audiology) or 24 hours in speech (speech pathology and audiology) and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates), courses numbered 500 (for graduate students only), and other courses which are approved by his/her major professor and by the head of the Department of Speech. Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

In addition to the requirements stated in the preceding paragraph, six hours of the total must be earned by taking for credit A & S 551: Research and Thesis and by completing an acceptable thesis. A written and oral examination on all course work is required.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 33 hours of graduate credit in speech (speech pathology and audiology).

All graduate students in speech (speech pathology and audiology) must demonstrate acceptable proficiency in research and reporting. Such proficiency must be demonstrated in Speech 500: Introduction to Research.

All speech courses numbered 400 or above in the current catalog of Louisiana Tech are acceptable for credit toward the degree of Master of Arts with a major in speech.

Graduate credit not to exceed six hours may be earned in courses numbered in the 400 and 500 series in fields related to speech. Such credit must be approved by the Department of Speech.

Note: All students in speech pathology and audiology are required to meet the academic and clinical experience requirements set by the American Speech and Hearing Association for the Certificate of Clinical Competence in Speech Pathology or Audiology prior to the completion of the master's degree.

GRADUATE PROGRAMS

College of Education

OFFICERS OF INSTRUCTION

B. J. COLLINSWORTH — *Dean*
G. CLINT MILLER — *Director, Graduate Studies*
W. L. BERGERON — *Associate Dean, Division of Education Research and Services*
DONALD R. NELSON — *Area Coordinator for Teacher Education*
JAMES M. WILLIAMS — *Area Coordinator for Counseling and Psychology*
JAMES B. AKERS — *Area Coordinator for Health and Physical Education*

PROFESSORS:

Wilbur L. Bergeron, Jack Collinsworth, William M. Crow, Samuel V. Dauzat, G. Clint Miller, Donald R. Nelson, Jason C. Owen, Charles E. Sutton, James M. Williams.

ASSOCIATE PROFESSORS:

Archie W. Craig, C. L. Foxworth, Robert Hearn, Michael A. McCready, Gary E. Milford, Jerry L. Miller, John C. Ramsaur, Sylvia Stroops, Billy Jack Talton, S. J. Tullos.

ASSISTANT PROFESSORS:

Dan Eckstein, Tommie Herren, David Jordan, Tom Lolley, Edward Nipper, Thomas P. Springer.

From its founding in 1894, one of the purposes of Louisiana Tech University has been the preparation of elementary and secondary teachers. Teacher education has continued to maintain an increasingly important position in the University. More specific objectives are:

1. To provide at the graduate level education experience which will develop the individual's knowledge in both breadth and depth.
2. To provide consultation services to in-service personnel whereby they may improve existing instructional programs.
3. To maintain teacher education programs which, through reading, research, and professional meetings, embody the best of current educational ideas and practices.

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana State Board of Education, is accredited by the Southern Association of Secondary Schools and Colleges. As an individual unit, it is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. Degree programs offered by the College of Education at the undergraduate and graduate levels are accredited by the National Council for Accreditation of Teacher Education.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICES

The Division of Educational Research and Services was officially created in 1970. All faculty members in the College of Education are staff members of the Division. The purpose of the Division is to encourage research, writing, and demonstration projects by the faculty of the College and to assist in identifying appropriate avenues for the dissemination of the results.

The College of Education research committee is chosen from the academic department and division chairmen, with the director of the Division of Research and Publications serving as chairman. The committee is charged with establishing general policies and procedures for the Division and is responsible to the Dean of the College of Education.

Financial support for the activities of this Division is derived through the regular operating budget and from special grants of local school districts, state and federal agencies.

DEGREES CONFERRED

The College of Education offers programs leading to the Master of Arts, the Master of Science, and the Specialist in Education.

THE MASTER'S DEGREE PROGRAM

Graduate work for the Master of Arts degree is offered in: art education, counseling and guidance, elementary education, English education, human relations and supervision, music education, reading, social studies education, special education, speech education, and speech pathology and audiology education.

Graduate work for the Master of Science degree is offered in: business education, health and physical education, mathematics education, and science education (biology, chemistry, or physics).

Graduate students in the College of Education, along with graduate students in the other academic colleges, are eligible to apply and compete for University Graduate Assistantship positions. Inquiries concerning these assistantships should be directed to the Graduate Office.

ADMISSION REQUIREMENTS

In addition to the general admission requirements of the Graduate School, a student seeking a master's degree in any of

the teaching areas must hold a teacher's certificate for the area. If students do not have sufficient preparation to pursue graduate courses in their areas of certification, they will be required to take whatever courses are deemed necessary to remove the deficiency. These courses will not be considered as part of the student's graduate program.

Students desiring to enter a master's program in the College of Education are required to submit to the Director of Graduate Studies a satisfactory score on the Miller Analogies Test. Those students qualifying for unconditional admission may be granted provisional admission and allowed to submit the MAT score during the first quarter of resident study. Students seeking conditional admission must submit their score before an admission decision can be made. Arrangements for taking this exam may be made with the Counseling Center, Keeny Hall 322 on Tech Campus, or with other testing centers.

REQUIREMENTS FOR A DEGREE OF MASTER OF ARTS WITH A MAJOR IN ELEMENTARY EDUCATION

The candidate seeking a Master of Arts degree will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. A minimum of 12 semester hours in professional courses and a minimum of 12 semester hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541 and 3 semester hours in teaching skills in communication (Education 502 or Education 503) are required. Six semester hours in the teaching of content subjects are also required. This requirement will include two of the following three courses: Education 501, Education 504, and Education 509. A maximum of 3 semester hours in special education and/or principles of guidance may be applied to the candidate's program for the degree.

In the content area, a minimum of 3 semester hours from two of the following departments is required: (1) English or library science, (2) science, (3) social studies, and (4) math. Students without undergraduate credit in contemporary math will include 3 hours of contemporary math as a deficiency in the graduate plan of study.

REQUIREMENTS FOR THE MASTER OF ARTS AND MASTER OF SCIENCE WITH A MAJOR IN A SECONDARY EDUCATION TEACHING FIELD

The candidate seeking a master's degree in education with an academic major in a subject field will be required to earn a minimum of 33 semester hours which may include 6 hours credit for a thesis.* This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

The candidate will be required to select with the approval of his Advisory Committee 12 to 18 semester hours of professional education courses. In the professional area, Education 541, Educational Research, and 3 semester hours chosen from Education 500, Foundations of Curriculum Construction; Education 512, Philosophy of Education; and Education 518, History of Education, are required.

The 15 to 21 hours of work in the academic field should be chosen in view of the student's background of preparation as well as plans for future graduate work.

In the College of Education, students pursuing the degree of Master of Arts or Master of Science may elect to write either in the professional or the content field. If the thesis is to be written in the professional field, credit must be earned in Education 551, Research and Thesis. If it is to be written in the content field, credit must be earned by taking appropriate thesis courses, as Arts and Sciences 551, etc.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN COUNSELING

The Counselor Education Program is designed to prepare counselors for counseling and personnel positions in educational institutions and other service agencies. The program is designed to provide all enrollees with a basic preparation in counseling psychology with various elective options offered to prepare counselors for particular institutional settings, e.g., educational, employment, vocational rehabilitation, and community service agencies.

Three programs are offered in this field: certification as an elementary school counselor, certification as a secondary school counselor, and a general counseling program. Certification as an elementary or secondary school counselor requires permanent teacher certification prior to admission. The general counseling program does not require a permanent teacher's certificate for admission.

The program of study includes 21 to 24 semester hours of counseling and guidance courses, 3 semester hours in research methodology, and 6 to 9 semester hours of electives to be selected from approved psychology courses.

Candidates for a degree in counseling must provide evidence by college transcripts or examination of a broad educational background including the behavioral and social sciences and the humanities. Students enrolling with insufficient preparation to meet these requirements will be expected to regard as deficiencies all courses needed to meet the standard.

Students interested in writing a thesis should discuss this with their advisor prior to their enrollment in graduate courses.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN SPECIAL EDUCATION

The candidate seeking a Master of Arts degree in special education will be required to earn a minimum of 33 semester hours which may include a thesis. The master's degree program presumes previous special education certification and those candidates not so certified will be required to meet certification requirements in addition to degree requirements.

The program is designed to be generic rather than categorical. Some deviation from the standard program may be made according to the individual's experience and objectives with consent of the special education program chairman and approval of the candidate's advisory committee.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN READING

The candidate seeking a Master of Arts degree with a major in reading will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. Twenty-one semester hours in professional courses and 12 hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541, Education 534, Education 535, and Education 536 are required of all candidates. A minimum of one course must be selected from Education 403 or Education 503. The remaining 6 hours in professional courses are electives.

In the content area, 3 semester hours must be taken in two of the following content areas: English or speech, library science, social studies, and mathematics or science. The remaining 6 hours of content courses may be selected from any of the above areas.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS WITH A MAJOR IN HUMAN RELATIONS AND SUPERVISION

The candidate seeking a Master of Arts degree with a major in human relations and supervision will be required to earn a minimum of 33 semester hours.

The candidate will be required to take these courses: Psychology 300, Psychology 490, Psychology 491, Psychology 524, and Counseling 508. The remaining 18 hours will be selected from counseling, psychology, management, and economics courses with the approval of his/her advisory committee. No more than 8 semester hours may be taken in business.

SPECIALIST IN EDUCATION PROGRAM

The degree of Specialist in Education will be awarded as the appropriate recognition of achievement as evidenced by:

1. Satisfactory completion of a program of graduate study of approximately two academic years.
2. Satisfactory performance on 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 or the Miller Analogies Test during the first quarter of study.
3. Be approved by a graduate faculty committee.
4. Demonstrate proficiency in research methodology.

PLAN OF STUDY

The student's major advisor and Advisory Committee will design a plan of study for the student. Deficiencies in the background of preparation in the area of specialization will be included in the plan of study, but will not be counted in the total number of hours required for the completion of the specialist program. Any graduate student who has not submitted a Plan of Study by the end of the first quarter in the program will not be allowed to register as a graduate student until a Plan of Study has been submitted.

AREAS OF STUDY AND COURSE REQUIREMENTS

The following areas of specialization are available within the Specialist in Education program; elementary, reading, business, counseling, mathematics, music, science, social studies, English, and speech.

The course requirements for the Specialist in Education with a major in secondary education teaching field will include 12-18 hours in professional education and/or psychology and 12-18 hours in a field of specialization.

The candidate seeking the Specialist in Education with a major in Elementary Education will include 12-18 hours in professional education and 12-18 hours in an area of specialization.

The course requirements for the Specialist in Education with a major in Reading must include in his plan of study: Education 537—Seminar, Problems in Reading; Education 538—Supervision and Curriculum Development in Reading; Education 539—Advanced Laboratory Practicum in Reading; Education 564—The Reading Process. The remaining 18 semester hours will be selected by the Advisory Committee to meet the standards of the International Reading Association.

AMOUNT AND QUALITY OF WORK

The student will be required to complete a minimum of 30 semester hours of graduate work above the master's degree with a 3.0 average, with no grade below "B." This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit. A course in which the grade "C" is made will not count in the required number of hours, but will be included for the purpose of computing the grade-point average. A student with grades of "C" or less in two courses will be dropped. Once a student has been dropped from the Specialist program, he is not eligible for re-admission.

A maximum of 9 semester hours of graduate work beyond the master's degree, earned prior to admission to the specialist program, may be included in the 30 semester hours of required work. A maximum of 6 semester hours of transfer work and 9 hours of extension credit may be applied toward the specialist degree.

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 independent research project approved by the Advisory Committee and write a report concerning this research. The report 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.

INTER-INSTITUTIONAL PROGRAM FOR THE DOCTOR OF EDUCATION DEGREE

Northwestern State University, Nachitoches, Louisiana, and Louisiana Tech University participate in a program which allows a student to take up to 21 hours of resident credit beyond the master's degree at Louisiana Tech to be applied toward the doctoral degree at Northwestern State University. This program is available in the fields of elementary and secondary education.

GRADUATE PROGRAMS

College of Engineering

OFFICERS OF INSTRUCTION

JACK THIGPEN — *Dean*
H. L. HENRY — *Associate Dean*
RANDALL F. BARRON — *Director of Engineering Research*
HOUSTON K. HUCKABAY — *Director of Engineering Graduate Studies*
J. W. D. ROBBINS — *Head, Department of Agricultural Engineering*
DANIEL D. RENEAU — *Head, Department of Biomedical Engineering*
JAMES W. MALONE — *Head, Department of Chemical Engineering*
JOE R. WILSON — *Head, Department of Civil Engineering*
DAVID L. JOHNSON — *Head, Department of Electrical Engineering*
LEO A. HERRMANN — *Head, Department of Geosciences*
R. RAINEY LITTLE — *Head, Department of Industrial Engineering and Computer Science*
ROBERT D. HOLSTEAD — *Head, Department of Mechanical Engineering*
ROBERT M. CARUTHERS — *Head, Department of Petroleum Engineering*

PROFESSORS:

Joseph H. Barnwell, Emeritus, Randall F. Barron, Buck F. Brown, Arthur C. Bruce, John D. Calhoun, Jack Canterbury, Robert M. Caruthers, C. H. Edwards, Jr., William O. Hadley, H. L. Henry, Jr., Leo A. Herrmann, William R. Higgs, Robert D. Holstead, Houston K. Huckabay, David L. Johnson, Milton R. Johnson, John B. Keats, Ellis M. Kilgore, R. Rainey Little, James D. Lowther, James W. Malone, Robert W. McLeane, George W. Middleton, Jack T. Painter, Alumni Professor (1977), Bobby E. Price, Daniel D. Reneau, J. W. D. Robbins, Edmund N. Roots, Jr., Richard M. Steere, Jack Thigpen, Grover J. Trammell, Thomas Williams, Jr., Joe R. Wilson.

ASSOCIATE PROFESSORS

Ronald E. Davenport, James D. Green, Paul N. Hale, Jr., Calvin A. Lemke, Robert H. Newell, Charles Schroeder, Roy W. Schubert, R. E. Storms, Dileep R. Sule, Clyde G. Vidrine, Charles W. Wilson, Jack D. Wisterman.

ASSISTANT PROFESSORS

James V. Albritton, Gilbert R. Badeaux, Ben F. Blackwell, D. H. Cowling, C. R. Horton, Francis S. Knox III, Norman F. Marsolan, Nitia A. Schroeder, Dean L. Smith, Andrew Y. J. Szeto.

The College of Engineering offers the Master of Science and the Doctor of Philosophy Degree with majors (specializations) available in the Departments of Engineering (with an Operations Research option at the M.S. level). A Master of Science Degree is offered in geology.

ACCREDITATION

The undergraduate engineering curricula are professionally accredited by the Engineers' Council for Professional Development.

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 $3,000 at the master's level and up to $4,600 at the doctoral level for nine months requiring some academic duties. 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. University Assistantships are also open to engineering graduate students. Inquiries concerning these assistantships should be directed to the Graduate Office of the University.

RESEARCH ACTIVITIES

The College of Engineering is a member of the Engineering Research Council of the American Society for Engineering Education. The division of Engineering Research was created in 1953 in recognition of the importance of fundamental and applied research to the world of technology and to the professional development of a competent faculty. The purpose of the division is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The activities of the division are directed by the Research Coordinating Committee, composed of the Engineering Academic Department Heads with the Director of Engineering Research serving as chairman of the group. This committee is responsible to the Dean of the College of Engineering.

The financial support of research projects is derived from two primary sources: (a) the operating budget of the Research Department 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 master's students except those in the non-thesis option, and a research dissertation is required of all doctoral students. The student works in concert with his Advisory Committee to plan, execute, and publish this research. Areas of most active research effort would be: biomedical engineering, computers ("hardware" and "software"), communications, cryogenics, energy, environmental engineering, operations research, photoelastic stress analysis, simulation, systems engineering, thermodynamics, and transport phenomena.

REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

THESIS OPTION

In order to pursue the master of science, a student must be accepted as a major in one of the Departments of Engineering or to the master's program in Geology. In addition to any remedial course work not taken for graduate credit, the general student will be required to complete a minimum of 30 hours for graduate credit, 6 hours of which will be earned in Engineering 551. By University requirements, a minimum of 15 hours must be earned in courses open to graduate students only.

NON-THESIS OPTION

Although the thesis requirement meets the needs of most master's students in engineering, particularly those enrolled full time in a probably terminal master's degree program, non-thesis options are available, particularly for those students employed full time in business, government, or industry, whose maturity, accomplishments, and professional responsibilities are such that they would benefit more by additional formal course work than by the production of a thesis. In these cases a minimum of 36 hours of graduate course work will be required. By University requirements, a minimum 18 of these hours must be earned in courses open to graduate students only.

A non-thesis program is available in the Operations Research Option of the Industrial Engineering major. In this 36 hour program, 21 hours must be earned in industrial engineering courses in operations research. A technical paper is required with three semester hours credit given for the student's enrolling in Industrial Engineering 550C, Special Problems.

INDIVIDUAL REQUIREMENTS

The exercise of these options and the choice of courses will be proposed by the student and his committee subject to review and approval (in order) by the Major Department Head, the Director of Engineering Graduate Studies, the Dean of Engineering, and the Graduate Office of the University. The transfer of graduate credit from another graduate institution, graduate credit by examination, graduate credit as a graduating senior, or other credit earned other than as a regularly enrolled graduate student in engineering at Louisiana Tech must meet all University standards and is also subject to approval as part of the Plan of Study.

ADMISSION TO THE MASTER'S PROGRAM

For students desiring to major in agricultural, biomedical, chemical, civil, electrical, industrial, mechanical or petroleum engineering a baccalaureate degree with a major in the same engineering discipline from an ECPD accreditated 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 background work in order to pursue their graduate program effectively and successfully. Since the master's degree is generally accepted as a higher level of intellectual accomplishment than the baccalaureate degree the student must expect his program to be structured accordingly. The student will be required to remove any deficiencies in mathematics, science, and engineering. In particular, students with a baccalaureate in mathematics or the physical sciences should expect remedial courses stressing engineering analysis and synthesis.

For students desiring to pursue the master's in geology a degree in geology from an accredited institution is desirable. Appropriate remedial work will be required for students not possessing the appropriate background and/or specific course work.

For students wishing to apply for the Operations Research Option in Industrial Engineering, a degree in engineering physical sciences, mathematics, business administration, economics, or computer science is required with a minimum of 12 hours of calculus, 3 hours of applied statistics and satisfactory programming ability in Fortran IV. Applicants with the appropriate degree but without the specific minima will be required to remove these deficiencies.

The standardized test required of all students applying for admission to graduate degree programs in the College of Engineering is the Graduate Record Examination. Both the aptitude and advanced engineering sections are required for admission to the master's and doctoral programs, except the aptitude and the advanced geology test are required for applicants to the master's program in geology. The scores are used in the graduate admission decision of the College of Engineering. Students pursuing course work in Engineering for graduate credit but not toward a graduate degree program at Louisiana Tech University are not required to take the GRE.

All College of Engineering admission requirements are in addition to the general admission requirements of the University. These requirements are stated in the admission information under the Graduate School Section of this catalog.

ADMISSION TO THE DOCTORAL PROGRAM

For students desiring to pursue a doctoral major in one of the Departments of Engineering a baccalaureate degree with a major in the same engineering discipline from an ECPD accredited institution is the best preparation. Any deficiencies in mathematics, science and engineering should be removed prior to entering the doctoral program. In addition to the requirements previously cited for the master's program in engineering the applicant must submit (with the application) scores on the aptitude and advanced engineering portions of the Graduate Record Examination and the names of three academic or professional references (to be contacted directly by the College of Engineering). All of this should be completed prior to the admission decision of the College of Engineering. The applicant will be granted either a regular (unconditional) admission or will be rejected. Usually, but not necessarily, the applicant will possess a master's degree.

REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY

In order to pursue the degree, a student must be accepted as a major by one of the Departments of Engineering. The program is a balance of intensive and extensive formal coursework as a foundation, a sequence of examinations which may be oral or written or both, culminating in the production of the dissertation as the prime objective of the program.

The program will consist of a minimum of 60 hours credit in formal coursework, exclusive of thesis and dissertation credit, beyond the baccalaureate. Choice of acceptable graduate level courses, including choice and composition of major and minor areas, will be established by the Advisory Committee in concert with the doctoral student, subject to approval as part of the Plan of Study.

The typical program includes a minimum of 30 hours of major coursework (this may cross departmental lines) and 12 hours in mathematics. Individual interests, needs, and the demands, both present and anticipated future, of the engineering profession will guide these decisions with flexibility as the keynote. Credit for the dissertation will range from 15 to 30 hours as guided by the Advisory Committee.

The schedule of examinations consists of a qualifying examination before or within the first quarter of admission to the doctoral program, a general examination at or near the completion of formal coursework, and a final public defense of the dissertation. Prior to the general examination, the student must have met the French and German reading proficiency requirements of the Department of Foreign Languages. Substitution of an approved group of courses in pure mathematics for French or a comprehensive knowledge of Russian for French and German, or other language options specific to an individual program are permitted upon recommendation of the Advisory Committee, subject to approval as part of the Plan of Study.

DESCRIPTION OF COURSES

The graduate student in Engineering will choose his courses based on the Plan of Study. The 400 level courses are for undergraduate and graduate registration; the 500 level courses are for graduate student registration only. Credit for Research and Thesis and Research and Dissertation are listed as Engineering 551 and 590 respectively rather than as a departmental listing.

GRADUATE PROGRAMS

College of Home Economics

OFFICERS OF INSTRUCTION

ELIZABETH G. HALEY — *Dean*
NANCY M. TOLMAN — *Director, Graduate Studies and Research, Associate Dean.*

PROFESSORS

Elizabeth G. Haley, Nancy M. Tolman.

ASSOCIATE PROFESSORS

June W. Dyson, Jeanne M. Gilley, Addie H. Knickerbocker, Linda Evans Sivils.

ASSISTANT PROFESSORS

Shirley Reagan, Mary Belle Tuten, Janet B. Wright.

Individuals with education beyond the bachelor's degree are in demand in the areas of agricultural extension, dietetics and food service management, fashion merchandising, and the broad general area of home economics. The graduate home economics curriculum leading to the Master of Science degree was established to meet this demand. Three options allow students to select the program best suited to individual professional objectives. The graduate students are given the opportunity to enhance their knowledge in the rapidly changing field of home economics and to develop an appreciation of the current research in their chosen areas of study.

ACCREDITATION

Graduate and undergraduate degree programs in home economics education are accredited by the National Council for Accreditation of Teacher Education, approved for certification by the Louisiana State Department of Education, and approved to receive federal vocational funds.

The College of Home Economics is an official Agency Member Unit in the accreditation program of the American Home Economics Association. The master's program in institution management can be planned to meet academic requirements for membership in the American Dietetic Association.

ADMISSION

In addition to the general admission requirements for the Graduate School, an applicant must have a bachelor's degree from an accredited college or university with a major in home economics or in a related field. If the major is in a related field, the need for supporting courses will be determined by the student's Advisory Committee.

An acceptable Miller Analogies Test score or Graduate Record Examination score is required for all students. Preferably this score is submitted before or with the application for admission to graduate school; an individual seeking conditional admission must submit a score before admission. If not taken previously, unconditionally admitted students may take the Miller Analogies Test or the Graduate Record Examination during the first quarter of enrollment.

A test score will be used by the Advisory Committee as one criterion for evaluating the student's ability to undertake a graduate degree program. Students whose standards in oral and written communication are unacceptable may be asked to undertake courses to remedy the deficiency. In addition, at the discretion of a student's Advisory Committee, the student may be required to enroll for additional home economics courses where deficiencies exist.

FINANCIAL SUPPORT

A limited number of university wide graduate assistantships carrying a stipend of $3,000 are available to students majoring in home economics as they are to any other major. Application is made directly to the Graduate Office.

Financial support awarded by the College of Home Economics includes graduate assistantships and scholarships. The number and amount of these awards are dependent upon the availability of funds. Application for a graduate home economics assistantship or scholarship is made to the Director of Graduate Studies, College of Home Economics.

The Helen Graham Loan fund is available up to $500.00 on a low interest rate basis.

Employment opportunities for graduate students include student work at current hourly rate and limited appointments for departmental duties. Further information may be obtained from the Dean of the College of Home Economics.

RESEARCH

Faculty members are available who are well qualified to supervise research problems within the limits of university facilities in fields of Food and Nutrition, Home Economics Education, Child Development, and Clothing-Textiles.

REQUIREMENTS FOR GRADUATION FOR ALL OPTIONS FOR THE MASTER OF SCIENCE DEGREE WITH A MAJOR IN HOME ECONOMICS

1. a. Thirty-six semester hours or
   b. Thirty semester hours which include credit in Home Economics 551, Research and Thesis.
2. A grade point average of B on all graduate work pursued.

3. A minimum of one-half of the hours in courses given exclusively for graduate credit.
4. Credit in Home Economics 504, Methodology in Home Economics Research.
5. A course in Statistics in strongly recommended for all students.
6. A thesis is required for the Institution Management Option and is strongly recommended for other options.

OPTIONS FOR THE MASTER OF SCIENCE DEGREE:

GENERAL HOME ECONOMICS OPTION:

18 to 21 hours of Home Economics.
12 to 15 hours of electives, including at least 6 hours of credit in a related field.

HOME ECONOMICS EDUCATION OPTION:

12 hours of Home Economics.
12 hours of Education, Counseling and/or Psychology, including Vocational Home Economics Supervision (H. Ec. 505).
6 to 12 hours of electives such as Home Economics, Education, Art, Bacteriology, Economics, Management, Mathematics, or Sociology.

INSTITUTION MANAGEMENT OPTION:

21 to 24 hours of Home Economics including 504, and 551, with others chosen from 502, 503, 512, 522, 532, and 542, (405, 412, 423, 433, only if undergraduate credit has not been received).
6 to 9 hours of Related Subjects such as Bacteriology, Chemistry, Economics, Management, Mathematics and Quantitative Analysis.

GRADUATE PROGRAMS

College of Life Sciences

OFFICERS OF INSTRUCTION

HAL B. BARKER — *Dean*
JOHN A. WRIGHT — *Associate Dean*
HAROLD G. HEDRICK — *Director, Graduate Studies*
JOHN L. MURAD — *Director, Life Sciences Research*
MARGARET H. PEASLEE — *Head, Department of Zoology*
DALLAS D. LUTES — *Head, Department of Botany and Bacteriology*

PROFESSORS

Edward R. Andrulot, Hal B. Barker, J. Edwin Carothers, Glen C. Clark, Billy J. Davis, John W. Goertz, Winston P. Hackbarth, Harold G. Hedrick, Frederick F. Jewell, Albert W. Lazarus, Dallas D. Lutes, C. Reid McLellan, Jr., John L. Murad, Margaret H. Peaslee, Donald G. Rhodes, Gordon A. Stewart, J. Lamar Teate, Jared Y. Terry, Scott M. Weathersby, James C. White, John A. Wright.

ASSOCIATE PROFESSORS

James A. Christian, Carl A. Davis, Jr., Raymond E. Jones, Larry G. Sellers.

ASSISTANT PROFESSORS

John C. Adams, James M. Dyer, Paul R. Ramsey.

The demand for trained persons in all disciplines of agricultural and life sciences is increasing in public service and private industry. A graduate program to encourage and nurture expanded investigation in specific areas of interest has developed to meet this demand. The graduate program in the College of Life Sciences prepares the student to accept the challenges of worldwide problems and to successfully arrive at technological solutions based on the premise of the scientific approach to research.

The College of Life Sciences offers programs of study leading to the Master of Science degree in Life Sciences in the academic areas of Botany, Microbiology and Zoology with two options: (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's plus 30 may also be obtained in Life Sciences.

DIVISION OF RESEARCH

The Division of Life Sciences Research is an integral part of the educational processes of this university. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality.

The Division is the administrative office for the coordination of all phases of research conducted by the various units within the College of Life Sciences. General policies and procedures governing the administration of the Division are formulated and governed by the Research Committee. The committee is chaired by the research director and is composed of an elected representative from each department within the College of Life Sciences and the Dean of the College.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contributions by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House projects are strongly encouraged through brief research proposals submitted to the Research Committee for consideration and funding.

ADMISSION

The Committee for Admissions to Graduate Studies in the College of Life Sciences requires the GRE scores on the Aptitude Test of all applicants and the scores on one of the Advanced Tests, either biology or chemistry, depending on the applicant's area of interest. The grade point average on hours attempted, the trend in GPA on the last 30-60 hours, GPA of 2.75 on grades earned in the undergraduate science courses, personal recommendations, acceptable prerequisites for graduate study in chosen discipline, availability of major advisor, and an interview are the main criteria used in evaluating an applicant for admission to Graduate Studies in the College of Life Sciences. The GRE scores provide a reference point to the Committee for Admissions for use as a comparison of the applicants to standardized national norms.

DEPARTMENT OF BOTANY AND BACTERIOLOGY

ADMISSION REQUIREMENTS

Students may pursue work leading to the Master of Science degree in Life Sciences with a specialty in Botany or Microbiology, Thesis or Non-Thesis Option. Requirements for these degrees are the same with the exception that the minimum background varies. Students must meet the minimum admission requirements for the Graduate School. In addition, the minimum undergraduate training for the M.S. in Life Sciences with a specialty in Botany is:

(1) a basic course in general botany or general biology,
(2) a basic course in each of the areas of anatomy or morphology, physiology, taxonomy, and microbiology,
(3) chemistry through at least one term of organic, including laboratory procedure, and at least one term of physics.

Minimum undergraduate requirements for a specialty in Microbiology are:

(1) a basic course in either botany, zoology, or biological science,
(2) a basic course in microbiology or bacteriology, genetics, and physiology,
(3) two years of chemistry, including one year of organic chemistry, including laboratory procedures; one year of physics; and mathematics through college algebra.

Beginning graduate students who do not have this minimum background are expected to satisfy these minimum requirements in the initial stages of the graduate program.

PROGRAM OF STUDY

The program of study in the Thesis Option consists of a minimum of 30 semester hours of graduate credit of which at least 15 hours are taken in 500-level courses. Six hours are granted for research and thesis preparation as partial fulfillment of the degree plan. The student will pursue original research in the specialized field of interest selected by himself or herself and approved by the Advisory Committee.

DEPARTMENT OF ZOOLOGY

ADMISSION REQUIREMENTS

In addition to meeting the minimum admission requirements of the Graduate School, the Admissions Committee requires the applicant to have a bachelor's degree with not less than 30 semester hours in Zoology or 21 hours of Animal Biology and the remaining hours in Life Sciences. All course work must be evaluated for acceptance by the Zoology Graduate Advisory Committee. The applicant should have earned at least 12 semester hours credit in undergraduate Chemistry (including Organic Chemistry).

PROGRAM OF STUDY

The candidate for the Master of Science degree in Life Sciences, Thesis Option with a specialty in Zoology, must complete a minimum of 30 semester hours of graduate credit in Zoology, or a minimum of 24 hours in Zoology and a maximum of 6 hours in a related field, to be approved by the student's Graduate Advisory Committee. In addition to graduate credit hours, each student may be required to remove subject matter deficiencies as determined by the student's Graduate Advisory Committee.

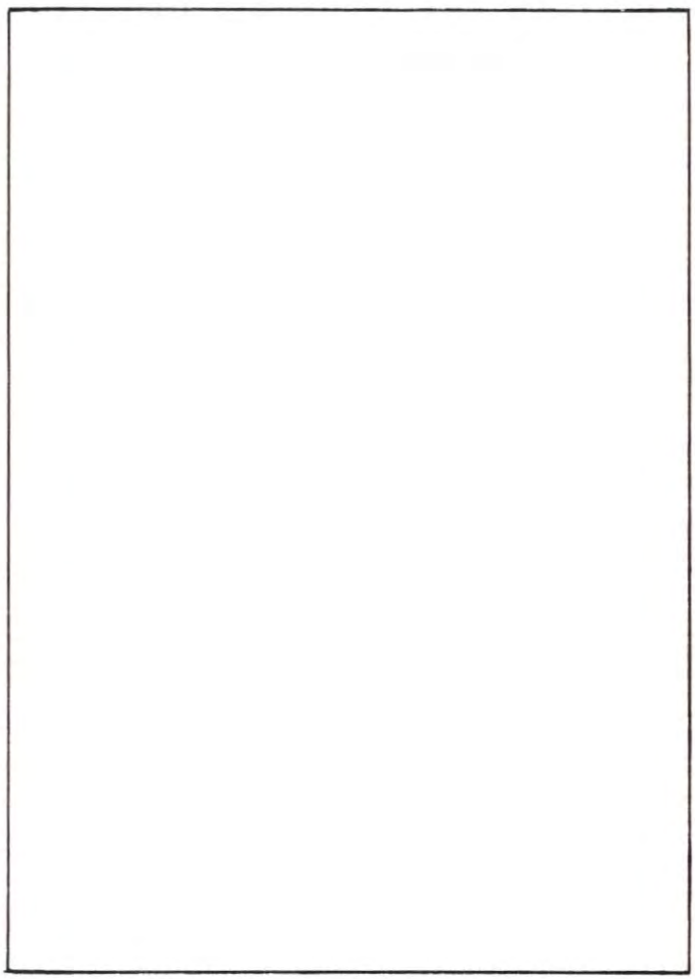
Fifteen hours of the total 30 may be selected from 400-level courses. Nine hours of the total, excluding research and thesis, must be earned in 500-level courses. Life Sciences 509 will be required each quarter while the student is in residence, with a maximum of 2 hours allowed toward the degree. Six hours are granted for research and thesis preparation.

The graduate program in the Department of Zoology offers specialized training leading to the master's degree in the following areas: animal ecology, cytogenetics, cytology, entomology, genetics, herpetology, ichthyology, limnology, mammalian physiology, mammalogy, ornithology, parasitology, and vertebrate anatomy. Graduates of the program are qualified to work in the fields of basic research in analytical or descriptive zoology, applied or developmental research, teaching, and industrial or governmental programs or administration.

NON-THESIS OPTION

This option is offered in special areas, such as Clinical Microbiology and Biological Science Education. This option is directed to enhance and broaden the knowledge and capabilities of elementary and secondary science teachers and medical technologists or bacteriologists who pursue the master's degree program. The Science Education major will build on the baccalaureate training as well as build a stronger foundation to pursue the Master's plus 30 or doctorate in Science Education. The Clinical Microbiology option offers a 12-week internship for 6 hours credit at a regional medical center in lieu of a thesis requirement.

Courses of Instruction



Courses of Instruction

Courses numbered 100 are designed for freshmen, 200 courses are for sophomores, 300-400 courses are for juniors and seniors, and 500 courses are for graduate credit. In some cases, 300 and 400 level courses may carry graduate credit; in such cases, students undertake additional work to bring the courses up to graduate level. Only students admitted to the Graduate School may enroll for 500-level courses.

The numerical listing after each course title gives the following information: first number, laboratory hours per week; second, lecture period per week (90 minute periods with break included); third, credit value in semester hours; fourth, the total semester hours credit which can be earned in the course (the fourth number will appear *only* for those courses which may be repeated for credit). Example: 3-1-2-(6).

The following abbreviations indicate the quarters of the calendar the course normally will be offered: Su—Summer Quarter, F—Fall Quarter, W—Winter Quarter, and Sp—Spring Quarter. Where courses are offered on alternate years only, the words "even" or "odd" will indicate which years the course will be offered.

NOTE: Course offerings by quarter are subject to change to accommodate needs of students.

ACCOUNTING

203-204: *Elementary Accounting.* 0-2-2 each. Basic understanding of concepts and methods of accounting; recording and control processes of purchases, sales, cash, and inventories; significance of such information to the sole proprietor and corporate entity. Su, F, W, Sp.

205: *Elementary Accounting.* 0-2-2. Preq., Accounting 204. Accounting for manufacturing, partnerships, investments, long-term liabilities, flow of funds, departmentalization and control, tax considerations, and an analysis and interpretation of financial statements. Su, F, W, Sp.

303-304-305: *Intermediate Accounting.* 0-2-2 each. Preq., Accounting 205 or 310. Balance sheet valuations; income and retained earnings statements errors and their corrections; statement analysis; statements from incompleted records; and long-term debt. Su, F, W, Sp.

307: *Income Tax.* 0-3-3. Preq., Accounting 205, 310 or consent of instructor. A study of Federal income tax laws and state income tax laws and their effect on individual income. Su, F, W, Sp.

308: *Managerial Cost Accounting.* 0-3-3. Preq., Accounting 205 or 310. A study of cost systems; accounting peculiar to manufacturing enterprises; making cost statements; and solving cost problems. Su, F, W, Sp.

310: *Administrative Accounting.* 0-3-3. Preq., Accounting 204. This course considers the use of accounting and financial statements in business, finance, administrative control and decision making. Su, F, W, Sp.

312: *Municipal and Government Accounting.* 0-3-3. Preq., Accounting 305. Accounting procedures of the Federal, municipal, and state governments. Attention is given to the preparation of budgets, financial statements, and to budgetary control. F.

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.

411: *Advanced Accounting.* 0-3-3. Preq., Accounting 305. A study of higher accountancy; problems met in practical accounting; fiduciary accounting; partnerships and joint ventures; and installment sales. Su, F, W, Sp.

412: *Advanced Accounting.* 0-3-3. Preq., Accounting 305 and preferably Accounting 411. A continuation of Accounting 411. Consolidated statement. Su, F, W, Sp.

413: *Auditing.* 0-3-3. Preq., Accounting 305 and credit for or registration in Accounting 308. Auditing procedures; working papers and reports. Su, F, W, Sp.

433: *Accounting Systems.* 0-3-3. Preq., Accounting 411. A study of accounting systems and systems installations. Su.

451: *Advanced Cost Accounting.* 0-3-3. Preq., Accounting 308. A study of the advanced phases of cost accounting: standard costs; distribution costs; cost analysis. F.

485: *Controllership.* 0-3-3. Preq., credit for or registration in Accounting 411. Duties and responsibilities of the chief accounting officer of an organization. Includes application of accounting and statistical data information of business and financial policies. Su.

488: *Budgetary Accounting.* 0-3-3. Preq., permission of advisor. Budget preparation in an industrial concern. Cost and income controls. Sp.

490: *C.P.A. Problems.* 0-3-3. Preq., permission of advisor. An intensive problem course in C.P.A. examinations. Sp.

491: *Advanced Theory of Accounting.* 0-3-3. Preq., permission of advisor. Intensive study of current advanced accounting theory. W.

493: *Advanced Auditing.* 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, and internal auditing. Sp.

505: *Accounting Analysis for Decision Making.* 0-3-3. A study of accounting data and their uses with the goal of aiding management in the use of such data for decision making.

506: *Seminar in Financial Accounting.* 0-3-3. A brief historical development of accounting thought followed by investigations into controversial and special areas of financial accounting.

507: *Comtemporary Accounting Theory.* 0-3-3. An intensive study of recent developments, research and literature in accounting theory promulgated by the various professional accounting associations and related financial organizations.

508: *Advanced Accounting Analysis and Controls.* 0-3-3. Cost data analysis and accounting controls in planning and controlling operations and in making special decisions.

517: *EDP in Accounting.* 0-3-3. A study of the adaptation of accounting procedures and systems to EDP operations, including the proper utilization of existing EDP equipment in auditing the firm.

521: *Cases and Problems in Income Taxes.* 0-3-3. Preq., Accounting 307. Research cases covering various phases of income taxes; study of some source materials and research methods for ascertaining current rulings and trends in laws and regulations.

541: *Accounting Analysis.* 0-3-3. Preq., Permission of advisor and all other accounting common body of knowledge courses. Accounting policy and analysis through integration and application of knowledge gained in accounting and accounting related courses; emphasized interrelationships of major functions of business and analysis.

567: *Special Problems in Accounting.* 0-3-3. Preq., consent of committee. A supervised individual project involving library and/or field work. A comprehensive written report and/or examination is required.

ADMINISTRATION AND BUSINESS

300: *Special Problems.* 0-3-3. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Topic will determine course admissions criteria. Su.

301: *Independent Study.* 1-3 hours credit. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Normally taken only by CAB students in their curricular specialty. Su.

550: *Special Problems.* 0-3-3. Preq., Approval of instructor, department head, CAB Graduate Director. Selected Contemporary business and/or economics topics. Normally taken only by CAB graduate students in their curricular speciality or major.

551: *Research and Thesis.* 3 hours credit. Maximum credit allowed is 6 hours.

590: *Research and Dissertation.* 3 hours credit. Maximum credit allowed is 30 hours.

AEROSPACE ENGINEERING

301: *Astronautics.* 0-2-2. Preq., credit or registration in Engineering Mechanics 203. Introductory course in aerospace engineering that deals with fundamentals of aerospace vehicle missions. Analysis of trajectory, performance, propulsion, control, guidance, terminal trajectories, and re-entry. W.

321: *Foundations of Fluid Mechanics.* 0-3-3. Preq., Mathematics 350, Mechanical Engineering 315, credit or

registration in Engineering Mechanics 203. Fluid properties and fluid statics. Fluid flow kinematics, theory of stress and strain, flow dynamics, conservation equations, and applications to one-dimensional, inviscid, incompressible flow. W.

323: *Aerodynamics of Incompressible Flow.* 0-3-3. Preq., Aerospace Engineering 321. Fundamental conservation equations and applications to incompressible flow. Inviscid and potential flow. Viscous flows, laminar boundary layer flow, turbulence, and turbulent flow. Complications of compressibility. Sp.

401: *Aerospace Structures.* 0-2-2. Preq., Mechanical Engineering 309. Fundamentals of aerospace structures, inertia loads, statically determinate and indeterminate structures. Basic theories of bending, torsion, and deflections with applications to thin-walled sections. F.

402: *Aerospace Structures.* 0-2-2. Preq., Aerospace Engineering 401. Introduction to aircraft stress analysis of wings, fuselage, and structural components. Thermoelasticity and vehicle materials and properties. Structural elements, composite structures, and detail design. W.

403: *Aeroelasticity.* 0-3-3. Preq., Aerospace Engineering 323, Mechanical Engineering 423, Aerospace Engineering 402. Fundamental considerations in structural dynamics. Static aeroelasticity, analysis of various flutter problems in aerospace vehicles, dynamic response methods and loads, and simulation techniques. Sp.

409: *Aerospace Design.* 6-1-3. Preq., Mechanical Engineering 423, Aerospace Engineering 402, Aerospace Engineering 411, Aerospace Engineering 435. Principles of fluid mechanics, structures, propulsion, and vehicle dynamics applied to the design of an aerospace vehicle system subject to specifications of certain mission requirements. Sp.

411: *Aerospace Vehicle Dynamics, Stability, and Control.* 0-3-3. Preq., Aerospace Engineering 323. Static and dynamic stability of vehicles, influence of propulsion system, aerodynamic components, and control system. Equations of motion, stability derivatives, and problems of vehicle missions. W.

424: *Aerospace Seminar.* 0-1-1. Preq., senior standing. Provides student with experience in communication of technical work pertaining to a field of interest. Emphasis placed upon formal presentation of oral and written material. Sp.

435: *Aerospace Propulsion.* 0-3-3. Preq., Mechanical Engineering 423. Analysis, performance, and application of air breathing engines, chemical rockets, nuclear rockets, and electrical rocket propulsion. Emphasis on design of a propulsion system. F.

451: *Aerodynamics Laboratory.* 3-0-1. Preq., Aerospace Engineering 323, credit or registration in Mechanical Engineering 423. Laboratory study of methods for experimental measurements of engineering variables. Emphasis on application and interpretation of results in aerospace experiments of a dynamical nature. F.

AGRICULTURAL ENGINEERING

105: *Agricultural Drawing.* 6-0-2. The basic principles of drafting as applied to agriculture. Lettering and sketching, working drawings, and blueprints.

110: *Elementary Drafting.* 3-0-1. Introductory drafting, freehand lettering, care and use of drawing instruments. Su, F, W, Sp.

161: *Introduction to Agricultural Engineering.* 3-0-1. Characteristics of the profession, engineering methods and engineering "tools." F.

186: *Bio-Machinery Analysis.* 3-0-1. Engineering principles of constructing, adapting, scheduling, replacing, servicing and cost analysis of forest and farm machinery. Systems analysis. W.

206: *Agricultural Machines.* 3-2-3. The selection, adaptation, operation, care, and repair of farm machinery. F.

209: *Small Engines.* 3-0-1. Principles of operation, construction, application, maintenance and overhaul procedures of small combustion engines.

210: *Farm Tractors.* 3-1-2. Principles of engines. Selection, maintenance and adjustment of power units used in forest and farm operations.

211: *General Shop.* 6-0-2. Care and use of tools, gas and electric welding, cold metal work and woodwork. Su, F, W, Sp.

214: *Machinery Principles.* 3-1-2. Power and energy relationships applied to machines in the biologically related industry. Machine components and lubrication.

215: *Land Drainage and Terracing.* 6-0-2. Elementary surveying. Layout and construction of erosion control structures, and drainage systems. Su, F, W, Sp.

216: *Forest Machinery.* 3-1-2. The principles of selection, operation, maintenance of machines used in timber harvesting, planting and woodland operation.

217: *Microclimatology.* 3-0-1. A study of climatic elements in relation to agriculture and forestry. Modification of microclimates by sheltering, shading, ground cover, frost protection devices, windbreaks and irrigation, W, even.

266: *Soil and Water Management.* 6-0-2. Engineering principles of location, design and construction of drainage and erosion control facilities. Hydrological, hydraulic and surveying principles used in the management of agricultural lands and waters. F.

276: *Engineering Properties of Bio-Materials.* 3-0-1. Engineering properties of plant and animal materials related to harvesting, processing, storage and distribution. W.

286: *Bio-Machinery Principles.* 3-0-1. Engineering analysis of force, motion and similar phenomenon associated with gears, universal-joints and other mechanisms encountered in farm and forest machinery. Sp.

301: *Agricultural Structures.* 3-2-3. Preq., consent of the department head. Heat transfer; airwater vapor mixtures; ventilation; systems analysis; functional design of agricultural structures.

303: *Farm Buildings.* 3-1-2. The location, arrangement, design, construction, care, and repair of farm buildings.

307, 308: *Farm Power Units.* 3-1-2 each. Preq., consent of the department head. Engineering principles of farm power units.

315: *Advanced Farm Machinery.* 3-2-3. Preq., Engineering Mechanics 201. Basic principles in the design of farm machinery, including aspects of materials, elements of machines, hydraulic systems, functional operations, force analysis, and power transmission.

320: *Electricity Applied to Bio-Systems.* 3-2-3. Practical application of electricity to farm and forest operations including electric motors, power rates, safety, wiring, lighting and heating.

325: *Dairy Engineering.* 3-2-3. Basic principles of dairy machinery; instruments, and plant layout.

340: *Logging Roads.* 3-1-2. Principles of planning, layout and construction of forest roads, including culverts and drainage.

401: *Farm Utilities.* 3-1-2. Preq., consent of the department head. Well hydraulics, water supply, plumbing and sewage disposal systems as applied to the farm and home.

403: *Soil and Water Conservation Engineering.* 3-2-3. Preq., consent of the department head. An advanced study of the engineering principles and practices involved in conserving soil and water. Irrigation design.

405: *Rural Electrification.* 3-2-3. Preq., Electrical Engineering 213. The engineering application of electricity to problems in agriculture. Design of wiring; controls and machinery needed in crop drying; lighting; and agricultural processing.

407: *Advanced Farm Structures Design.* 3-2-3. Preq., Engineering Mechanics 301 and Agricultural Engineering 301. The structural design of farm buildings including load estimates, stress analysis, allowable unit stress, and the design of columns, beams, and connections.

409: *Special Problems.* 0-1-1(4). Preq., Senior standing or consent of the department head. Special problems in the field of agricultural engineering.

411: *Seminar.* 0-1-1. Preq., senior standing or consent of the department head. Reviews and discussions of current scientific literature and recent developments in agricultural engineering.

415: *Fluid Power and Controls.* 3-1-2. Preq., consent of the department head. Analysis and design and fluid power and control systems. Study of components and their agricultural and industrial application.

418: *Problems.* 1 to 4 semester hours credit. Problems in planning and mechanization of bio-systems.

431: *Soil Trafficability.* 3-1-2. Factors affecting traction and floatation of off-the-road machinery.

515: *Agricultural Processing Systems.* 3-2-3. Systems used in the processing of agricultural products, including the design, operation, and maintenance of the machines and equipment used.

520: *Instrumentation.* 0-3-3. Preq., consent of the department head. Instruments used in carrying out scientific and applied research in agricultural engineering.

560: *Seminar on Water Pollution Control.* 0-1-1.

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AGRICULTURE

101: *Crop Science.* 3-3-4. Principles of production and management of forage, grain, fiber, fruit, vegetable, and ornamental crops. F, Sp.
241, 242, 243: *Agricultural Internship.* 3 hours credit each, 40 hours per week. Actual work experience in developing skills and acquiring technical knowledge in on-the-job situations. May be repeated for a total of 27 semester hours. Su, F, W, Sp.
411-412-413: *Seminar.* 0-1-1 each. Reviews, reports, and discussion of current problems of agriculture and related fields. F, W, Sp.
441-442-443: *Agricultural Internship.* 3 hours credit each, 40 hours per week. Work experience in the intern's major field of Agronomy, Horticulture, Animal Science, Dairying or Agriculture-Business. Su, F, W, Sp.

AGRONOMY

202: *Soils.* 3-3-4. Preq., Chemistry 101. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. Su, W.
211: *Forage Crops and Pasture Management.* 3-2-3. A study of the growth adaptation and culture of forage plants including types of plants, methods of establishment and improvement and use of forage plants.
307: *Field Crops.* 3-2-3. A study of fundamentals of production, harvesting, storage, marketing, and utilization of grain, fiber, oil, and sugar crops. W, even.
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. F, even.
315: *Soil Fertility.* 3-3-4. Preq., Agronomy 202. Fundamentals of soil fertility and plant nutrients. W, odd.
330: *Soil Conservation and Crop Management.* 0-3-3. The causes and control of soil and water losses and the manintenance of soil productivity. W, even.
405: *Soil Physics.* 3-2-3. Preq., Agronomy 202. A study of the physical properties of soils and their relation to soil utilization. Sp, even.
408: *Fertilizer Technology.* 0-3-3. Preq., Chemistry 102. Source, manufacturing, processing, use, properties and characteristics of chemical fertilizers. F.
409: *Plant Breeding.* 3-2-3. Preq., Life Sciences 300. A study of the application of the fundamental principles of genetics to the development and maintenance of improved plant varieties. Sp, even.
410: *Soil Development and Classification.* 6-2-4. Preq., Agronomy 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.
421: *Weed Control.* 3-2-3. A study of weed control in agricultural crops, including weed ecology, mechanisms of herbicidal action, and practical application techniques. W, odd.

AIR FORCE AEROSPACE STUDIES

125: *U.S. Air Force Organization and Strategic Offensive Forces* [*GMC*]. 1-1-1. Mission and organization of USAF and functions of Strategic Offensive Force. Laboratory on basic military drill, customs and courtesies of the USAF. F.
126: *Strategic Defensive and General Purpose Forces* [*GMC*]. 1-1-1. Defenses against aerospace threats and functions of General Purpose Forces. Laboratory of classroom presentations by advanced cadets on variety of aspects of Air Force life. W.
127: *U.S. Aerospace Support Forces* [*GMC*]. 1-1-1. Airlift, logistics, research and development, education and training, and other support components of the USAF. Laboratory includes participation in military ceremonies and continued USAF orientation. Sp.
225: *The Development of Air Power* [*GMC*]. 1-1-1. The beginnings of manned flight from balloons and dirigibles, to the Wright Brothers, World War I and the interwar years. Laboratory includes practice in drill and ceremonies. F.
226: *The Development of Air Power* [*GMC*]. 1-1-1. Continuation of 225. A study of air power during World War II, the Berlin Airlift and Korea. Laboratory consists of leadership training and career orientation. W.
227: *The Development of Air Power* [*GMC*]. 1-1-1. Continuation of 226. A study of U.S. air power in the international arena from 1955 to the present. Laboratory consists of preparation for summer field training. Sp.
335: *The Military in Contemporary Society* [*POC*]. 1-2-2. Military service as a profession. Institutional, social, and economic aspects of civilian-military interaction. Lab provides leadership experience through instruction of first year cadets. F.
336: *Defense Organization and Policy* [*POC*]. 1-2-2. Structure functioning of the defense policy making establishment. International and domestic considerations. Arms control agreements. Lab provides administrative experience through various staff assignments. W.
337: *Defense Strategy and Conflict Management* [*POC*]. 1-2-2. Conceptual foundations of strategy. Impact of technology on strategy. Politics and defense strategy. Case studies. Lab provides further experience through rotation of staff assignments. Sp.
425: *Flight Instruction Program* [*POC*]. 3-2-2. Required for designated pilot candidates. Theory of Flight; Federal Aviation Regulations, meteorology, navigation, and radio communication. Flying training preq: must be within 12 months of commissioning. 25 flying hours. F, W.
435: *Air Force Leadership* [*POC*]. 1-2-2. Concepts of human behavior relating to leadership. Leadership problems and practices at the junior officer level. Laboratory provides practical leadership experience. F.
436: *Military Management* [*POC*]. 1-2-2. Management principles applicable to the duties of the junior officer. Laboratory places cadets in command and administrative positions to employ managerial techniques. W.
437: *Military Justice and Preparation for Commissioned Service* [*POC*]. 1-2-2. Use of military justice for commanders. Practical details of initial Air Force duty. Laboratory emphasizes evaluation and improvement of managerial procedures. Sp.
499: *Communications for the Air Force.* 0-1-1. Preq., English 101 and 102. Functions and formats of Air Force communications as memos, letters, position or background papers, information briefs, messages, staff studies, and effectiveness reports. W or Sp.

ANIMAL SCIENCE

101: *Introduction to Animal Science.* 3-2-3. A study of types, breeds, market grades and classes of cattle, sheep, swine and horses. F, Sp.
102: *Introduction to Dairy Science.* 3-2-3. The fundamentals of dairy production and manufacturing. F, Sp.
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.
204: *Meat Animal and Carcass Evaluation.* 3-2-3. Selection of carcasses and wholesales cuts of beef, pork, and lamb; factors influencing grades, yields, and values in cattle, hogs, and sheep. W.
301: *Principles of Animal Nutrition.* 0-3-3. Preq., Animal Science 101 and Chemistry 102. The source, chemical composition, characteristics, and nutritive value of farm animal feeds; rations. F.
303: *Livestock and Livestock Products Judging.* 2-1-2. Preq., Animal Science 101 or permission of instructor. The theory and practice of judging livestock and livestock products. F.
307: *Endocrinology and Milk Secretion.* 0-3-3. Development, structure, and functional processes of the endocrine and mammary systems. F.
315: *Meats.* 6-1-3. Preq., Animal Science 101 and Bacteriology 210. Methods and practices involved in the processing and preservation of meats. W.
318: *Physiology of Reproduction.* 3-2-3. Preq., Animal Science 307 or Zoology 320 or equivalent and Life Sciences 300. Physiology of reproduction of domestic animals including man. Histology, embryology and anatomy or reproductive systems; gametogenesis, fertilization, gestation and parturition. W.
319: *Applied Reproduction of Farm Animals.* 3-1-2. Preq., Animal Science 318 or permission of instructor. Application of the methods and techniques of semen collection, evaluation, processing and preserving; insemination of females and pregnancy diagnosis; health, nutrition and management for maximum reproductive efficiency. Sp.
401: *Animal Breeding Principles.* 3-2-3. Preq., Life Sciences 300. The application of the basic principles of genetics to the improvement of animals. Sp.

403: *Advanced Livestock Judging.* 3-1-2. Preq., Animal Science 303. An advanced course in comparative judging of beef cattle, swine, sheep, and horses. F.
405: *Applied Animal Nutrition.* 0-3-3. Preq., Animal Science 301 and Chemistry 220. Growth, reproduction, lactation, fattening, and work production as it relates to the chemistry and physiology of nutrition. Sp.
407: *Dairy Herd Management.* 6-1-3. Preq., Animal Science 102 and 301. Principles and practices in breeding, feeding and management of dairy cattle. Sp.
408: *Swine Production.* 3-2-3. Preq., Animal Science 301. Principles and practices of breeding, feeding, marketing and management of swine. F.
410: *Ruminant Production.* 3-3-4. Breeding, feeding, marketing and management of beef cattle and sheep. Sp.
411: *Horses and Horsemanship.* 3-2-3. Breeding, feeding, management and handling of light horses.

ARCHAEOLOGY

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. Su.
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. Offered only on location in Central and Northern Italy. Su.
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. Field work in museums. Su.

ARCHITECTURE

101: *Architecture and the Environment.* 0-2-2. Lecture and seminar to acquaint the student with both the natural and man-made environment, and man's impact on each. Additionally, the architect's responsibility and participation in the environmental matrix is stressed.
102: *Basic Communication Skills.* 6-1-3. Studio Problems incorporating architectural instrumentation in the developmental processes of the use of projected and three-dimensional drawings.
103: *Basic Design.* 6-1-3. Studio problems investigating the relationships of two dimensional spatial design, color relationships, and geometric interaction.
104: *Basic Freehand Drawing.* 6-1-3. Studio and location problems to develop visual perception and personal communication capability in the use of various media techniques.
105: *Basic Three-Dimensional Design.* 6-1-3. Studio problems investigating the evolutionary processes of development from two-dimensional to three-dimensional concepts.
106: *Basic Communication Skills.* 6-1-3. A continuation of Architecture 102.
201: *Basic Architectural Design.* 6-1-3. Studio and lecture investigating simplified architectural projects with emphasis on the development of conceptual and communication skills.
202: *Basic Architectural Design.* 6-1-3. Studio and lecture problems for the continuing development of conceptual and alternative solution design processes, with continuing emphasis on communication skills.
203: *Design.* 6-1-3. Intermediate design problems emphasizing the concept, methods and materials of construction. Sp.
216: *Design.* 6-1-3. Preq., Architecture 103 and 105 or Art 115 and 116. Problems in three-dimensional design and increased emphasis on the development of individual ideas through various materials such as clay, plaster, fiber glass, wood, and plastics. F, W, Sp.
301: *Design.* 6-1-3. Continuation of Architecture 203. F.
302: *Design.* 6-1-3. Architectural and planning problems relating architecture, landscape architecture, city and regional, and other related fields. W.
303: *Design.* 6-1-3. Continuation of Architecture 302. Sp.
304: *Architectural History.* 0-3-3. Lecture designed to acquaint the student with the historical significance of the role of the architect as the interpreter of his/her environment, and the alternative solution processes exhibited by previous cultures, Egypt to Renaissance to 1890.
305: *Architectural History.* 0-3-3. Lecture continuation of Architecture 304, Renaissance to 1890.
306: *Contemporary Architectural History.* 0-3-3. Lecture continuation of Architecture 305 with emphasis on the period of contemporary development from 1890 to present.
307: *Specifications and Working Drawings.* 6-1-3. Detailed specifications, supervision, and superintendence. Sp.
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. Su.
380: *Applied Studio Practices.* 6-1-3-(9). Open only to second year Associate Degree candidates. This course offers students in each of the options practical problems in graphic and visual communications.
400: *Studio Problems.* 6-1-3-(9). Specialized studio problems in aquaeous media on paper.
410: *Design.* 6-1-3. Advanced architectural design problems. F.
420: *Design.* 6-1-3. Continuation of Architecture 410. W.
430: *Advanced Architectural Design.* 12-2-6. Advanced studio problems with lecture, in complex architectural and environmental design problems to prepare the student specifically for entrance into the profession or into the graduate course of study.
440: *Design.* 12-2-6-(12). Advanced architectural and planning problems, relating to programming, research, site study, client contract and promotion.
441: *Structural Systems.* 6-1-3-(6). Advanced studies in architectural structures.
442: *Seminar.* 0-3-3-(6). Seminars relating to architecture presented by faculty, students, and professional people.
443: *Professional Practice.* 0-3-3. To familiarize the student with usual problems of office practice, professional relations, ethics and contracts.
556: *Problems.* 12-2-6. Special projects in architecture and landscape. Projects must be approved by department head. Preq., fifth year classification in Architecture.
559: *Specialized Individual Studio Problems.* 6-1-3-(9). Permission and project approval must be obtained from Department Head.

ART

101: *Art Structure.* 3-1-2. (For education majors). Foundation course for art study. Theory and practice in the elements of art as a basis for appreciation of fine arts and crafts of the past and present. Su, F, Sp.
102: *Art Structure.* 3-1-2. (For education majors). A continuation of Art Structure 101 in the elements and principles of art structure. Problems in drawing, painting, design, lettering, poster composition. Su, W.
115: *Design.* 6-1-3. Formal problems of the theory and practice in the elements and principles of design. F, W, Sp.
116: *Design.* 6-1-3. Continuation of Art 115. W, Sp.
120: *Painting.* 6-1-3. Creative approach to the problems in painting with emphasis on observation and representation. Su, F, Sp.
121: *Painting.* 6-1-3. Continuation of Art 120. Su, W.
125: *Drawing.* 6-1-3. A study of the principles underlying all creative and representation drawing. Su, F, Sp.
126: *Drawing.* 6-1-3. A continuation of Art 125. Su, W.
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. An introduction to black and white printing, proper utilization of darkroom, and presentation of photographs for exhibition.
175: *Art Structure for Home Economics.* 3-1-2. Problems in supplementary to work in the College of Home Economics: art structure and costume design problems of home and community life. F, Sp.
176: *Art Structure for Home Economics.* 3-1-2. Continuation of Art 175. W.
201: *Art Education.* 3-1-2. A continuation of Art 102 with emphasis on craft materials and their use in the elementary grades. Ways in which art activities contribute to the social studies.
215: *Design.* 6-1-3. Preq., Art 115 and 116. The study of color and the interaction of color in design. F, W, Sp.
220: *Painting.* 6-1-3. Creative approach to the problems in painting with emphasis on the human figure. Su, F, Sp.
221: *Painting.* 6-1-3. Continuation of Art 220. Su, W.
225: *Drawing.* 6-1-3. The study of human anatomy as related to problems of art. Sp.

228, 229: *Figure Drawing.* 6-1-3 each. Drawing in media from models.
240: *Craft Survey.* 6-1-3. Survey of the elementary process of weaving, metal crafts, ceramics, and wood-construction as a basis for advanced study in one or more of these media. F, Sp.
241: *Craft Survey.* 6-1-3. Continuation of Art 240. W.
270: *Intermediate Photography.* 6-1-3. A production course designed to insure mastery of basic photography techniques.
271: *Experimental Black and White Techniques.* 6-1-3. Preq., Art 173. Problems in manipulating black and white processes. To include use of graphic arts films, Sabattier Effect, toning multiple printing, etc.
272: *Photosensitive Materials.* 6-1-3. Preq., Art 270. A course that encourages the student to explore other areas than the conventional methods of making a photographic image.
273: *Introduction to Color Photography.* 6-1-3. Preq., Art 270. Expanding the student's technical and visual language through 35 mm color reversal films.
308: *Lettering.* 6-1-3. Designed to provide a knowledge of styles of letters and their uses; practice with lettering tools and techniques of advertising, show card and poster design. W, Sp.
309: *Lettering.* 6-1-3. Continuation of Art 308. F.
315: *Advertising Design.* 6-1-3. A basic knowledge of design to give the student all phases of layout with a series of lectures, experimental design studies, and layout problems. F, Sp.
316: *Advertising Design.* 6-1-3. Continuation of Art 315. W.
320: *Painting.* 6-1-3. Creative approach to the problems in painting with emphasis on experimentation in various media, subjects, and techniques. Su, F, Sp.
321: *Painting:* 6-1-3. Continuation of Art 320. Su, W.
325: *Illustration.* 6-1-3. Introduction to illustration with emphasis on black and white line-cut and screen reproduction. F, Sp.
330: *Printmaking.* 6-1-3. An experimental study of technique and design in relief intaglio and planographic methods of producing prints.
331: *Printmaking.* 6-1-3. Continuation of Art 330.
340: *Metal Work.* 6-1-3. The execution of jewelry in silver and gold and of bowls, bookends, flat ware and the like, in copper, brass, pewter, and silver, using original designs.
344: *Weaving.* 6-1-3. Advanced problems in weaving on the following looms: two- and four-harness, Indian, Hungarian, etc.
345: *Display.* 6-1-3. The design and construction of three-dimensional forms using a variety of materials, with direction and adaption to window and store display, exhibits, booths, etc.
346: *Ceramics.* 6-1-3. An advanced course in potterymaking, including coiling, pressing, modeling and glazing techniques with special emphasis upon decorative processes. Su, F. Sp.
347: *Ceramics.* 6-1-3. A continuation of Art 346. Su, W.
352: *Interior Design.* 6-1-3. Problems in designing and drawing plans and elevations of interiors and furniture; development of measured perspective drawings from plans and elevations; free-hand renderings. F.
353: *Interior Design.* 6-1-3. A contintuation of Art 352. W.
354: *Interior Design.* 6-1-3. Continuation of Art 353. Sp.
364: *Art Appreciation.* 0-3-3. Study and enjoyment of art in its various expressions. Principles for critical judgment. Art in dress, the home, furniture, textiles, pottery, painting, graphic arts, and civic art.
366: *History of Art.* 0-3-3. A survey of the painting, sculpture, architecture, minor arts of ancient, medieval, and modern periods. F.
367: *History of Art.* 0-3-3. A continuation of Art 366.
368: *History of Art.* 0-3-3. Travel to the art centers of Europe visiting the galleries and museums in cities such as London, Amsterdam, Paris, Rome, Florence, etc. Su.
370: *Color Photography.* 6-1-3. Preq., Art 273. An introduction to printing film negatives and transparencies onto color photographic papers.
371: *Sequential Imagery.* 6-1-3. A study in shooting and sequencing photographs so as to better understand the image. Problems in preparation for an exhibition or publication.
372: *Studio Photography.* 6-1-3. Problems in controlled lighting for portraiture, figure, fashion, product, and introduction to view camera operation.
373: *Commercial Photography.* 6-1-3. Preq., Art 372. A course designed strictly to the standards of professional photography. Assignments are specific, and vary from strictly commercial to advertising illustration.
390: *Sculpture.* 6-1-3-(9). Investigations in sculptural processes, materials, and techniques. Su, F, W, Sp.
391: *Sculpture.* 6-1-3-(9). Creative approach to problems in metal casting, fabrication, welding, mold technology, and foundry procedures. Su, F, W, Sp.
412: *Studio Problems.* 6-1-3-(9). Advanced problems in advertising art.
415: *Studio Problems.* 6-1-3-(9). Advanced problems in design.
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.
452: *Interior Design.* 6-1-3-(9). Advanced problems in development of plans, elevations, and perspective views of interiors. Mechanical and freehand renderings. Lectures, laboratory, field trips, illustrated reports.
455: *Interior Design.* 0-3-3. A study of various woven materials as they relate to interiors.
456: *Professional Practices.* 6-1-3. Problems in choosing and measuring drapery and carpeting material as related to interiors.
466: *History of Modern Art.* 0-3-3. Historical and critical appraisal of art in the 19th and 20th centuries.
467: *History of the Arts.* 0-3-3. A survey of the arts: furniture; weaving and textiles; tools and weapons; ornament, both domestic and personal; artifacts of daily life such as painting, sculpture, etc. Offered on the Rome campus.
468: *History of American Art.* 0-3-3. Historical and critical appraisal of art in American from the colonial era to the present.
469: *History of Italian Art.* 0-3-3. An in-depth study of the art and architecture located in Rome and Florence.
470: *Motion Picture.* 6-1-3. Introduction to motion picture techniques and equipment; production of basic sequences.
471: *Motion Picture.* 6-1-3-(9). Preq., Art 470. Study of creative effects and the production of a feature film.
472: *History and Aesthetics of Photography.* 6-1-3. A survey of the photographic image from 1839 to the present, with special emphasis on the development of photographic seeing.
473: *Advanced Studies in Photography.* 6-1-3-(9). Criticism of individual projects and group discussions. Admission by portfolio evaluation and/or faculty recommendation.
474: *Special Problems in Photography.* 6-1-3-(9). This course is designed for the already advanced student's special interests.
490: *Sculpture.* 6-1-3-(9). Creative approach to the problems in sculpture with individually directed experiments in the various sculptural processes. Su, F, W, Sp.
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 Painting.* 6-1-3-(6) each.
540-541-543: *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 Projects.* 6-1-3-(9). The structuring, research, execution and presentation of independent projects in Photography under the direction of a faculty advisor.
572: *Portfolio.* 6-1-3-(9). Preparation of a portfolio.

573: *Photographic Projects.* 6-1-3-(9). Advanced photographic projects in field of special interest.

ARTS AND SCIENCES

551: *Research and Thesis.* 3 hours credit or multiple thereof. Maximum credit allowed is 6 hours.
590: *Research and Dissertation.* 3 hours credit or multiples thereof. Maximum credit allowed is 30 hours.

BACTERIOLOGY

210: *Introduction to Microbiology.* 3-2-3. Basic concepts and laboratory procedures involving microorganisms. Su, F, W, Sp.
212: *Health Related Microbiological Survey.* 3-3-4. Fundamental concepts and techniques used in medically oriented microbiological studies. Su, F, W, Sp.
225: *Microbiology and the Human Environment.* 0-2-2. Relationship of microbial activities to man's daily life habits. Offered for students not majoring in microbiology. F, W, Sp.
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.
330: *Microbial Physiology.* 3-3-4. Preq., Bacteriology 210 or 212 and Chemistry 250. Basic biochemical and physiological activities of microorganisms. W.
401: *Sanitary Microbiology.* 3-2-3. Preq., Bacteriology 210 or 212. Microbiology of water and sewage. Su, F.
405: *Food and Dairy Microbiology.* 3-3-4. Preq., Bacteriology 210 or 212. Microorganisms in the food and dairy industries including those that are utilized in dairy and food processing; spoilage and its control.
406: *Pathogenic Bacteriology.* 3-3-4. Preq., Bacteriology 210 or 212. Bacteria pathogenic to man; principles of infection and immunity in man and other animals.
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.
413: *Petroleum Microbiology.* 3-2-3. Preq., Bacteriology 210 or 212 and Chemistry 250. Micro-organisms of petroleum products and their effects on the petroleum industry.
415-416: *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.
425: *Special Problems.* 1-3 hours credit. Preq., consent of the instructor. Credit depends on the nature of the problem and work accomplished. Su, F, W.
505: *Advanced Microbial Physiology.* 3-2-3. 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.* 3-2-3. Preq., Bacteriology 505. Intermediate microbial metabolism, regulating control and biosynthesis, varied metabolic pathways.
507: *Genetics of Microorganisms.* 3-2-3. Preq., Bacteriology 330. Heredity in microorganisms, biochemical genetics; and genetic control of metabolism.
512: *Advanced Immunology.* 6-1-3. Preq., consent of the instructor. An advanced study of the activities of antigens and antibodies.
513: *Microbial Degradation.* 6-1-3. Preq., consent of the instructor. Utilization of materials as substrates for microbial activity with emphasis on mechanisms and control measures.
514: *Advanced Applied Microbiology.* 3-2-3. Preq., consent of the instructor. Survey of the areas of applied microbiology emphasizing project approach.
520: *Advanced Mycology.* 3-2-3. (Same as Botany 520). Preq., Bacteriology 350. Collection and identification of fungi; cultural techniques for specialized purposes.
525: *History of Literature of Microbiology.* 0-3-3. Preq., consent of the instructor. Evolution of the field of microbiology and familiarization with the current literature of the field.

BIOMEDICAL ENGINEERING

200: *Biomedical Engineering.* 0-3-3. Science elective for nonengineering students. Emphasis is placed on the basis of interaction between the field of engineering and medicine and on recent developments in the application of biomedical engineering principles.
201: *Introduction to Biomedical Engineering.* 0-2-2. Preq., Chemistry 102, credit or registration in Mathematics 230. Basic qualitative and quantitative principles of biomedical engineering are presented. The general field of biomedical engineering is reviewed with respective fundamentals emphasized. Su. F, W, Sp.
210: *Biomedical Engineering Instrumentation.* 3-2-3. Preq., Biomedical Engineering 201. Biomedical instrumentation techniques are presented in an applied manner. Basic circuitry, electronics, and laboratory techniques are explored. F, W, Sp.
301: *Biomedical Fluid Mechanics and Biomedical Energy Transport.* 0-3-3. Preq., Biomedical Engineering 201. The principles of fluid mechanics and thermal energy exchange in living systems are presented from a quantitative viewpoint. W.
310: *Introduction to Clinical Engineering.* 3-2-3. A foundation course in medical and clinical terminology, medical instrumentation, medical sciences, hospital procedure and medical practice from an engineering perspective. F, Sp.
320: *Bioenergetics.* 0-3-3. Preq., Mathematics 231 and Physics 201. The student is introduced to the concept of bioenergetics— the thermodynamics of living systems. The laws of thermodynamics are emphasized and applied to biological systems. Sp.
401: *Biomedical Mass Transport.* 0-3-3. Preq., Biomedical Engineering 301. The transport of liquids, solids and gases between blood flowing through the organs of the body and the surrounding intercellular and intracellular tissue is presented. F.
402: *Artificial Internal Organs and Biocompatible Materials.* 0-3-3. Preq., Biomedical Engineering 401. Optimum design, construction and operation parameters are presented and quantitative calculations are conducted. The biocompatibility of different materials is explored. W.
403: *Physiological Control Systems.* 0-3-3. Preq., Mathematics 350. Feedback control mechanisms by which the human body maintains its internal environment are presented qualitatively and quantitatively. Sp.
410: *Clinical Engineering Internship.* 20-20-6. A practical exposure to the health care delivery system. Application of engineering principles to problems unique to that system. Su. F, W, Sp.
440: *Computer Applications for Biomedical Engineers.* 0-3-3. Preq., Mathematics 111 and 112. The course is designed specifically to train the student in the use of the digital computer for the solution of problems related to Biomedical Engineering.
501: *Biotransport Phenomena.* 0-3-3. Chemical Engineering 511 or equivalent. The course is designed specifically for the application of the principles of transport phenomena to biomedical systems. Biomomentum, heat, mass, and electrochemical transport are presented.
502: *Biotransport Phenomena.* 0-3-3. Preq., Biomedical Engineering 501. A continuation of Biomedical Engineering 501.
510: *Bioinstrumentation.* 3-2-3. Preq., Permission of instructor. Advanced concepts and usage of biomedical instrumentation are reviewed. The actual construction and laboratory use of microelectrodes (PO2, PCO2, pH) are used for the investigation of microenvironments and on-line computer simulation is conducted.
520: *Design of Artificial Internal Organs.* 0-3-3. Preq., Biomedical Engineering 402 or permission of instructor. Specialized design techniques and the various types of presently available artificial internal organs are reviewed. Recent developments and future needs are discussed.
525: *Advanced Bioenergetics.* 0-3-3. Preq., BME 320 or permission of instructor. A study of the thermodynamics of irreversible processes in biophysical systems, including thermo-diffusion, thermal osmosis, transport of electrolytes, and models of active transport in tissue.
540: *System Analysis and Mathematical Modeling of Physiological Phenomena.* 0-3-3. Preq., permission of instructor. The course deals with the analysis of biological

systems and the theory behind the development and solution of mathematical models for the description of biological system behavior.

550: *Special Topics.* 0-3-3. Preq., Permission of instructor. Selected topics dealing with advanced subjects in Biomedical Engineering.

BOTANY

101: *General Botany.* 3-3-4. An introduction to the fundamental facts and principles of plant life. Su, F, W, Sp.

205: *Plant Anatomy.* 3-2-3. Preq., Botany 101. A comparative study and interpretation of the internal structure of vascular plants. W.

212: *Wildlife Conservation and Management.* 0-3-3. An introduction to the wildlife resources of North America and their interrelations with other natural resources. F, W, Sp.

220: *Plant Physiology.* 3-2-3. Preq., Botany 101 and Chemistry 102. Study of life processes and functions of plants. W.

221: *Taxonomy and Morphology of Early Vascular Plants.* 3-2-3. Preq., Botany 101. Survey of most primitive vascular plants through fern allies. F.

222: *Taxonomy and Morphology of Ferns and Gymnosperms.* 3-2-3. Preq., Botany 221. Survey of ferns and gymnosperms. W.

223: *Taxonomy and Morphology of Angiosperms.* 3-2-3. Preq., Botany 222 or consent of the instructor. Survey of the flowering plants. Sp.

225: *General Science.* 0-3-3. A general course embracing the principles of the biological and physical sciences, designed especially for students who are preparing to become elementary teachers. Su, F, W, Sp.

320: *Plant Ecology.* 3-2-3. Preq., Botany 220 and Botany 223. A study of plants and plant communities in relation to their environment, F, Sp.

330: *Plant Pathology.* 3-2-3. Preq., Botany 101. A study of the nature of plant diseases and disorders.

345: *Food Plants of Game Animals.* 3-2-3. Preq., Botany 223. Study of higher forms of land plants that supply food for game animals. F.

350: *Mycology.* 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of fungi. W.

351: *Phycology.* 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of algae. Sp.

352: *Bryology.* 3-2-3. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of mosses and allies.

401: *Advanced Plant Pathology,* 3-2-3. Preq., Botany 220 and Botany 330. A course concerned with basic phytopathological techniques.

410: *Medical Mycology.* 3-2-3. Preq., Botany 350. Fungi pathogenic to man and other animals. W.

411: *Nature Study.* 0-3-3. Preq., junior standing. A study of flowers, shrubs, trees, birds, and insects. This course is offered especially for elementary teachers. Su.

412: *Plant Microtechnique.* 3-2-3. Preq., consent of the instructor and junior standing. Techniques of preparing slides of plant tissues for microscopic study.

413: *Economic Botany.* 0-3-3. Preq., junior standing. Principle plants of economic importance to man. Su.

415-416: *Seminar.* 0-1-1 each. Preq., approval of the head of the department. A review of current literature and problems under investigation in plant science.

441-442-443: *Wildlife Management Internship.* 3 hours credit each. 40 hours per week. Work experience in the use of the equipment, materials, and procedures in wildlife management.

505: *Advanced Plant Physiology.* 3-2-3. Preq., Botany 220. Principles which underlie interpretation of the physical and metabolic processes of plants.

507: *Advanced Plant Taxonomy.* 3-2-3. Preq., Botany 223 plus 12 additional hours of botany. Problems of nomenclature and recent concepts of plant classification.

508: *Field Botany.* 3-2-3. Plant identification and the relation of plants to their environment, offered especially for elementary and secondary teachers.

515: *Advanced Plant Ecology.* 3-2-3. Preq., Botany 320. An advanced study of vegetation units.

520: *Advanced Mycology.* 3-2-3. Preq., Botany 350. Collection and identification of fungi; cultural techniques for specialized purposes.

525: *Advanced Plant Anatomy.* 3-2-3. Preq., Botany 205. An advanced study of the internal structures of vascular plants.

535: *History and Literature of Botany.* 0-3-3. Preq., consent of the instructor. Special assigned readings and reports.

BUSINESS LAW

355: *Legal Environment of Business.* 0-3-3. Preq., junior standing. Legal environment of business including torts, government regulations, contracts, agency, sales, negotiable instruments, Uniform Commercial Code, and bankruptcy. Su, F, W, Sp.

356: *Legal Environment of Business.* 0-3-3. Preq., junior standing. Legal environment of business including torts, government regulations, contracts, agency, sales, negotiable instruments, Uniform Commercial Code, and bankruptcy. Su, F, W, Sp.

441: *Real Property.* 0-3-3. Preq., Business Law 355. Estates in land, titles, deeds, mortgages, leases, land contracts, minerals, easements and successions. F.

445: *Legal Aspects of Government and Business.* 0-3-3. Preq., Business Law 355 or special permission of the instructor. A study of landmark law cases with special emphasis placed on guideline interpretive decisions of significance to management. W.

CHEMICAL ENGINEERING

201: *Introduction to Chemical Engineering.* 0-2-2. Preq., Chemistry 102, credit or registration in Mathematics 230. Broad perspective of field. Human relations, mathematical tools, important concepts of physics and chemistry. Introduction of economics, material and energy balances, and equipment and machinery. F.

202: *Chemical Engineering Calculations.* 0-3-3. Preq., Chemical Engineering 201. Problems and recitation in material and heat balances involved in chemical processes. Application of chemical engineering and chemistry to manufacturing in chemical industries. W.

254: *Laboratory Measurements and Report Writing.* 3-0-1. Preq., Chemistry 102. A study of applied analytical procedures and measurement of process variables in chemical processing—and an introduction to technical report writing. W, Sp.

301: *Unit Operations.* 0-2-2. Preq., Chemical Engineering 202. Quantitative problems to develop the principles and applications of crushing, grinding, classification, size separation, fluid flow and fluid metering. F.

303: *Unit Operations.* 0-2-2. Preq., Chemical Engineering 301. Quantitative problems to develop the principles and applications of heat transmission, evaporation, and crystallization. W.

306: *Chemical Engineering Materials.* 0-2-2. Preq., Chemistry 102. A study of the basic principles which relate the properties of materials to their internal structures and environments; and of the behavior of materials in service. Su, F, Sp.

321: *Chemical Engineering Thermodynamics.* 0-2-2. Applications of the laws of thermodynamics to chemical engineering process. F, Sp.

322: *Chemical Engineering Thermodynamics.* 0-2-2. Preq., Chemical Engineering 321. Application of activity, fugacity and chemical equilibria to chemical engineering processes. Su, W.

350: *Chemical Engineering Problems.* 3-0-1. Preq., Math 350, credit or registration in Chemical Engineering 301. Solution of chemical engineering problems using basic analog and digital computing techniques. F, Sp.

351: *Unit Operations Laboratory.* 3-0-1. Preq., Chemical Engineering 301. Laboratory work demonstrating the principles and applications of crushing, grinding, classification, size separation, fluid flow and fluid metering. W.

352: *Unit Operations Laboratory.* 3-0-1. Preq., Chemical Engineering 303. Laboratory work demonstrating the principles and applications of heat transmission, evaporation and crystallization. Sp.

401: *Unit Operations.* 0-3-3. Preq., Chemical Engineering 303, Chemistry 311. Quantitative problems to develop the principles and applications of humidification, diffusion, distillation, absorption, and extraction. F.

402: *Chemical Engineering Kinetics.* 0-2-2. Preq., junior standing. Kinetics of heterogeneous reactions including catalysis and absorption and catalytic vapor phase reactions. Acquisition and interpretation and rate data. Homogeneous reactor design. Mass and heat transfer in catalytic beds. F, Sp.

407: *Instrumentation and Automatic Process Control.* 3-2-3. Preq., senior standing in engineering. Characteristics, limitations, and control of process variables by automatic instruments. Analog computer applications. W, Sp.

410: *Industrial Waste Treatment.* 0-3-3. Methods of treating and/or disposal of industrial solid, liquid and gaseous wastes. Emphasis placed on fundamental physical, chemical and biological processes. Su, W.

412: *Applied Problems in Chemical Engineering.* 0-3-3. Preq., junior standing. Methods of handling rate processes, graphical treatment of data, nomography and numerical analysis.

414: *Industrial Radioactive Isotopes.* 3-2-3. Preq., junior standing. A survey of the industrial applications of radioactive isotopes. Basic concepts in nuclear physics, measurement techniques, radiation safety and instrumentation are presented. F, Sp.

420: *Introduction to Nuclear Engineering.* 0-3-3. Preq., junior standing. An introduction to nuclear reactor technology. Engineering concepts in reactor design, fuel preparation, economics, shielding, instrumentation, construction and safety are presented. W.

421: *Reactor Engineering.* 0-3-3. Preq., Chemical Engineering 420. Advanced concepts in nuclear reactor design. Mechanical and nuclear properties of solid and fluid reactor systems. Thermal and structural problems are presented. Sp.

424: *Seminar.* 0-1-1. Open to seniors. Opportunity is offered for technical discussion, reading of assigned papers and informal presentations. Seminar further serves to bring the student abreast of current engineering thought. W, Sp.

432: *Chemical Plant Design.* 0-2-2. Preq., senior standing in chemical engineering. Comprehensive problems are assigned, the solution of which enables one to calculate dimensions and capacities of required plant equipment. Computer applications. F.

434: *Chemical Plant Design continued.* 3-1-2. Preq., Chemical Engineering 432. Su, W, Sp.

440: *Theoretical Models in Engineering.* 0-3-3. The methodology of constructing, treating, and operating with theoretical models in order to draw objective conclusions concerning physical, chemical, and economic systems and interactions.

441: *Advanced Engineering Computations.* 0-3-3. Preq., senior standing. Emphasis is placed on the digital, simulation computer solutions of mathematical models in engineering analysis, design, and operation.

442: *Process Optimization.* 0-3-3. Preq., senior standing. An objective study of the present status of optimization methodology as applied to the chemical process industries. Both deterministic and non-deterministic systems are considered.

445: *Pulp and Paper Manufacturing.* 0-3-3. Preq., senior standing. An introduction to engineering applications and techniques in the pulp and paper industry. Chemical, semichemical, and unconventional paper making and conveying operations.

451: *Unit Operations Laboratory.* 6-0-2. Preq., senior standing in chemical engineering. Laboratory work in humidification, drying, distillation, absorption, extraction, and kinetics. F, W.

452: *Special Projects Laboratory.* 3-0-1. Preq., senior standing in Chemical Engineering. Selected comprehensive problems. Study and/or laboratory development of: industrial unit operations; new chemical processes; improvement of established processes; economic evaluations. Theoretical studies. Su, W. Sp.

470: *Sanitary Engineering Processes.* 2-0-2. Theory and techniques of physical and chemical processes used for water quality control. Topics considered include aeration, coagulation, flocculation, sedimentation, ion exchange, filtration, sorption, and chlorination. W.

501: *Advanced Unit Operation.* 0-3-3. A more complete and advanced treatment of distillation than was possible in the undergraduate courses. Emphasis will be placed on equilibria, multicomponent systems, extractive distillation, and axeotropic distillation.

503: *Advanced Heat Transfer.* 0-3-3. Radiation, conduction, and convection, condensation and fluid film correlations from fundamental laws of energy as applied to chemical engineering problems.

504: *Advanced Chemical Engineering Kinetics.* 0-3-3. Homogeneous reactions. Catalytic reactions. Mass and heat transfer in catalytic beds. Catalytic reactor design. Uncatalyzed heterogeneous reactions.

505: *Petroleum Refining.* 0-3-3. A study of the processing of petroleum. Polymerization, catalytic cracking, reforming, and other unit processes. Unit operations as applied to petroleum refining. Economics of refining operations.

509: *Theoretical and Empirical Mass Transfer.* 0-3-3. The theory and empiricism of mass transfer as applied to equipment and process design and operation.

510: *Industrial Applied Research.* 0-3-3. The methodology of industrial applied research as a contribution to growth, profitability, and diversification of industry.

511: *Transport Phenomena.* 0-3-3. Preq., Differential Equations. A course presenting a theoretical approach to the subjects of momentum transport, energy transport, and mass transport.

512: *Advanced Data Correlations.* 0-3-3. Preq., Consent of instructor. Correlation of pilot data and analysis of curve fitting techniques.

513: *Transport Phenomena.* 0-3-3. Preq., Chemical Engineering 511. A course in which advanced concepts on momentum, energy, and mass transport are explored. Emphasis is placed on unsteady state behavior, turbulence, and recent developments in the literature.

514: *Advanced Fluid Mechanics.* 0-3-3. An advanced theoretical and mathematical study of fluid mechanics from classical hydrodynamics to the modern treatment of non-newtonian fluids.

515: *Process Dynamics.* 0-3-3. Preq., Differential Equations. A course emphasizing the dynamic behavior of processes and processing equipment.

516: *Advanced Process Dynamics and Automatic Control.* 0-3-3. Preq., Chemical Engineering 515. Advanced topics concerning stability, dynamics and control of complex processes are presented. Particular emphasis will be given to distributed parameter and non-linear systems. Special projects may be assigned.

522: *Advanced Thermodynamics.* 0-3-3. The relations of thermodynamic properties are developed. Problems on the expansion and compression of non-gases, liquefaction, low temperature separation are studied.

524, 525, 526: *Seminar.* 0-1-1 each. Surveys, investigations, and discussions of current problems in chemical engineering.

545: *Engineering Practice Laboratory.* 6 hours credit. Full-time employment for one quarter in a responsible engineering capacity, coordinated with a participating industry, governmental agency, research laboratory, or consulting firm. Not open to part-time students.

546: *Engineering Practice Laboratory.* 6 hours credit. Optional continuation of 545.

550: *Special Problems.* 1-4 semester hours. Preq., consent of instructor. Selected topics dealing with advanced problems in chemical engineering and design of equipment. The problems and projects will be treated by current methods used in professional practice.

CHEMISTRY

101: *General Chemistry.* 0-3-3. Coreq., Chemistry 103 or 105. Fundamental principles of chemistry. Su, F, W, Sp.

102: *General Chemistry.* 0-3-3. Preq., Chemistry 101 plus either Chemistry 103 or Chemistry 105. Coreq., either Chemistry 104 or Chemistry 106. Continuation of Chemistry 101. Su, F, W, Sp.

103: *General Chemistry Laboratory.* 4¼-0-1. Coreq., Chemistry 101. Laboratory practice in general chemistry. Su, F, W, Sp.

104: *Qualitative Inorganic Analysis.* 4¼-0-1. Coreq., Chemistry 102. An introductory course in the identification of common cations. Su, F, W, Sp.

105: *General Chemistry Laboratory.* 8½-0-2. Coreq., Chemistry 101. Laboratory work in general chemistry including an introduction to quantitative inorganic analysis. W.

106: *Qualitative Inorganic Analysis.* 8½-0-2. Coreq., Chemistry 102. An introductory course in the identification of common cations and anions. Sp.

111: *Cultural Chemistry.* 0-3-3. A non-mathematical introductory course in chemistry for non-science majors.

120: *General Chemistry.* 0-2-2. Fundamental principles of chemistry with emphasis on applications to the life sciences. F, Sp.

121: *General Chemistry.* 0-2-2. Preq., Chemistry 120; coreq., Chemistry 123. A continuation of Chemistry 120. W, Su.

122: *General Chemistry.* 0-2-2. Preq., Chemistry 121; coreq., Chemistry 124. A continuation of Chemistry 121. W, Sp.

123: *General Chemistry Laboratory.* 4¼-0-1. Coreq., Chemistry 121. Laboratory practices in general chemistry with particular emphasis on life science problems. W, Su.

124: *General Chemistry Laboratory.* 4¼-0-1. Preq., Chemistry 121 and 123; coreq., Chemistry 122. A continuation of

Chemistry 123. Sp.

205: *Quantitative Analysis.* 8½-2-4. Preq., Chemistry 102 or 122. Theory and practice in gravimetric and volumetric analysis for inorganic materials. Su, F.

212: *Radiochemistry.* 4¼-2-3. Preq., Chemistry 102 or 122. Fundamental principles of radiochemistry. F, Sp.

220: *Organic Chemistry.* 4¼-3-4. Preq., Chemistry 102 or 122. A general one-quarter course in the chemistry of the carbon compunds. Su, F, Sp.

221: *Chemistry.* 0-3-3. Preq., Chemistry 220 and Medical Technology 341. A survey of organic chemistry with emphasis on physiological applications.

250: *Organic Chemistry.* 0-2-2. Preq., Chemistry 102 or 122. Introduction to organic chemistry with emphasis on structure and reactivity. F, Sp.

251: *Organic Chemistry.* 0-2-2. Preq., Chemistry 250; coreq., Chemistry 253. Continuation of Chemistry 250 with emphasis on aliphatic compounds and reaction mechanisms. Su, W.

252: *Organic Chemistry.* 0-2-2. Preq., Chemistry 251; coreq., Chemistry 254. Continuation of Chemistry 251 with emphasis on aromatic compounds and reaction mechanisms. Su, Sp.

253: *Organic Chemistry Laboratory.* 4¼-0-1. Preq., Chemistry 102 and 122; coreq., Chemistry 251. Basic techniques in organic chemistry. Su. W.

254: *Organic Chemistry Laboratory.* 4¼-0-1. Preq., Chemistry 250 and 253; coreq., Chemistry 252. Introduction to organic syntheses. Su, Sp.

255: *Organic Qualitative Analysis.* 8½-0-2. Preq., Chemistry 251 and 254; coreq., Chemistry 252. Systematic separation and identification of organic compounds. F.

260: *Chemistry of Natural Products.* 0-2-2. Preq., Chemistry 250 or 220 and consent of the instructor. Chemistry of carbohydrates, amino acids, proteins and lipides.

261: *Chemistry of Natural Products.* 0-2-2. Preq., Chemistry 260 or consent of the instructor. Chemistry of terpenes, steroids, plant pigments, nucleic acids and other compounds of biological significance.

271: *Outlines of Biochemistry.* 0-4-4. Preq., Chemistry 220 or 250-251, and concurrently with Chemistry 252. Chemistry 205 recommended. General survey of biochemical principles and of the chemistry of biological systems. Also an introduction to metabolic pathways in plants, animal, and microbial systems. Sp.

301: *Introduction to Methods of Chemical Research.* 4¼-0-1. Preq., Chemistry 220 or 251, and permission of instructor. Closely supervised undergraduate research in chemistry. Su, F, W, Sp.

302: *Introduction to Methods of Chemical Research.* 8½-0-2. Preq., Chemistry 220 or 251, and permission of instructor. Closely supervised undergraduate research in chemistry. Su, F, W, Sp.

303: *Introduction to Methods of Chemical Research.* 12¾-0-3. Preq., Chemistry 220 or 251, and permission of instructor. Closely supervised undergraduate research in chemistry. Su, F, W, Sp.

311: *Physical Chemistry.* 0-3-3. Preq., Mathematics 231 and Physics 202. Basic theories of chemistry with emphasis on the atomic-molecular theory and thermodynamics. F.

312: *Physical Chemistry.* 0-3-3. Preq., Chemistry 311. Basic theories of chemistry with emphasis on chemical thermodynamics, chemical kinetics, and electrochemistry. W.

313: *Physical Chemistry Laboratory.* 4¼-0-1. Preq., Chemistry 102 or 122. Laboratory experiments in physical chemistry. F.

314: *Physical Chemistry Laboratory.* 4¼-0-1. Preq., Chemistry 311 and 313 and simultaneous registration in Chemistry 312. Continuation of Chemistry 313. W.

330: *Physical Chemistry.* 4¼-3-4. Preq., one of the following courses: Chemistry 205, 220, or 250, also Mathematics 111 and 112, plus either Physics 202 or Physics 210. A course in physical chemistry not requiring calculus. Emphasis is placed on the physical chemistry of living organisms. W.

351: *General Biochemistry.* 4¼-3-4. Preq., Chemistry 102 or 122, plus either Chemistry 220 or 250. The chemistry of biologically important compounds including fats, carbohydrates, proteins, enzymes, vitamins, and hormones. F, Sp.

352: *General Biochemistry.* 4¼-3-4. Preq., Chemistry 351. A continuation of Chemistry 351. W.

381: *Intermediate Organic Chemistry.* 8½-2-4. Preq., Chemistry 252 and 255; coreq., Chemistry 311. A more advanced study of organic syntheses and reaction mechanisms.

401: *Chemical Research.* 4¼-0-1. Preq., Chemistry 250, 252 and 312. Su, F, W, Sp.

402: *Chemical Research.* 8½-0-2. Preq., Chemistry 250, 252 and 312. Su, F, W, Sp.

403: *Chemical Research,* 12¾-0-3. Preq., Chemistry 250, 252 and 312. Su, F, W, Sp.

409: *Advanced Organic Chemistry.* 0-3-3. Preq., Chemistry 252 and 312. A study of theoretical organic chemistry with emphasis on reaction mechanisms. F.

414: *Advanced Organic Chemistry.* 0-3-3. Preq., Chemistry 252 and 312. A study of theoretical organic chemistry with emphasis on chemical bonding.

420: *Chemical Thermodynamics.* 0-3-3. Preq., Chemistry 312. The thermodynamics of gases, solutions, galvanic cells, surface systems, and irreversible processes. An introduction to statistical thermodynamics and the estimation of thermodynamic functions from spectrographic data. W.

423: *Colloid Chemistry.* 0-3-3. Preq., Chemistry 312. The chemistry of organic and inorganic dispersions and physicochemical methods for their study.

424: *Advanced Physical Chemistry.* 0-3-3. Chemistry 312 or Physics 410 and Mathematics 350. A continuation of Chemistry 311-312, including the study of structure of atoms and molecules, and introduction to statistics, and selected topics in modern physical chemistry. F.

458: *Advanced Food Chemistry.* 0-2-2. Preq., Organic Chemistry (including laboratory) and consent of the instructor. Chemistry 351 or 261 recommended. Chemistry of natural food toxicants, mutagenic compounds and food additives.

459: *Advanced Techniques in Food Chemistry.* 4¼-1-2. Preq., Chemistry 205, 255, 458, and 465 are recommended. Detection, isolation and characterization of trace constituents in foods.

465: *Analytical Chemistry.* 8½-2-4. Theory and practice of volumetric, gravimetric, and electrometric methods of analysis. F.

466: *Analytical Chemistry.* 8½-2-4. Preq., Chemistry 312. Theory and practice of optical methods of analysis, advanced electrical techniques, and modern separation methods. Sp.

481: *Advanced Inorganic Chemistry.* 0-3-3. Preq., Chemistry 252, 312. An advanced study of the periodic classification of elements, their reactions, and other inorganic principles. Sp.

501: *Physical Organic Chemistry.* 0-3-3. Preq., Chemistry 409. A study of the mechanisms of reactions and the methods used in their investigation.

502: *Selected Topics in Organic Chemistry.* 0-3-3. Preq., Chemistry 252 and 312. The topics will vary and may include free radicals, carbenes, sterochemistry, pseudoaromatics or natural products.

504: *Chemistry of Heterocylic Compounds.* 0-3-3. Preq., Chemistry 252.

520: *Molecular Spectroscopy.* 0-3-3. Preq., Physics 202 plus Physics 430, Chemistry 252, 312. The relationship between molecular spectra and molecular structure. Use is made of quantum mechanics and group theory.

523: *Special Topics in Physical Chemistry.* 0-3-3. Preq., Chemistry 312. Topics will vary and will include kinetic theory of gases, molecular structure, phase rule, photochemistry, nuclear chemistry, chemical kinetics, or statistical thermodynamics.

524: *Quantum Chemistry.* 0-3-3. Preq., Chemistry 312 or Physics 430. Physical and chemical applications of quantum theory.

553: *Plant Biochemistry.* 0-3-3. Preq., Chemistry 352 or 252. The occurrence, properties, and physiological role of inorganic and organic compounds in plants.

554: *Chemistry of Microorganisms.* 0-3-3. Preq., Chemistry 352 or 252. Composition, metabolism, and nutrition of microorganisms with particular emphasis on antibiotics, microbiological assays and immunology.

555: *Special Topics in Biochemistry.* 0-3-3. Preq., Chemistry 352 or 451.

556: *Protein Chemistry.* 0-3-3. Preq., Chemistry 352 or 252. The chemical nature and physiology of both structural and metabolic proteins; their purification, isolation, synthesis, and identification.

563: *Advanced Analytical Chemistry.* 0-3-3. Preq., Chemistry 465, 466, and 312. Theoretical aspects of the optical, chemical and separation techniques of analytical chemistry.

584: *Chemistry of Coordination Compounds.* 0-3-3. Preq., Chemistry 481. A study of the structure, preparation, and

properties of coordination compounds.

585: *Inorganic Preparations.* 8½-0-2. Preq., Chemistry 481 or concurrent enrollment. A correlation between inorganic principles and theory and laboratory techniques for the preparation of inorganic compounds.

CIVIL ENGINEERING

232: *Geometric Design of Routes.* 4-2-3. Preq., Civil Engineering 254. Theory and computations for horizontal and vertical curves; calculation of earthwork quantities; analysis of earthwork distribution.

250: *Surveying Fundamentals.* 2 Sem. Hrs., meets 9 to 5 daily first 2 weeks, Summer only. (Not open to students who have credit in Civil Engineering 254.) Preq., Mathematics 112. Introduction to surveying principles and use of surveying equipment. Fundamentals of planning and scheduling. Su.

251: *Land Surveying.* 4 Sem. hrs., meets 8 to 5 daily for 4 weeks following Civil Engineering 250. Preq., Civil Engineering 250. Topographical surveys, mapping, traversing, public land surveys, computer methods, construction surveying, practical application problem. Su.

252: *Intermediate Surveying.* 3 Sem. hrs., meets 8 to 5 daily for 3 weeks following Civil Engineering 251, Preq., Civil Engineering 251 or consent of instructor. State plane coordinate systems, legal descriptions, curves and earthwork, practical application problem. Su.

253: *High Precision Surveying.* 3 Sem. hrs., meets 8 to 5 daily for 3 weeks following CE 252. Preq., Civil Engineering 252. Astronomical observations, triangulation and trilateration, EDM methods, precise traversing and leveling, practical application problem. Su.

254: *Plane Surveying.* 8-2-4. Preq., Mathematics 112. Theory, field measurements, and computation, and error analysis associated with land, traverse, and topographic surveys. F, Sp.

255: *Advanced Surveying.* 4-1-2. Preq., Civil Engineering 254. Precise horizontal and vertical control, celestial observations, electronic measurements, state plane coordinate systems.

256: *Computer Methods in Surveying Caluclations.* 3-1-2. Preq., Civil Engineering 254. Programming surveying calculations for the digital computer. Problem oriented languages with emphasis on COGO. Use of smaller office computers.

257: *Practical Surveying.* Three semester hours. Preq., Civil Engineering 254. (Pass-Fail Basis). An on-the-job training program where the student is employed by a registered surveyor for a minimum period of 300 working hours in a program of work approved by the department head.

302: *Engineering Materials.* 4-1-2. Preq., credit or registration in Engineering Mechanics 301. Mechanical behavior of engineering materials, determination of strength and other properties of materials, conventional and true stress-strain, failure mechanisms. W.

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. F. Sp.

310: *Hydrology.* 0-2-2. The occurrence and movement of water on and below the surface of the earth. Precipitation, runoff and stream flow; infiltration and ground water. W.

314: *Environmental Engineering.* 3-3-4. Preq., Civil Engineering 391. Introduction to principles of water and waste water treatment, air pollution and public health engineering. Sp.

324: *Soils and Foundation Engineering.* 4-2-3. Preq., Engineering Mechanics 301 and Geology 317. Introduction to soil mechanics and its application in civil engineering. The exploration and soil testing programs required for the design of various engineering structures. Sp.

332: *Transportation Engineering.* 0-3-3. Preq., Engineering Mechanics 202. Introduction to transportation facilities; urban transportation planning; land, air, and water transportation facilities; future developments in transportation. Sp.

346: *Theory of Simple Structures.* 0-2-2. Preq., Engineering Mechanics 202. Reactions, shears, moments; influence lines, maximum shears, moments due to live loads; dead and live load stresses in simple roof and bridge trusses. Sp.

355: *Selected Topics in Surveying.* 4-1-2. Preq., Civil Engineering 254 or Civil Engineering 251. Advanced topics in surveying applications including hydrographic surveying, offshore surveys and complex construction surveys.

371: *Materials of Construction.* 4-2-3. A study of materials of construction, their properties and use in modern construction with emphasis on codes and specifications. Primarily for students of architecture.

372: *Elementary Structures.* 0-3-3. Theory and practice of the design of structures and roof systems. Primarily for students of architecture.

391: *Hydraulics.* 4-1-2. Preq., Engineering Mechanics 321. Elements of flow in open channels and in pipelines; general fluid mechanics laboratory; fluid measurements; and hydraulic models. W.

400: *City Planning.* 0-3-3. Preq., junior standing. Objectives and main elements of a master plan for an urban community. Special physical, social, legal, economic and administrative problems of villages and metropolitan areas.

413: *Water Resources Design.* 3-2-3. Preq., Civil Engineering 310 and 314. Design of water supply and pollution control facilities.

414: *Public Health Engineering.* 0-3-3. Preq., senior standing. Public health engineering practices. Characteristics of disease, means of transmission and preventive measures through control of the environment.

415: *Water Resources Practices.* 0-3-3. Preq., Civil Engineering 314. Introduction to water resources management, natural man modified resource systems. Water management legislation and introduction to water resources economic analysis.

416: *Hydraulic Facilities Design.* 0-2-2. Preq., Civil Engineering 456. 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.

418: *Water and Wastewater Engineering.* 0-2-2. (Not open to Civil Engineering majors). Introduction to principles of hydrology and of water resource development and management. Elementary engineering aspects of wastewater treatment and of water purification.

424: *Seminar.* 0-1-1. Open to seniors. Opportunity is offered for discussion, reading 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 and Airport Pavements.* 0-3-3. Preq., Civil Engineering 332. Flexible and rigid pavement types. Factors affecting stresses and strains in pavement layers. Design criteria and structural design methods for highway and airport pavements.

433: *Land Surveying.* 0-3-3. Preq., Civil Engineering 254. Legal principles and terms related to the establishment of real property boundaries. Property descriptions and layout, mineral claims.

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. Sp.

439: *Planning and Scheduling Engineering Projects.* 4-2-3. Preq., Senior standing or consent of the instructor. A study of methods used for planning, scheduling, bidding, and controlling projects. Using simulation, students will practice making management decisions by bidding and supervising projects. Su.

440: *Foundation Engineering.* 0-3-3 Preq., Civil Engineering 324 or consent of instructor. Theory and applications in foundation engineering design; application of soil mechanics.

441: *Advanced Geotechnical Engineering Problems.* 0-3-3. Preq., Civil Engineering 324. Theory and applications of site and soil improvements; design and construction of underground facilities; tunneling and tunneling machines.

443: *Analysis of Continuous Structures.* 0-2-2. Preq., Engineering Mechanics 301. Applications of area-moment theorems, slope deflection, moment distribution, limit design theory. F.

444: *Reinforced Concrete.* 0-3-3. Preq., Civil Engineering 346. Principles underlying the design of integral parts of reinforced concrete structures: beams, girders, slabs, columns, retaining walls. Ultimate strength design. W.

446: *Indeterminate Structures.* 0-2-2. Preq., Civil Engineering 346, or consent of instructor. Deflection of structures by virtual work, least work, area-moment methods and

graphically by the Williot-Mohr diagram. Analysis of statically indeterminate structures.

447: *Prestressed Concrete Structures.* 0-3-3. Preq., Civil Engineering 444. Materials and prestressing systems; analysis and design of sections for flexure, shear, bond, and bearing; beam deflections and layout. Continuous beams.

448: *Computer Methods in Structural Analysis.* 0-3-3. Preq., Civil Engineering 443 and basic computer programming or consent of instructor. Introduction to matrices. Matrix formulation of structural analysis problems. Solution of problems using digital and analog computers. Sp.

449: *Computer Methods in Foundation Engineering.* 0-3-3. Preq., Civil Engineering 440. Computer solutions for spread and combined footings, mat foundations, retaining walls and pile foundations.

450: *Special Problems.* 1-4 hours credit. Preq., senior standing and consent of instructor. Planning, organization, and solution of problems in Civil Engineering. Su, F, W, Sp.

456: *Hydraulics of Open Channels.* 0-2-2. Preq., Civil Engineering 391. Basic concepts of open channel flow. Energy and momentum principles. Computation of uniform and nonuniform flow. F.

465: *Structural Design and Theory.* 4-2-3. Preq., Civil Engineering 346. Design of members and connections in metals and timber. F.

471: *Reinforced Concrete Design.* 0-3-3. Preq., Civil Engineering 372. Analysis and design of concrete slabs and structural framing members. Primarily for students in architecture.

472: *Foundation Design.* 0-3-3. Preq., Civil Engineering 471. Design of footings, slabs, caissons and pile foundations. Primarily for students of architecture.

473: *Design of Structures.* 3-2-3. Preq., Civil Engineering 372. Design of elementary structures in timber and steel. Primarily for students of architecture.

501: *Frame Analysis.* 0-3-3. Preq., Civil Engineering 443. Analysis of single story and simple multi-story frames by moment distribution methods, applications of slope deflection methods, study of frames containing variable section members, plastic methods of structural analysis.

502: *Computer Methods of Structural Analysis.* 0-3-3. Preq., Civil Engineering 443 and a basic computer programming course. Introduction to Matrices. Matrix formation of structural analysis problems. Force method and displacement method for trusses, beams and frames. Solution of problems using electronic computers.

503: *Advanced Reinforced Concrete.* 0-3-3. Preq., Civil Engineering 444. Advanced reinforced concrete theory, including such topics as flat slabs, combined stresses, critical study of specifications.

504: *Stress Analysis and Models.* 4-2-3. Preq., Engineering Mechanics 301. Focus on stress-strain relationships, photoelasticity, electrical resistance strain gages, brittle lacquer coatings, dimensional analysis, and loaded and unloaded models.

505: *Plastic Analysis and Design.* 0-3-3. Preq., Civil Engineering 465. Analysis of steel structure behavior beyond the elastic limit. Concept of design for ultimate load and the use of load factors. Analysis and design of component parts of frames. Methods of predicting strength and deformation behavior of structures loaded in the plastic range. Bracing and connecting requirements for frames.

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.

516: *River Hydraulics.* 0-2-2. Preq., Civil Engineering 456. Unsteady open channel flow. Waves and surges. Sediment transport. Flood routing.

525: *Hydrologic Techniques.* 0-2-2. Preq., Civil Engineering 301 or consent of instructor. Frequency analysis to include Pearson Type iii and extreme value distributions. Error estimates associated with application of frequency distributions to hydrologic data. Multiple regression analysis, regional flood analysis and low flow studies. Use of the digital computer as an aid in hydrologic analysis will be emphasized.

526: *Advanced Hydrology.* 0-2-2. Preq., Civil Engineering 310 or consent of instructor. Conceptual hydrograph models. The hydrology of spillway design, study of model water sheds. The hydrologic design of a small reservoir will be a required project.

530: *Water Quality Improvement.* 3-2-3. Preq., Civil Engineering 314 or 418 or consent of instructor. Stream self-purification processes. Pollution abatement methods. Industrial waste surveys. Principles of treatment for domestic and industrial wastewaters.

535: *Water Supply Systems.* 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of water supply, treatment and distribution system.

536: *Wastewater Disposal Systems.* 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of domestic and industrial waste treatment systems.

541: *Advanced Hydraulics Laboratory.* 8-1-3. Experimental research in selected advanced problems in hydraulics with emphasis on correlation and interpretation of observed phenomena, including similitude and prototype relationships.

542: *Hydraulic Engineering.* 0-3-3. Preq., Engineering Mechanics 321 or Civil Engineering 391. Types and classes of pumps. Characteristics and selection of pumps, turbines, pump-pipe systems, including pump curves in parallel and series, and parallel piping systems. Pressure waves and pressure relief systems, cavitation.

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.

CIVIL TECHNOLOGY

102: *Introduction to Engineering Technology.* 3-0-1. An introductory study of the characteristics and "tools" of the field of engineering technology: engineering calculations, visual presentation of data, technical reporting and the fundamental steps of engineering design.

205: *Applied Mechanics.* 0-3-3. Preq., Mathematics 112. A study of the application of the principles of physics: force systems, equilibrim, center of gravity, kinematics, kinetics, work and energy.

210: *Basic Hydraulics.* 4-2-3. Preq., Civil Technology 206. Physical phenomena of hydraulics with application of the fundamental laws and empirical formulae. Pressure forces on submerged areas, buoyancy, flow in closed conduits and open channels and fluid measurements. F.

211: *Water Supply and Wastewater Control.* 4-3-4. Preq., Civil Technology 210. An introduction to the engineering aspects of water supply and distribution and wastewater collection, removal and disposal.

220: *Water Analysis.* 8-1-3. Preq., Chemistry 103 and Bacteriology 210 or 212. A study of laboratory procedures as applied to water analysis for water purification and waste treatment process control.

221: *Wastewater Treatment.* 8-2-4. Preq., Civil Technology 220. An introduction to the elementary engineering aspects of the design, operation, and maintenance of wastewater treatment plants.

222: *Water Purification.* 4-2-3. Preq., Civil Technology 220. An introduction to the elementary engineering aspects of the design, operation and maintenance of water purification plants.

231: *Air Pollution Control.* 0-3-3. Preq., Civil Technology 205. An introduction to the elementary engineering aspects of the design and operation of air pollution control systems.

232: *Solid Waste Disposal.* 0-3-3. Preq., Civil Technology 205. A study of the procedures, equipment and systems for collection and disposal of solid wastes.

341: *Construction Equipment and Methods.* 0-3-3. Construction procedures and equipment, selection and efficient use of equipment. Sp.

343: *Construction Management.* 0-3-3. A study of all aspects of construction management which contribute directly to the successful accomplishment of a project. Organization, planning and scheduling, with emphasis on CPM and PERT.

432: *Estimating.* 0-3-3. Preq., Civil Technology 341 and 343. Material takeoff from blueprints and specifications. Detailed labor and material estimates for various types of construction. Preparation of bids for construction contracts.

COMPUTER SCIENCE

102: *Introduction to Computing Laboratory.* 0-3-3. Programming in higher level languages with emphasis on numerical algorithms using the FORTRAN language. Su, F.

104: *Introduction to Computing Laboratory.* 0-2-2. Programming in a higher level language (COBOL) with

emphasis on non-numerical algorithms. Su, W.

106: *Introduction to Computing Laboratory.* 3-0-1. Preq., Computer Science 102 or consent of instructor. Programming in higher level languages with emphasis on numerical and non-numerical algorithms using the PL/I language. Sp.

190: *FORTRAN IV Programming.* 0-1-1. Computer programming using the FORTRAN (FORmula TRANslator) compiler language. Designed to provide a comprehensive background in scientific oriented programming.

191: *COBOL Programming.* 0-1-1. Computer programming using the COBOL (COmmon Business Orientated Language) compiler language. Designed to provide a comprehensive background in business oriented programming.

192: *PL/1 Programming.* 0-1-1. Computer programming using the PL/1 (Programming Language-1) compiler language. Designed to provide a comprehensive background in a language that combines some of the features of both FORTRAN and COBOL languages.

193: *Assembly Programming.* 0-1-1. Computer programming using the IBM 360-370 assembly language code. Designed to provide a comprehensive background in assembly language coding for the IBM 360/370 computers.

194: *Simulation Programming.* 0-1-1. Computer programming using the simulation language of G.P.S.S. (General Purpose Simulation System). Designed to provide a comprehensive background in using the computer to simulate real systems.

201: *Information Processing.* 0-2-2. Preq., Computer Science 102, 104 and 106. Principles and application of digital computers in solution of data reduction, information retrieval, and large scale data processing problems. F.

206: *Introduction to Computing Laboratory.* 3-0-1. Preq., Computer Science 102. Functional characteristics of digital computer and assembly language. W.

214: *Systems Programming.* 0-3-3. Preq., Computer Science 201 and 206. Assembly systems with macro facilities, program segmentation and linkage considerations, system data management services, program design and debugging facilities. Sp.

303: *Introduction to Discrete Structures.* 0-2-2. Preq., Computer Science 214 and Mathematics 308. Topics from mathematical logic that relate to Computer Science, introduction to combinatorics and graph theory; turing machines and Markov algorithms. F.

424: *Seminar.* 0-1-1. Preq., senior standing in Computer Science. Preparation and presentation of reports on projects and topics relating to Computer Science. Sp.

450: *Information Structures.* 0-3-3. Preq., Computer Science 214 and 303, or consent of the instructor. Relations between data, storage media and processing systems; storage allocation; list structures; ordering techniques. W.

451: *Language and Compilers.* 0-3-3. Preq., Computer Science 214 and 303, or consent of instructor. Formal definition of programming languages; assembler and compiler theory; run-time representation of program and data structures. F.

452: *Systems: Hardware.* 0-3-3. Preq., Computer Science 214 and 303, or consent of instructor. Digital computer system architecture; microprogramming concepts; individual design and simulation of a simple computer. Sp.

453: *Systems: Software.* 0-3-3. Preq., Computer Science 450, 451, and 452 or consent of instructor. Systems programs; components, characteristics, limitations, I/O processing; interrupts; multiprogramming, multiprocessing configurations; systems control. W.

460: *Computer Systems Engineering.* 0-3-3. Preq., Computer Science 453, or consent of instructor. Interaction of hardware, software and personnel in computing systems; evaluation of system components; information processing systems engineering. Sp.

461: *Data Base Systems.* 0-2-2. Preq., Computer Science 450 or consent of instructor. Concepts of data design; efficient file organization; maintenance, and processing; implementation of a simple data base. F.

462: *Problem Oriented Languages.* 0-2-2. Preq., Computer Science 451 or consent of instructor. Principles of design of languages oriented to solution of a particular class of problems; design and implementation of a simple language. W.

490: *Applied Computing Project.* 0-1-1-(3). Preq., junior standing in Computer Science or equivalent. Independent investigation of a problem in computing. F, Sp.

501: *Real-Time Computer Systems.* 0-3-3. Preq., Computer Science 453, or consent of instructor. Survey of realtime computer applications and software.

503: *Data Processing Systems.* 0-3-3. Preq., consent of instructor. Design of integrated data processing systems for industrial systems; problems of multiple-remote-input, on-line data processing systems.

504: *Automated Systems.* 0-3-3. Preq., consent of instructor. Theory of automation; automated systems; digital control of production facilities; cost analysis and feasibility studies; impact of automation on industry.

511: *Design and Construction of Compilers.* 0-3-3. Preq., Computer Science 451, or consent of instructor. Formal description of programming language translation; syntax recognition; parsing and code generation; specification and implementation of a simple language.

521: *Computer Systems Organization.* 0-3-3. Preq., Computer Science 452 or consent of instructor. Realization of recent development in computer systems design; multi-processor and highly parallel organizations; input/output devices.

531: *Systems Programming.* 0-3-3. Preq., Computer Science 521 or consent of instructor. Programmed control of resource allocation and scheduling; device and data control, multiprogrammed and multiprocessor configurations.

550: *Special Problems.* 1-4 semester hour credit. Individual research and investigation of a problem in computer science or computing practice.

COUNSELING

400: *Introduction to Counseling.* 0-3-3. Introductory course for professional workers. Includes purposes and scope of counseling service, concepts, principles and basic techniques of counseling. F, Sp.

500: *Principles and Administration of Guidance Services.* 0-3-3. A study of current practices in the development, organization, administration, and supervision of the various types of guidance services.

505: *Analysis of the Individual.* 3-2-3. Preq., Psychology 300 or equivalent. This course is designed to offer the student an orientation to psychological testing procedures, their evaluation, and use in the analysis of students.

508: *Introduction to Counseling Theories.* 0-3-3. A detailed study of the best known schools of counseling theory, implemented by case studies in educational and vocational counseling.

513: *Education and Occupational Information.* 0-3-3. A study of the sources and the uses of educational and occupational information in the counseling program.

514: *Career Education: Vocational Guidance.* 0-3-3. A critical examination of sources of information to determine labor trends and employment requirements.

515: *Career Education: Orientation of the World of Work.* 0-3-3. A study of the nature, scope and rationale for occupational information in the elementary school.

516: *An Introduction To Group Processes.* 0-3-3. A course designed to acquaint the students with group and to lay foundations for leadership roles in human problem solving.

518: *Techniques of Counseling.* 3-2-3. Preq., Counseling 508. Provides lab experience in counseling and interview analysis. Lab experiences shall include techniques appropriate to the varied counseling theories.

519: *Advanced Theories in Counseling.* 0-3-3. Preq., Counseling 508. Further analysis of theories of counseling as is evidenced by a review of current counseling literature.

520: *Case Studies in Counseling.* 1-3 hours credit. Preq., Counseling 508. Preparation of individual counseling research and case studies to be used in reviewing, analyzing, and evaluating applications of counseling theory.

521: *Seminar: Current Psychological Literature.* 1-3 hours credit. Students are required to do extensive reading on selected topics in the areas of employment, vocational, and rehabilitation counseling or selected areas of psychology.

522: *Field Work in Counseling.* 8-0-3. For non-school counselors. Study, observation, and practice in selected employment settings; integration of theory and practice through supervision of experience, seminars, and individual conferences. May be repeated for credit.

523: *Elementary School Guidance.* 0-3-3. A review of the principles and organizational patterns of guidance services at the elementary school level.

526: *Problems in Guidance.* 5-1-3. Special conferences, workshops, and seminars as requested by elementary and secondary school personnel. May be repeated for a maximum of 6 hours credit.

527: *Addiction Counseling.* 0-3-3. An introduction to the field of Addiction Counseling. Emphasis is placed on recognition and identification of the addicted as well as basic treatment techniques.
528: *Advanced Addiction Counseling.* 3-2-3. Preq., Counseling 527. A methods course intended to equip the student with a basic conception of various therapeutic modalities.
530: *Practicum.* 5-1-3. Open only by invitation. Supervised professional activity in the student's major field.

DAIRYING

301: *Testing Dairy Products.* 3-2-3. Preq., Animal Science 102. A chemical and bacterial test of milk and milk products. W.
310: *Market Milk.* 3-2-3. Preq., Animal Science 102 and Bacteriology 210. The sanitary production, transportation, processing, distribution, and public health inspection of milk and related products. Sp.
318: *Ice Cream.* 3-2-3. Preq., Dairying 310. The manufacture of ice cream and frozen dairy products. Sp, even.
322: *Butter and Cheese.* 6-1-3. Manufacture of butter and various types of cheese. Defects, packaging, and merchandising of butter and cheese. Su, even.
430: *Dairy Plant Management.* 6-1-3. The management problems of dairy processing and manufacturing plants. W, even.

ECONOMICS

100: *Current Economic Issues.* 0-3-3. A review of a set of issues that lends itself to learning economics. In presenting each issue economic concepts basic to the analysis of that issue are introduced, explained and applied. W, Sp.
200: *American Industrial Development.* 0-3-3. Impact of the development of the economy of the United States upon present life. Su, F, W, Sp.
201-202: *Economic Principles and Problems.* 0-3-3 each. (Not open to students who have had Economics 203-204-205.) A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system.
203-204-205: *Economic Principles and Problems.* 0-2-2. (Not open to students who have had Economics 201-202.) A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. Su, F, W, Sp, each.
312: *Monetary Economics.* 0-3-3. Preq., Economics 202, 205, or 315. A study of the causes of changes in the supply of money and rate of spending and the effects of these changes on production, employment and the price level. Su, F, W, Sp.
315: *Fundamentals of Economics.* 0-3-3. (Not open to students who have had Economics 203-204-205 or 201-202.) A survey of the major principles of economics designed for the student whose curriculum requires only one quarter of economic principles. Su, F, W, Sp.
320: *Principles of Agricultural Economics.* 0-3-3. Preq., Economics 204 or 315. Economic theory with applications to production, marketing, and financing in agribusiness. Institutions such as cooperatives, farm credit systems, foreign agricultural trade, and government will be emphasized. Sp.
330: *World Economic Resources.* 0-3-3. Preq., Economics 202 or 204 or 315. A study of the economic resources involved in the various regions of the world, including extractive, manufacturing, service industries. Sp.
344: *International Economics.* 0-3-3. Preq., Economics 204 or 315 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. F.
401: *History of Economic Thought.* 0-3-3. Preq., Economics 205 or 202 or 315. Introduction to theorists who have contributed to the understanding of economic principles. F.
402: *Economics of Farm Management.* 0-3-3. Economics principles applied to individual farm organization and management and study of farm accounting systems. F.
406: *Comparative Economic Systems.* 0-3-3. Preq., Economics 202 or 205 or 315. A study of alternative economic systems such as capitalism, socialism, communism, and "mixed" in theory and practice. W.
408: *Intermediate Economic Theory.* 0-3-3. Preq., Economics 202 or 204 or 315, or consent of instructor. Microeconomics; intensive study of price, production, and distribution theories. Su, W.
409: *Managerial Economic Analysis.* 0-3-3. Preq., senior standing or consent of instructor. Lectures and cases emphasizing economic principles as used in managerial decision-making. Includes analysis of demand, cost and price relationships, price decisions, risk and uncertainty, and capital investment. F, Sp.
410: *Public Finance.* 0-3-3. Preq., Economics 205 or 202 or 315. An introduction to the principles and theory of financing local, state, and federal governments. W.
411: *Mathematical Economics.* 0-3-3. Preq., Mathematics 222 or Economics 408. Application of mathematical techniques to economic problems of price and output determination, input utilization, and national income. F.
418: *Labor Economics.* 0-3-3. Preq., Economics 203 and 204 or 315 or consent of the instructor. Fundamentals of labor market operations, economic analysis of labor legislation; impact of American unions upon the firm's decision making and the national economy. F, Sp.
419: *Collective Bargaining.* 0-3-3. Preq., Economics 203 and 204 or 315 or consent of instructor. History of American labor union movement; collective bargaining, labor-management problems, and government and labor relations. Considerable emphasis is given to case studies. Su, W.
430: *Principles and Practices of Agricultural Marketing.* 0-3-3. Methods and channels of agricultural marketing; marketing principles; governmental action concerned with the marketing process; analysis and evaluation of marketing problems. W.
437: *Aggregate Economic Analysis.* 0-3-3. Preq., Economics 312. Macro-economics; intensive study of economic theory of national income analysis, economic growth, interest, employment, and fiscal policy. F, Sp.
446: *Transportation.* 0-3-3. (Same as Management 446.) Development of domestic transportation systems, rate theory and rate-making practices; principles and practices of transport regulation by governmental agencies. F.
448: *Economic Development.* 0-3-3. Preq., Economics 204 or 315. Analysis of the theories and problems of economics development. Sp.
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. F.
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. Su, W.
510: *Managerial Economics.* 0-3-3. Analysis and cases; actual case studies in the application of price and distribution theory to problems of the firm.
512: *Current Economic Policies.* 0-3-3. An investigation of modern economic concepts in the United States through a study of policies advanced by various economic groups tending to shape economic action.
513: *Macroeconomic Theory I.* 0-3-3. Preq., Economics 437 or other acceptable background course(s). Analysis of monetary factors and government revenue-expenditure factors affecting the general level of prices, investment decisions, interest rates, national income, and employment.
514: *Macroeconomic Theory II.* 0-3-3. Preq., Economics 437 or 513 or other acceptable equivalent course(s). Application of contemporary theory and technique to the analysis of domestic and international problems relating to production, exchange, stability, and growth.
520: *Theory of Value & Market Structures.* 0-3-3. Preq., Economics 408 or other acceptable course(s). A microeconomic course covering an analysis of economic principles underlying consumer demand, theoretical production and cost functions, and the behavior of firms in theoretical market structures.
521: *Factor Pricing and Resource Allocation Theory.* 0-3-3. Preq., Economics 409 or 520 or other acceptable course(s). A microeconomic course covering an analysis of theoretical concepts and models which identify economic principles and forces influencing factor income and resource allocation.
522: *Welfare Theory.* 0-3-3. Preq., Economic 408 or equivalent. Definition of welfare criteria and their application to appraisal of current and proposed economic programs influencing resource allocation, income distribution, and economic development.
524: *Advanced History of Economic Thought.* 0-3-3. Preq., Economics 401 or other acceptable course(s). Critical anaylsis of ideas of great economists, factors which in-

fluenced those ideas, their impact upon social and economic development of the modern world.

526: *Regional and Urban Economics.* 0-3-3. Preq., Economics 408 and 437 or other acceptable courses. An analysis of economic development theory and its application, including population characteristics, income and social accounting, inter-area trade analysis, industrial location, and related public policy.

532: *Econometric Methods.* 0-3-3. (Same as Quantitative Analysis 532). Preq., Quantitative Analysis 432 or other acceptable courses. An investigation of the role and use of statistical techniques in economic research including estimation and interpretation of parameters of micro and macro economic models. Attention will be given to the problems of economic measurement using statistical techniques, model specification, identification and to problems of aggregation.

536: *Theory and History of Comparative Labor Movements.* 0-3-3. Preq., Economics 418 desirable. Designed to trace the origin, objectives, and development of comparative labor movements. Theories of Hoxie, Perlman, the Webbs, and others stressed.

537: *Theory of Wages and Employment.* 0-3-3. Designed to study the wage-employment decision of the firm, the significance of unionism on wage determination, and contemporary theories of wage determination.

538: *Seminar on Manpower Policy and Programs.* 0-3-3. Analysis of the development, operation, problems, and future of public and private manpower programs in the economy; including a survey of manpower oriented legislation.

EDUCATION

101: *Orientation.* 0-1-1. Basic rules, policies, history, and organization of the University with special application to education. Su, F. W, Sp.

102: *Reading Skills for College Freshmen.* 9-0-3-(9). The course provides individually prescribed instruction in reading skills for college freshmen. The course objective is to help alleviate reading deficiencies which inhibit effective learning. Non-degree credit. F.

103: *Specific Diagnosis of Individual Learning Deficiencies.* 9-0-3. The course provides individual diagnosis of both reading and speech deficiencies. (Open only to Special Services Project Students.) Non-degree credit.

200: *Introduction to Education.* 0-3-3. A study of American and Louisiana systems to give the future teacher an understanding of the problems, requirements, and opportunities of the profession. Su, F, W, Sp.

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.

300: *Driver Education and Highway Safety.* 0-3-3. Investigation of the problems facing drivers, traffic design problems, and the study of the philosophy of driver education. F.

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.

306: *Secondary School Curriculum.* 0-3-3. Preq., Psychology 204. A study will be made of the secondary curriculum and the work of the secondary teacher. Su, F, W, Sp.

320: *Methods and Materials for Elementary Science and Social Studies.* 0-3-3. Preq., Psychology 204. A course for the study of curriculum, organization and teaching in elementary science and elementary social studies. Su, F, W, Sp.

322: *Materials and Methods of Teaching Mathematics In Elementary Schools.* 0-3-3. Preq., Psychology 204. An examination of the characteristics and objectivies of the modern elementary mathematics program combined with experiences in content, methods, and organizations. Su, F, W, Sp.

323: *Materials and Methods in Language Arts for the Elementary Schools.* 0-2-2. Preq., Psychology 204. A course to enable students to use current principles, research, methods and materials to teach oral and written communication skills. Su, F, W, Sp.

324: *Methods and Materials in Teaching Reading in Elementary Schools.* 0-3-3. Preq., Psychology 204. Principles, methods, and research pertaining to the teaching of reading will be emphasized. Su, F, W, Sp.

350: *Materials and Methods in Teaching English.* 0-3-3. Preq., Education 306. The student will be introduced to the best techniques of organizing and presenting English material. W.

351: *Materials and Methods in Teaching Modern Language.* 0-3-3. Preq., 12 hours of modern languages and Education 306. The student will be introduced to the latest techniques of organizing materials and presenting them to high school pupils. W.

352: *Materials and Methods in Teaching Science.* 0-3-3. Preq., Education 306. A careful examination of the most advanced methods of organizing and presenting materials in sciences for the secondary school. W.

353: *Materials and Methods in Teaching Social Studies.* 0-3-3. Preq., Education 306. An examination of the character and purpose of social studies is followed by presentation of appropriate teaching suggestions. W.

354: *Materials and Methods in Teaching Speech.* 0-3-3. Preq., Education 306. An examination of materials and methods for teaching speech in elementary and secondary schools. W.

355: *Materials and Methods in Speech, Language and Hearing in the Public Schools.* 0-3-3. Practical problems in the identification, diagnosis, and treatment of communication disorders in school children, with emphasis on materials, organization of therapy program and teaching procedures.

356: *Materials and Methods in Teaching Mathematics.* 0-3-3. Preq., Education 306 and Mathematics 230. The nature of mathematics and methods of teaching. Special emphasis will be placed on the interpretation and solving of reading problems. W.

357: *Materials and Methods in Teaching Health and Physical Education.* 5-2-4. Preq., Education 306. To introduce students to the latest materials and methods used in teaching health and physical education. F, W, Sp.

360: *Materials and Methods in Teaching Art.* 0-3-3. Preq., Education 306. The planning of a course of art and the methods of presentation of such a course in the elementary and high schools. W.

390: *Audio-Visual Lab.* 1¼-1-1. Preq., Education 306 or 320 and 90 semester hours. A course to instruct the prospective teacher in the operation of various types of audio-visual equipment. Su, F, W, Sp. (Pass-Fail)

400: *Audio-Visual Methods of Teaching.* 1-3-3. To acquaint teachers with the interrelated uses of audio-visual materials and techniques, including laboratory experience. (Additional credit may not be earned in Education 390.) Su, F, W, Sp.

402: *Measurement in Education.* 0-2-2. Preq., Education 305 or 320. Includes principles of measurement, construction and utilization of teacher-made and standardized tests. Shall be taken prior to or concurrently with student teaching. Su, F, Sp.

403: *Materials and Methods of Teaching Reading in the Secondary School.* 0-3-3. Deals with problems of teaching reading in the secondary school. Includes emphasis on remedial and developmental reading as well as reading instruction in content areas. Su, F, W, Sp.

406: *Education Innovations in the Current and Emerging Schools.* 0-3-3. Study of educational innovations and their implications. Topics include nongraded schools, team teaching, educational television, and flexible scheduling. W.

409: *Materials and Methods in Teaching Business Education.* 2 to 3 semester hours. Preq., Office Administration 307, Accounting 310, Quantitative Analysis 220. A course designed to acquaint the student with the best practices in teaching commercial subjects. W.

410: *Business and Office Operations.* 0-3-3. Methods and procedures in developing and coordinating a cooperative office education program in the secondary school. F.

411: *Distributive Education.* 0-2-2. Methods and instructional materials used in teaching distributive occupations, procedures in development lesson plans, student activities and projects. F.

415: *Observation and Participation Experiences in Education.* 3-1-1. Preq., Education 306 or 320 and a 2.0 overall average; to be scheduled immediately preceding Education 416. Directed observation, participation and seminar related to the area in which the student plans to student teach. Su, F, W, Sp.

416: *Student Teaching.* 30-2-7. Preq., Education 415 and meet all qualifications listed for student teaching in this catalog.

Student teacher receives supervised experiences in observing, planning, directing and evaluating experiences of pupils leading to total responsibility for the instructional program in a classroom. F, W, Sp.

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. Su, F, W, Sp. (Pass-Fail).

426: *Improving Instruction in Music.* 0-3-3. Preq., senior standing. Analysis of varied materials, methods and techniques; titles available from different publishers, rental libraries, and the State Department of Education; attention to evaluation and selection for different levels of attainment. Su, Sp.

428-429: *Improving Instruction in Music.* One semester hour each.

—428: Clinics and observations in conjunction with the Summer Music Camp, two weeks; chorus, band, woodwind, strings, according to interest. Su.

—429: Discussions, observation, and participation in the Tech Opera Workshops two weeks. Su.

431: *School Readiness.* 0-3-3. Preq., Psychology 204. Designed to acquaint the student with the appropriate theory, understanding, and methods necessary for successful school achievement. Particular emphasis will be on readiness in Language Arts. F, Sp.

432: *Kindergarten Education.* 0-3-3. Preq., Psychology 204. Course will involve readings as background for a study of the development of kindergarten education and curriculum planning based on principles of child development. Su, W.

433: *Special Problems in School Curriculum.* 0-3-3-(9). Preq., consent of the instructor. This course is designed to deal with selected problems in elementary and secondary schools. Su, F, W, Sp.

441: *Methods of Teaching Kindergarten Children.* 0-3-3. Preq., Psychology 205, Library Science 201, and Education 432. Practical problems in the selection and organization of the curriculum to promote the child's learning. Emphasis on planning, selecting equipment, teaching aids, and teaching procedures. F, Sp.

445: *Materials and Methods of Teaching Data Processing.* 0-3-3. A course to introduce the student to the use of data processing machines, with particular emphasis on teaching the subject at the secondary school level. Su.

446: *Instructional Classroom Materials.* 0-3-3. Designed to acquaint teachers with the selection, preparation, utilization and evaluation of audio-visual instructional materials. Su, W.

450: *Improving Instruction in Art.* 0-3-3. Problems of teaching art in elementary and junior high school with emphasis upon philosophy, art materials and techniques, evaluation and curriculum planning. Su, even.

452: *Administration of Instructional Materials Centers.* 0-3-3. Techniques organization, management and selection of printed and non-book materials in multi-media instructional materials centers. Su, even.

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. F.

465: *Materials and Methods of Teaching Vocal Music.* 0-3-3. Examines problems which confront the secondary teacher and supervisor of vocal music; e.g., program building, contests, festivals, requisitions, grading, materials, scheduling, and rehearsing. Sp.

466: *Materials and Methods of Teaching Instrumental Music.* 0-3-3. See Education 465 for description; emphasis on the instrumental aspects. Sp.

485: *Child Study.* 0-3-3. Emphasis is placed on observing the dynamic interrelations between all processes in the behavior and the development of an individual. F.

486: *Child Study.* 0-3-3. A continuation of Education 485.

487: *Child Study Leadership.* 0-3-3. Offers apprenticeship in training persons to become staff members in human development workshops and consultants to Child Study Field Programs. Sp.

490: *Adult Education.* 0-3-3. The role of the public school in adult basic education; teaching techniques, testing and evaluation, and methods of structuring adult education classes. F.

495: *Methods and Materials in Teaching Aerospace Education.* 0-3-3. The course is designed to familiarize students with the contribution that aerospace education can make in the development of the school curriculum. Su.

496: *Elementary Aerospace Education.* 0-3-3. Designed to assist the elementary teacher in applying Aerospace Education concepts and materials in the regular school curriculum.

500: *Foundations of Curriculum Construction.* 0-3-3. A study of principles of curriculum construction in elementary and secondary schools. Major emphasis is upon the selection, organization, and sequential arrangement of materials to meet the needs of children and youth.

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.

510: *The Principalship.* 0-3-3. The responsibilities of the principal in elementary and secondary schools. Emphasis will be placed on the educational program, staff personnel relationship, and pupil personnel activities.

511: *Improving Instruction in Speech.* 0-3-3. A course designed to extend the student's knowledge and experience in the area of speech which he/she has chosen to pursue. The student will concentrate his/her work in one of the following areas: speech therapy, audiology, public address, speech science, drama, interpretation, or broadcasting.

512: *Philosophy of Education.* 0-3-3. Designed to trace some of the more important educational problems as they have been affected by social and political facts of history, by contributions of leading educational theorists and by institutional practice. (Not open to students who have credit in Education 516).

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.

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.

524: *Supervision of Student Teaching.* 0-3-3. Designed for experienced teachers who are interested in serving as supervising teachers in teacher-education programs. Not open to students who have credit in Education 515.

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: *Educational Supervision.* 0-3-3. Designed to aid those individuals who have responsibility for assisting teachers in the improvement of instruction at both elementary and secondary levels. (Not open to students who have credit in Education 515).

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.

533: *Problems in Education.* 0-3-3-(9). Preq., consent of the instructor. An advanced course dealing with special problems in the different fields of education.

534: *Diagnosis and Evaluation of Reading Difficulties.* 0-3-3. Preq., Education 503. Causes, diagnosis, evaluation and correction of reading disabilities.

535: *Clinical Reading.* 7-1-3. Preq., Education 534. Clinical experience in diagnosing reading problems of school children.

536: *Clinical Reading.* 7-1-3. Preq., Education 535. Practicum in remedial reading for school children.

537: *Seminar, Problems in Reading.* 0-3-3. Preq., consent of instructor. Recent issues, theories, studies and research findings in teaching reading.

538: *Supervision and Curriculum Development in Reading.* 0-3-3. Construction of an innovative curriculum in reading, plans for implementation of new curriculum, and supervision of the reading program.

539: *Advanced Laboratory Practicum in Reading.* 7-1-3. Supervised internship in reading.

540: *Comparative Education.* 0-3-3. A study of the educational systems in Europe, the Orient, and South America.

541: *Introduction to Graduate Study and Research.* 0-3-3. Experience is gained in the application of techniques of educational research, in writing in acceptable form, and in evaluating research. Required of all master's candidates in education and should be scheduled during the first six hours of graduate work. (Not open to students who have credit in Education 551.)

542: *Statistical Methods in Education.* 0-3-3. A study of the statistical methods used by school personnel in the study of educational problems.

543: *Adjudication of Instrumental Ensembles.* 0-2-2. This course examines in detail a philosophy of the phenomenon of adjudication. It includes practical aspects of evaluation.

545: *The New Media in Education.* 2-2-3. A study of the uses of television, teaching machines, programmed materials, overhead projectors, loop films, and other new teaching aids with some practical experience in the use of these educational aids.

548: *Improving Instruction in Shorthand, Typewriting, and Clerical Office Practice.* 0-3-3. A study of the methods used in teaching beginning and advanced shorthand, typewriting, and clerical office practice; evaluation of instructional materials; development of original materials in accordance with teaching procedures recommended by authorities in the field; special consideration of teaching problems. (Not open to students who have credit in Education 505).

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. (Not open to students who have credit in Education 505.)

551: *Research and Thesis.* Three hours or multiples thereof. Maximum credit allowed is six hours.

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.

564: *The Reading Process.* 0-3-3. An analysis of the physiological, psychological, and neurological foundations of the reading process.

570: *Field Problem and Internship.* 0-3-3. Preq., approval of the Head of the Department of Office Administration and Business Education. The provision of supervised professional activities in business education directed by the business education faculty. Selection of one major area of business education for intensive study in terms of methods, materials, research, and curricular problems.

571: *Research and Readings in Business Education.* 0-3-3. Preq., a graduate level research course covering descriptive, historical, experimental and other established methods and techniques of study and approval of the Head of the Department of Office Administration and Business Education. An analysis of literature in business education; trends and recent developments in this field; particular attention to problems related to the student's individual needs or interests.

580: *Specialist and Research. Thesis.* Three hours credit or multiples thereof. Maximum credit allowed is six hours.

ELECTRICAL ENGINEERING

202: *Electrical Circuits.* 0-3-3. Preq., credit or registration in Mathematics 231. Fundamental electrical concepts and units. Basic laws of electrical circuits. Equivalent circuits. Power and energy in resistive networks.

203: *Digital Computer Programming.* 3-1-2. Preq., Mathematics 111. The use of the digital computer for the solution of engineering problems. Su, F, W, Sp.

204: *Electrical Circuits.* 0-2-2. Preq., Electrical Engineering 202 and credit or registration in Mathematics 232. Time response of R-L, R-C, and R-L-C circuits. Response of networks to steady-state sinusoidal sources. Complex numbers, phasors, and impedances. Power and RMS values. Network theorems.

205: *Electrical Circuits Laboratory.* 3-0-1. Preq., credit or registration in Electrical Engineering 202. An introduction to methods, instruments and devices for measurements in electrical networks.

213: *Electrical Circuits.* 3-2-3.Preq., Math 231 and Physics 202. Fundamental electrical concepts and units. Basic laws of electric circuits. Equivalent circuits. A.C. circuit analysis. Average power and effective current. Su, F, W, Sp.

214: *Electrical Circuits.* 0-3-3. Preq., Electrical Engineering 202 and credit or registration in Mathematics 232. Circuit Theorems. Topology. Loop and Nodal analysis. Equivalent circuits and parameters. Transients. Complex power. Polyphase circuit analysis. Su. F, W, Sp.

301: *Introduction to Electric and Magnetic Fields.* 0-2-2. Preq., Electrical Engineering 214 and Physics 202. Electric and magnetic fields. Capacitors and electromagnetic concepts and units. The magnetic circuit. Electromagnetic induction and forces. Su, F, W.

302: *Electrical Circuits.* 0-2-2. Preq., Electrical Engineering 214 and credit or registration in Mathematics 330. A study of resonant circuits. Graphical techniques. Coupled circuits and transformers. Polyphase circuits. F, Sp.

303: *Electrical Circuits Laboratory.* 3-0-1. Preq., Electrical Engineering 214 and credit or registration in Electrical Engineering 302. Measurements of voltage, current and power in single-phase and polyphase networks having alternating current sources. F, Sp.

308: *Electrical Machinery.* 0-3-3. Preq., Electrical Engineering 214 and 301. Electromagnetic energy storage and conversion. Principles of electromechanical energy conversion. Power transformers. Analysis of rotating machines. F, W.

309: *Electrical Machinery Laboratory.* 3-0-1. Preq., Electrical Engineering 303 and credit or registration in Electrical Engineering 308. Laboratory testing of basic electromechanical devices and machines. F, W.

313: *Electrical Circuits.* 0-2-2. Preq., Electrical Engineering 302 and credit or registration in Mathematics 350. A study of nonlinear elements. Fourier Analysis. Fourier transforms. Laplace transforms and convolution. Two-port networks. F. W.

315: *Electronics.* 3-3-4. Preq., Physics 202 or 210. Basic electronic circuits for electrical measurement and modern scientific instrumentation. Characteristics and use of test equipment. Amplifier circuits. Timing and counting.

323: *Electrical Systems.* 3-2-3. Preq., Physics 202 and credit or registration in Mathematics 231. Direct-current circuits. Network theorems. Magnetic circuits. Transients. Alternating voltage, current, and power. Alternating current circuits. Polyphase systems. Instruments and measurements.

324: *Electrical Machinery.* 3-2-3. Preq., Electrical Engineering 213. A study of direct-current and alternating-current machines. Generators, motors, and transformers. Analysis of the operating characteristics of machines. F, Sp.

325: *Industrial Electronics.* 0-3-3. Preq., Electrical

Engineering 213. Basic semiconductor theory. Diodes and power supplies. Amplifiers and oscillators. Analysis of electronic circuits for measurement and control. Applications. Su, W, Sp.

326: *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 buildings. Su, W.

353: *Electronics.* 0-3-3. Preq., Electrical Engineering 214. Basic semiconductor theory. Diodes and power supplies. Amplifiers and oscillators. Analysis of electronic circuits for measurement and control. Applications. Su, W, Sp.

354: *Electronics.* 0-3-3. Preq., Electrical Engineering 353. Thermionic devices. Frequency characteristics of electronic amplifiers. Multistage amplifiers. Feedback and stability. Tuned amplifiers. Power amplifiers. W, Sp.

355: *Electronics Laboratory.* 3-0-1. Preq., Electrical Engineering 303 and credit or registration in Electrical Engineering 354. Laboratory work with basic electronic circuits. W, Sp.

400: *Special Problems.* 0-3-3. Preq., senior standing. Electrical engineering problems designed to meet the student's need and to promote initiative and self-reliance. Su, F, W, Sp.

401: *Electric and Magnetic Fields.* 0-3-3. Preq., Electrical Engineering 301 and Mathematics 350. Static and dynamic electromagnetic fields. Currents. Vector analysis. Maxwell's equations. W, Sp.

402: *Design of Electrical Devices.* 0-2-2. Preq., Electrical Engineering 301 and 354. Problems of analysis and design of selected components and devices involving electric, magnetic, mechanical and thermal phenomena.

403: *Electronics Laboratory.* 3-0-1. Preq., credit or registration in Electrical Engineering 353. Closely supervised laboratory study of electronic circuits. Opportunity for individual investigation and construction of electronic apparatus. F, Sp.

404: *Electronics Laboratory.* 3-0-1. Preq., Electrical Engineering 353. Continuation of Electrical Engineering 403. Su, W.

408: *Linear Systems.* 0-2-2. Preq., Electrical Engineering 302 or consent of the instructor. An introduction to the theory of linear systems. Time domain analysis and state-variable methods. F.

409: *Linear Systems.* 0-2-2. Preq., Electrical Engineering 408 or permission of the instructor. Stability theory, periodic systems, macroscopic system theory and transform analysis. W.

410: *Nonlinear Analysis.* 0-2-2. Preq., Electrical Engineering 432 or permission of the instructor. Basic principles of nonlinear analysis. Series approximation methods for small nonlinearities. Graphical analysis. Phase plane methods.

416: *Illumination.* 0-2-2. Preq., Electrical Engineering 214 and Mathematics 231. Requirements and production of modern lighting systems. Design of commercial, industrial, school, residence, and special lighting systems.

420: *Modulation Systems.* 0-3-3. Preq., Electrical Engineering 354. Application of Fourier theory to communication systems. Analog and digital modulation and demodulation systems. Signal comparison. Multiplexing. F.

421: *Power Circuit Analysis.* 0-2-2. Preq., Electrical Engineering 302 or consent of the instructor. Single-phase and three-phase power circuits. Sources and loads, balanced and unbalanced. Distribution circuits and transformer connections. Pre-unit representation. Power transfer equation. Control of watts and vars. F.

424: *Seminar.* 0-1-1. Preq., senior standing. Promotion and interest in the exchange of ideas through discussion, informal talks, and debate on contemporary thought and trends. Su, F, W, Sp.

426: *Electrical Transmission.* 0-3-3. Preq., Electrical Engineering 302 and Mathematics 350 or consent of the instructor. Distributed transmission line parameters single-phase and three-phase. Current and voltage on long lines. Lossy and lossless lines. Impedance matching and graphical solutions. Generalized circuit constants. W.

427: *Power Systems.* 0-2-2. Preq. Electrical Engineering 308 or consent of the instructor. Load flow studies. Economic operation of power systems. Symmetrical faults. Symmetrical components. Unsymmetrical faults. System stability. Sp.

428: *Electrical Machinery.* 0-2-2. Preq. Electrical Engineering 308. Advanced topics in electromechanical machines and devices.

429: *Direct Energy Conversion.* 0-2-2. Preq. Electrical Engineering 308 and 313. Mechanical Engineering 316 or permission of the instructor. Principles of direct energy conversion. Thermionic and thermoelectric generators. Magnetohydrodynamic generators. Fuel cells.

430: *Communication Electronics.* 0-2-2. Preq. Electrical Engineering 420 or consent of the instructor. Tuned voltage and power amplifiers transmitters and receivers. Radio and television systems. Sp.

431: *Guided Waves.* 3-3-4. Preq. Electrical Engineering 401. Transmission line parameters, lumped-constant lines. Analytical and graphical impedance matching. Plane and guided electromagnetic waves. Microwave networks. Antennas. W.

432: *Automatic Control Systems.* 3-3-4. Preq. Electrical Engineering 302, Mathematics 350, or consent of instructor. Analysis and design of linear feedback systems. Transfer functions. Transfer function plots. Transient and steady-state characterization. Stability determination. Closed-loop compensation. F, Sp.

433: *Control System Design.* 0-2-2. Preq. Electrical Engineering 432 or consent of the instructor. Automatic control system specifications. Improvement of system performance through compensation. Design. W.

434: *Electronics.* 0-3-3. Preq. Electrical Engineering 354. High-frequency amplifiers. Microwave amplifiers and oscillators. Radiation. Antenna systems.

435: *Integrated Circuit Electronics.* 0-3-3. Preq. Electrical Engineering 354. Transistor biasing and stability. Hybrid π and high frequency a.c. models. Feedback differential amplifiers. Introduction to linear integrated circuits. Operational amplifier analysis. Digital circuits.

436: *Analog Computers.* 0-2-2. Preq. Mathematics 350 or consent of the instructor. An introduction to the use of the electronic analog computer for solving linear and nonlinear ordinary differential equations. W.

437: *Digital Logic Fundamentals.* 0-2-2. Preq. sophomore standing. Boolean Algebra applied to switching circuits. Simplification methods for combinational logic. Number systems. Codes. Iterative networks. Trees. Hazards. Applications. F, Sp.

438: *Electrical Measurements.* 0-2-2. Preq. Electrical Engineering 214 or permission of the instructor. Statistics of measurements. Types of instrument movements. Special voltage and current detection devices. Potentiometers.

439: *Random Signal Analysis.* 0-2-2. Preq., Electrical Engineering 420 or consent of the instructor. Statistical communication theory. Random processes. Noises. Linear system analysis. Performance evaluation of analog and digital communication systems. W.

440: *Computer-Aided Design.* 3-2-3. Preq., Electrical Engineering 203 or permission of the instructor. A study of figures of merit. Computer requirements. Organization of problem-oriented languages.

441: *Digital Computer Systems.* 3-2-3. Preq., Electrical Engineering 437 or consent of the instructor. The organization of stored program digital computers and information processing systems. The logical design for arithmetic, control, and input-output functions.

442: *Computer Organization and Machine Language Programming.* 3-3-4. Preq., consent of the instructor. Introduction to the operational organization of computers, machine codes, and programming in machine and symbolic-assembler languages. Su, W.

443: *Hybrid Digital-Analog Computer Systems.* 0-3-3. Preq., Electrical Engineering 436 and 437 or consent of the instructor. Introduction to iterative and digital differential analyzers. Programming systems. Mode control and track hold devices. Pulse modulation representation of variables. Digital computers with fast analog subroutines.

444: *Special Computer Topics.* 0-3-3. Preq., consent of instructor. Advanced topics in computer design, systems, and applications will be selected for study to enable the students to keep up with new developments in computers.

445: *Computer Electronics.* 3-1-2. Preq., Electrical Engineering 353 and Electrical Engineering 437 or consent of the instructor. An introduction to digital integrated circuits. F.

446: *Microprocessor Applications.* 3-2-3. Preq., senior or graduate standing in science or engineering. An introduction to the use of microprocessors. Available devices, organization, programming, system design. W.

447: *Advanced Digital Logic.* 0-2-2. Preq., Electrical Engineering 437. Sequential logic theory and applications. Synchronous (clocked) logic design. Asynchronous logic

design methods. Hazards. Practical applications of sequential circuits.

450: *Selected Topics.* 0-2-2. Preq., permission of instructor. Work in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term. Su, F, W, Sp.

501: *Servomechanisms.* 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Mathematical formulation of the control problem. Linear servo analysis and systems. Design criteria and optimum systems.

502: *Network Synthesis.* 0-3-3. Electrical Engineering 313 or permission of the instructor. Energy relations in passive networks. Realizability and synthesis of driving-point impedances and transfer functions. Synthesis of prescribed transfer function.

503: *Information Theory.* 0-3-3. Preq., permission of instructor. Quantitative theory of information based on probability. Discrete and continuous signal information. Noise, entropy, redundancy, code capacity, and language transmission capacity.

504: *Systems Engineering.* 0-3-3. Preq., permission of instructor. Tools of large-scale systems design. Probability theory, mathematical statistics, operations analysis, computers, simulation.

505: *Solid-State Electronics.* 0-3-3. Preq. permission of the instructor. Analysis, application, and design and solid-state circuitry and special devices.

506: *Electromechanical Energy Conversion.* 0-3-3. Preq., Electrical Engineering 308 and Mathematics 350 or permission of the instructor. Equations of motion of electromechanical systems. Analytical techniques for solution of equations. Typical transducers. The generalized machine System dynamics.

507: *Digital Computer Circuits.* 0-3-3. Preq., Electrical Engineering 437 or permission of the instructor. Study of the logic of digital computers. Circuits for computation and control. Pulse circuits, memory elements, and input-output systems.

508: *Selected Techniques.* 1-4 semester hours. Analysis and solution of selected electrical engineering problems through use of advanced mathematical techniques and computer methods.

509: *Sampled-Data Systems.* 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Sampling theory. Z-transforms. Data reconstruction. Stability analysis. Digital compensation. Modified Z-transform.

510: *Nonlinear Systems.* 0-3-3. Preq., Electrical Engineering 432 or permission of the instructor. Mathematical models of nonlinear systems. Phase-space analysis. Critical point characterization. Describing functions. Sub-harmonic generation. Stability determination. General solution methods.

511: *Design of Optimum Systems.* 0-3-3. Preq., Mathematics 350 and permission of the instructor. Linear system theory. Statistics of random variables. Response to distributed inputs. System analysis and optimum design with multiple inputs and outputs. Optimum inputs.

522: *Active Network Synthesis.* 0-3-3. Preq., Electrical Engineering 502 or permission of instructor. Basic properties of linear, lumped, finite networks. Synthesis of active R-C, one-port and two-port networks. Characterization of active and nonreciprocal elements.

523: *Active Network Synthesis.* 0-3-3. Preq., Electrical Engineering 522 or permission of the instructor. Negative impedance converters and controlled sources in active R-C network synthesis. Lossless nonreciprocal two-part network synthesis. Characterization of negative impedance amplifiers.

524-525-526: *Seminar.* 0-1-1 each. Surveys, investigations, and discussions of current problems in electrical engineering.

530: *Electromagnetic Waves.* 0-3-3. Preq., Electrical Engineering 401 or permission of the instructor. Propagation, reflection and refraction of electromagnetic waves. Guided waves and power flow. Boundary-value problems.

531: *Antennas and Radiation.* 0-3-3. Preq., Electrical Engineering 530 or permission of instructor. Channel effects and types of propagation. Theory and practice in antenna design.

540: *Digital Filter Theory.* 0-3-3. Preq., permission of the instructor. Infinite and finite memory. Digital filter theory with prediction, smoothing, differentiation or integration. Noise reduction.

541: *Finite-State Machines.* 0-3-3. Preq., permission of instructor. Theory of automata. Machine characterization. Transistor matrices. State and machine equivalence. Machine minimization. Identification for state and machines.

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.

ELECTRO TECHNOLOGY

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., Electro-Technology 160, Math 111. Introduction to D.C. circuit theory; loop and node equations. The magnetic circuit. W.

171: *Basic Circuit Lab.* 3-0-1. Coreq., Electro-Technology 170. Laboratory companion to Electro-Technology 170. W.

180: *A-C Circuits.* 0-3-3. Preq., Electro-Technology 170, Math 112. An extension of the concepts developed in Electro-Technology 170, to include alternating current curcuits for sinusoidal steady-state analysis. Sp.

181: *A-C Circuits Laboratory.* 3-0-1. Coreq., Electro-Technology 180. Laboratory companion to Electro-Technology 180. Sp.

182: *Technical Problems.* 0-2-2. Preq., Math 112. Practical problems in electricity and circuit theory designed to illustrate the use of mathematics as an aid, and to develop judgment in the interpretation of results. F.

260: *Electronics.* 0-3-3. Preq., Electro-Technology 180. 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. Coreq., Electro-Technology 260. Introductory electronics laboratory, a companion to Electro-Technology 260. F.

262: *Technical Problems.* 0-2-2. Preq., Electro-Technology 182, Math 220. A continuation of Electro-Technology 182, concentrating primarily on problems utilizing the techniques taught in Math 220, applied calculus. F.

264: *Personal and Occupational Guidance.* 0-2-2. Applied organizational theory. This course will seek to prepare the student to operate most effectively in an organization from the standpoints of both the employer and employee. W.

270: *Instrumentation.* 0-3-3. Preq., Electro-Technology 180. Basic measuring devices, meters, bridges, etc. An introduction to the methods used in making accurate measurements. W.

272: *Electronics Applications.* 0-3-3. Preq., Electro-Technology 260. 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. Coreq., Electro-Technology 272. Training in the construction and troubleshooting of solid state electronics circuits. F.

274: *Computer Programming.* 0-3-3. Preq., Math 111. The logic of computer solutions to problems. Basic programming utilizing Fortran and other popular languages. Applications of computer usage in electro-technology. Sp.

280: *Electrical Power.* 0-3-3. Preq., Electro-Technology 180. A survey of the power field; the aims, problems and techniques. Future trends. Sp.

282: *Electronics Application.* 0-3-3. Preq., Electro-Technology 272. A continuation of Electro-Technology 272 through feedback, high frequency and switching circuits.

283: *Electronics Applications Laboratory.* 3-0-1. Coreq., Electro-Technology 282. Companion laboratory to Electro-Technology 282 lecture course.

284: *Computers.* 0-3-3. Preq., Electro-Technology 260. Digital and analog computer systems, circuits, and maintenance. Sp.

285: *Computers Laboratory.* 3-0-1. Coreq., Electro-Technology 284. Practical laboratory exercises in computer circuitry and maintenance techniques. Sp.

360: *Electrical Power.* 0-3-3. Preq., Electro-Technology 180. 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. Coreq., Electro-Technology 360. Companion laboratory to 360. W.

362: *Electrical Machines.* 0-3-3. Preq., Electro-Technology 180. Characteristics, applications, and theory of A.C. and

D.C. machines. Training in specifying and maintaining electrical machines.

363: *Electrical Machines Laboratory.* 3-0-1. Coreq., Electro-Technology 362. Electrical machinery applications workshop.

370: *Integrated Circuits.* 0-3-3. Preq., Electro-Technology 260. 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. Coreq., Electro-Technology 370. Practical laboratory work in the utilization of integrated circuits in active networks, both linear and discrete. F.

380: *Power Systems.* 0-2-2. Preq., Electro-Technology 360. The study of the generation, transmission and distribution of electric power, with practical techniques of analysis for forecasting requirements and meeting consumer needs.

382: *Computer Servicing.* 0-2-2. Preq., Electro-Technology 284. Techniques of fault isolation and repair of digital and analog computers. Preventive maintenance techniques. The theory of maintainability.

383: *Computer Servicing Laboratory.* 3-0-1. Coreq., Electro-Technology 382. Practical troubleshooting of computer systems.

390: *Electrical Drafting.* 6-0-2. Preq., Technical Drafting 101. A course in drafting with emphasis on wiring diagrams, electrical standards, codes, etc. F.

460: *Communication Circuits.* 0-2-2. Preq., Electro-Technology 260. The study of circuits used in AM and FM radio, television, and digital data transmission. F.

461: *Communication Circuits Laboratory.* 3-0-1. Coreq., Electro-Technology 460. Companion laboratory to lecture Electro-Technology 460. Construction of RF amplifiers, modulators, etc. F.

462: *Power Systems Cost Analysis.* 0-3-3. Preq., Electro-Technology 380. The economics of power systems. Determination of the optimum system improvements from a cost standpoint.

464: *Data Communication Systems.* 0-3-3. Preq., Electro-Technology 460. Theory of binary data communication over several common channels. Practical calculations to determine system performance parameters. Sp.

470: *Control Systems.* 0-2-2. Preq., Electro-Technology 260. 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. Coreq., 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.

474: *Instrumentation.* 0-3-3. Preq., Electro-Technology 270. Theory of errors. Advanced instrument usage, measurement techniques. Experiment planning, data recording and interpretation.

475: *Instrumentation Laboratory.* 3-0-1. Coreq., Electro-Technology 474. Workshop for Electro-Technology 474.

476: *Control Systems.* 0-3-3. Preq., Electro-Technology 470. A continuation of Electro-Technology 470 with emphasis on the study of the characteristics of analog systems.

477: *Control Systems Laboratory.* 3-0-1. Coreq., Electro-Technology 476. Laboratory of Electro-Technology 476.

480: *Electronic Computers.* 0-3-3. Preq., Electro-Technology 284. Organization, operation, and programming of digital computers on a more advanced level. Basic numerical techniques.

481: *Electronic Computers Laboratory.* 3-0-1. Coreq., Electro-Technology 480. A workshop in computer methods intended to provide applications of the theory in Electro-Technology 480 lecture.

482: *Electronic Computers.* 0-3-3. Preq., Electro-Technology 480. Advanced application of computers to technical problems.

483: *Electronic Computers Laboratory.* 3-0-1. Coreq., Electro-Technology 482. Laboratory for problem sessions in computer solutions.

484: *Control Systems.* 0-3-3. Preq., Electro-Technology 470. Digital control systems. Numerically controlled machines, characteristics and applications.

485: *Control Systems Laboratory.* 3-0-1. Coreq., Electro-Technology 484. Workshop for Electro-Technology 484 lecture.

490: *Special Problems.* 1-4-(9) hours credit. Preq., consent of instructor. A course to be arranged for the purpose of covering a selected topic of current importance or special interest. Su, F, W, Sp.

ENGINEERING

102: *Introduction to Engineering.* 0-2-2. Preq., credit in or registration in Mathematics 111 and 112. Characteristics of the engineering profession, digital computer computations, and introduction to engineering. Su, F, W, Sp.

151: *Engineering Graphics.* 6-0-2. Beginning graphics for engineers. Su, F, W, Sp.

152: *Engineering Drawing.* 6-0-2. Preq., Engineering 151 or Technical Drafting 101. Engineering drawing for Civil Engineering. Drawing of maps, topographic conventions, plans and profiles.

162: *Engineering Graphics.* 0-2-2. Preq., Engineering 151. Advanced engineering graphics.

300: *European Influence on Engineering.* 0-3-3. Preq., Sophomore standing or consent of instructor. European influence on Engineering theory and practice. Engineering accomplishments in Europe. Impact of engineering on western civilization. Su.

401: *Engineering Economy.* 0-3-3. Preq., Mathematics 231. Economical analysis of engineering alternatives. Su, F, W, Sp.

431: *Contracts and Specifications.* 0-2-2. Preq., junior standing or consent of instructor. Legal documents of construction contracts. W.

551: *Research and Thesis.* Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is 6 semester hours.

590: *Research and Dissertation.* 3 hours credit or multiples thereof. Maximum credit is 30 hours.

ENGINEERING MECHANICS

201: *Statics.* 0-2-2. Preq., Mathematics 230. Systems of forces and couples; concept and fundamentals of static equilibrium and centroids. Su, F, W, Sp.

202: *Strength of Materials.* 0-2-2. Preq., Engineering Mechanics 201. Moment of inertia for areas. Principles of dry friction. Normal, shear, and bearing stresses. Torsion. Stress-strain relationship. Su, F, W, Sp.

203: *Dynamics.* 0-2-2. Preq., Engineering Mechanics 201 and Mathematics 231. Kinematics and Kinetics of rectilinear, rotational, and plane motion. Moment of inertia of mass. Work and power. Principles of impulse and momentum. Su, F, W, Sp.

206: *Statics.* 0-3-3. Preq., Mathematics 112. Mechanics of rigid bodies. Force systems. Fundamentals concepts of static equilibrium. Centoids, moments of inertia and friction. F, W, Sp.

207: *Strength of Materials.* 0-3-3. Preq., Engineering Mechanics 206. Mechanics of deformable bodies. Stresses and strains. Beam deflections. Column theory. Torsion. F, W.

301: *Strength of Materials.* 0-2-2. Preq., Engineering Mechanics 202. Stress, strain and mechanical properties of materials. Deflections in beams, buckling and column theory. Su, F, W, Sp.

321: *Elementary Fluid Mechanics.* 0-3-3. Preq., Engineering Mechanics 201 and Mathematics 231 or Mathematics 220. Properties of fluids, fluid statics. Basic hydrodynamics. Continuity, energy and momentum equations. Steady flow in pipes and open channels. Fluid measurements. Su, F, W, Sp.

407: *Advanced Strength of Materials.* 0-3-3. Preq., Engineering Mechanics 301. The torsion problem, membrane analogy, cylindrical shells, beams on elastic foundations and the energy methods used in indeterminate structural analysis.

ENGLISH

101-102: *Freshman Composition.* 0-3-3 each. Su, F, W, Sp.

201-202: *Sophomore English—Introduction to English and American Literature.* 0-3-3 each. Preq., English 101-102. Su, F, W, Sp.

All courses above 202 have 201 or 202 as a prerequisite.

203: *Writing Laboratory.* 9-0-3. Preq., English 101 and 102. Workshop for students at all levels experiencing problems in composition and grammar; specific attention given to working exercises and writing papers. F, Sp.

301: *Practical Composition and Grammar.* 0-3-3. Preq., English 101 and 102. A review of the fundamentals of

composition and grammar, with specific attention to the types of writing commonly used in the professions. F.

302: *Vocabulary Enrichment.* 0-3-3. Preq., English 101 and 102. Expansion of student's vocabulary through study of English words and their meanings, including Greek and Latin roots and practical application of new vocabulary in composition. W.

303:* *Technical English.* 0-3-3. Primarily for engineering students. The writing of technical reports. Su, F, W, Sp.

308: *The Short Story.* 0-3-3. A reading course. Opportunities to write short stories for those who wish to do so. Sp.

309: *Parliamentary Law.* 0-2-2. Sp.

321: *Comparative Literature.* 0-3-3. Classics of foreign literatures in translation. F, Sp.

322: *Greek Drama.* 0-3-3. Preq., English 201 and 202. W.

325: *Contemporary English and American Poetry.* 0-3-3. Sp.

332:* *Advanced English Grammar.* 0-3-3. Su, F, W, Sp.

336:* *Advanced Composition.* 0-3-3. Chiefly expository writing. Su, F, W, Sp.

350: *Materials and Methods in Teaching English.* 0-3-3. (Same as Education 350.) F, Sp.

352: *Hebrew Literature in Translation.* 0-3-3. W.

401: *The American Mind.* 0-3-3. (Same as Philosophy 401). Important currents of ideas that have found expression in American literature. F, Sp.

402: *The European Mind.* 0-3-3. A travel tour of approximately three weeks in Western Europe with visits to places of literary interest. Required readings for those seeking college credit. Su.

403: *Chaucer.* 0-3-3. Sp.

404: *Milton.* 0-3-3. W, Sp.

405: *Studies in Renaissance Literature.* 0-3-3. W, Sp.

407: *Principles and Techniques of Literary Criticism.* 0-3-3. Sp.

410: *The English Novel.* 0-3-3. Sp.

411: *The Major English Poets.* (excluding Chaucer, Shakespeare, and Milton). 0-3-3. Su, F, W, Sp.

413: *English Poetry of the Romantic Period.* 0-3-3. F, Sp.

414: *English Poetry of the Victorian Period.* 0-3-3. F, Sp.

415: *Shakespeare.* 0-3-3. The major plays and the poems. (Same as Speech 415.) Su, F, W, Sp.

416: *Major American Authors [before 1865].* 0-3-3. Su, W.

417: *Major American Authors [since 1865].* 0-3-3. Sp.

419: *Contemporary Drama.* 0-3-3. American, English, and European. (Same as Speech 419.) W, Sp.

420: *The Continental Novel.* 0-3-3. Sp.

422: *The English Language.* 0-3-3. Primarily a course in the history of the language. Su, F, W, Sp.

423: *English Words and Idioms.* 0-3-3. (Same as Philosophy 423.) Rhetoric and logic as applied to critical thinking. Semantics. Exercises in propaganda analysis. Vocabulary building. Su, F, W, Sp.

424: *Contemporary Southern Authors.* 0-3-3. F, Sp.

428: *American Fiction before the Twentieth Century.* 0-3-3. Su, W.

429: *American Fiction in the Twentieth Century.* 0-3-3. Sp.

438: *Sixteenth Century English Literature* (excluding Shakespeare). 0-3-3. W.

439: *Seventeenth Century English Literature* (excluding Milton). 0-3-3. W.

440: *Eighteenth Century English Literature.* 0-3-3. Su, W, Sp.

450: *Nineteenth Century English Prose* (excluding the novel). 0-3-3. Su, F, W, Sp.

452: *Elizabethan Drama* (excluding Shakespeare). 0-3-3. (Same as Speech 452). Sp.

477-478: *Advanced Honors.* 0-3-3 each. Preq., permission of instructor. Studies in literature; seminar plan. Su, F, W, Sp.

481: *Linguistics.* 0-3-3. An approach to the various scientific analyses of the language, past and present, including the study of transformational grammar. Su, Sp.

482: *Folklore and Mythology.* 0-3-3. A study of myth and folklore, especially in Louisiana and the South, and their impact and relationship to other kinds of literature. Su, Sp.

484: *Creative Writing.* 0-3-3. A study of the creative processes involved in style, diction and patterns of writing. Emphasis is upon prose creativity with the possibility of publishable material. F, Sp.

485: *English Teachers' Workshop.* 0-3-3. Designed primarily for public school teachers of English. A review of modern methods and developments, literary genres, and movements. Sp.

490: *Introduction to Literary Research and Bibliography.* 0-3-3. Su, W.

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. Sp.

492: *Restoration and Eighteenth Century Drama.* 0-3-3. A study of major dramatic works of Dryden, Wycherly, Sheridan, etc. Sp.

505: *The History of English Literature.* 0-3-3.

506: *The History of American Literature.* 0-3-3.

507: *Anglo-Saxon.* 0-3-3.

571-572: *Studies in English Literature.* 0-3-3 each.

581-582: *Studies in American Literature.* 0-3-3 each.

595: *Problems in Communication.* 0-3-3.

* *Students may take only one of the following courses for credit: English 303, English 332, English 336.*

FINANCE

100: *Family Financial Management.* 0-3-3. Specific family financial decisions, including budgeting, insurance, home purchase or rent, consumer credit, personal income tax, lifetime financial planning. F, W, Sp.

201: *Basic Sales Financing.* 0-3-3. Financing consumer sales including sources of credit, interest and payout computations, wholesale financing, truth in lending, bad debts, and legal aspects. (Associate degree credit only in CAB).

318: *Business Finance.* 0-3-3. Preq., Economics 202, 205, or 315 and Accounting 205 or 310 and junior standing. A study of the methods of financing a business firm, including sources and applications of funds. Su, F, W, Sp.

319: *Intermediate Financial Management.* 0-3-3. Preq., Finance 318. Advanced practices of financial management are developed. Financial models used in decision-making and their application to major areas of business finance are emphasized. F.

330: *Risk and Insurance.* 0-3-3. A comprehensive study of risk and riskbearing, including insurance and non-insurance methods of handling risk; introduction to the fields of life, disability, property, and casualty insurance. W.

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 firm, and international banking. Su.

414: *Investments.* 0-3-3. Preq., Finance 318. Analysis of investments in common stocks, bonds, and other financial assets; sources of information for the investor; analysis of firms' financial statements; classes of investments. F, Sp.

422: *Bank Management.* 0-3-3. Preq., Finance 318. Problems in organization, operation, and management of commercial banks, with special emphasis on credit granting. Su, W.

425: *Money Markets, Capital Markets and Financial Institutions.* 0-3-3. Preq., Finance 318. A survey of the markets in which funds are traded; a survey of the lending and investing characteristics of selected financial institutions. Sp.

427: *Financial Forecasting.* 0-3-3. Preq., Economics 205 or 315 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. W.

430: *Advanced Financial Management.* 0-3-3. Preq., Finance 319. The case method is used to apply decision-making procedures to realistic problems in financial management. Sp.

431: *Life Insurance.* 0-3-3. A comprehensive study of personal and group life, accident and health, hospitalization, old age, survivors and disability insurance and annuities. F.

432: *Property Insurance.* 0-3-3. A comprehensive study of fire, burglary, robbery, forgery, inland and ocean marine insurance, and surety and fidelity bonds. W.

433: *Casualty Insurance.* 0-3-3. A study of automobile direct loss and liability, credit, title, aviation, workmen's compensation, and unemployment compensation insurance. 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.

443: *Appraisal.* 0-3-3. Application of value theory and principles to real estate values; professional appraisal principles and methodology. Corresponds to Appraisal I, American Institute of Real Estate Appraisers. W.

444: *Appraisal of Urban Properties.* 0-3-3. Preq., Finance 443. Appraisal case studies and practice in appraisal of commercial and industrial properties; generally corresponds to

Appraisal II, Urban Properties, American Institute of Real Estate Appraisers. Sp.

515: *Financial Management.* 0-3-3. The study of a financial manager's role in financial planning, acquisition and management of funds for a business firm.

516: *Financial Management: Policies and Practices.* 0-3-3. Preq., Finance 515. Application of decision-making procedures to financial management problems. Student is required to solve case problems and manage the financial affairs of computer simulated firm.

517: *Capital Budgeting Seminar.* 0-3-3. Preq., Finance 515. A systematic and thorough treatment of the theory and practice of capital expenditure management, emphasizing case analysis and employing a quantitative format.

520: *Seminar in Financial Theory I.* 0-3-3. Preq., Finance 515 (also, desirable that student has had an intermediate or advanced economics course). Examination and application of contemporary financial theory and analysis relating to business finance.

521: *Seminar in Financial Theory II.* 0-3-3. Preq., Finance 520. Detailed study of both classic and contemporary literature which provides students with a cross-section of modern theoretical developments in the field of business finance.

525: *Seminar in Investments.* 0-3-3. Preq., Finance 414. Study of the theories and techniques of investment analysis for purposes of evaluation and selection of investments.

FOREIGN LANGUAGES

101-102: *Elementary French.* 0-3-3 each. Elementary conversation, reading and grammar, Su, F, W, Sp.

120-121: *Elementary German.* 0-3-3 each. Pronunciation, reading, and grammar. 120-F, Sp; 121-Su, W.

140-141: *Elementary Italian.* 0-3-3 each. Italian pronunciation, grammar and the vocabulary of the fine arts, history, economics, and current affairs. 140-Su, Sp, Rome; 141-Su Rome.

146-147: *Elementary Portuguese.* 0-3-3 each. Elementary conversation, reading and grammar. F, W, even.

150-151: *Elementary Russian.* 0-3-3 each. Russian orthography, pronunciation, basic grammar and the reading of simple texts. 150-F; 151-W.

160-161: *Elementary Spanish.* 0-3-3 each. Elementary conversation, reading and grammar. Su, F, W, Sp.

162-163: *Spanish in the Language Laboratory.* 3-0-1 each. Su, F, W, Sp.

180-181: *Elementary English as a Foreign Language.* 0-3-3 each. Instruction to help foreign students gain a working knowledge of English, Phonetics, idioms, grammar, vocabulary, reading, writing. Foreign students only. Do not substitute English 101-102. Su, F, W, Sp.

182-183: *English as a Foreign Language Laboratory.* 3-0-1 each. Drills and exercises to reinforce and supplement training in audiolingual skills of English. To accompany Foreign Language 180-181. Foreign students only. Su, F, W, Sp.

201-202: *Intermediate French.* 0-3-3 each. Preq., Foreign Language 102 or equivalent. A continuation of elementary French, with emphasis upon reading. Su, F, W, Sp.

203: *The Short Story in France.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. A study of the short story in France with reading of outstanding examples. Su, F, W, Sp.

220-221: *Intermediate German.* 0-3-3 each. Preq., Foreign Language 121. A continuation of elementary German, with chief emphasis upon reading. The students will read a good deal of technical prose in their major fields. 220-W, Su; 221-F, Sp.

240-241: *Intermediate Italian.* 0-3-3 each. Preq., Foreign Language 141 or equivalent. Conversation and vocabulary building with emphasis on contemporary Italian literature and individual study of Italian works in student's major field. 240-W; 241-Sp.

250: *Russian Reading.* 0-3-3. The cultivation of a facility in reading modern literary texts. Sp.

251: *Russian Composition.* 0-3-3. A systematic review of Russian grammar, with a view toward improving the student's control of written Russian. Su.

252: *Russian Phonetics.* 0-3-3. A detailed study of the sounds of Russian, and the inculcation of proper speech habits. F.

260-261: *Intermediate Spanish.* 0-3-3 each. Preq., Foreign Language 161 or equivalent. Cultural reading and conversation. Su, F, W, Sp.

280-281: *Intermediate English as a Foreign Language.* 0-3-3. Continuation of Foreign Language 180-181. Increased emphasis on reading, writing, vocabulary and grammar. For foreign students only. Do not substitute English 201-202. Su, F, W, Sp.

282-283: *English as a Foreign Language-Laboratory.* 3-0-1 each. Drills and exercises to reinforce and supplement training in audiolingual skills of English. To accompany Foreign Language 280-281. Foreign students only. Su, F, W, Sp.

300: *French Phonetics and Oral Reading.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. Required for major in French. Sp, odd.

301-302: *French Conversation and Composition.* 0-3-3 each. Preq., Foreign Language 202 or permission of instructor. Required for major in French. F, W, odd.

305: *Contemporary French Literature.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. A survey of French literature from 1914 to the present, with reading of selective works. F, even.

306-307: *Survey of French Literature.* 0-3-3 each. Preq., Foreign Language 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., Foreign Language 202 or instructor's consent. Lectures and readings in history, geography, language, arts, general culture of French lands. W.

309: *The Novel in French.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. A study of the novel in France up to 1914, with reading of outstanding examples. Sp, odd.

310: *French Folklore and Traditions.* 0-3-3. Preq., Foreign Language 202 or instructor's consent. Traditions, folklore, folk heritage, children's literature of French lands. Su.

320-321: *Survey of German Literature.* 0-3-3 each. Preq., Foreign Language 220 or equivalent. A survey of German literature from the beginning until 1800. Su, F.

322: *Classical German Literature.* 0-3-3. Preq., Foreign Language 220 or equivalent. A study of German classicism with special reference to Lessing, Goethe, Schiller. Sp.

323: *Advanced German Grammar.* 0-3-3. Preq., Foreign Language 220 or equivalent. An intensive course in German grammar designed especially for students who need an advanced proficiency in technical German. W.

324-325: *German Conversation and Composition.* 0-3-3 each. Preq., Foreign Language 220 or consent of instructor. Conversation on everyday topics. F, Sp.

326: *German Civilization.* 0-3-3. Preq., Foreign Language 220 or instructor's consent. Lectures and readings in history, geography, language, arts and general culture of Germanic lands. Sp.

360-361: *Spanish Conversation and Composition.* 0-3-3 each. Preq., Foreign Language 261 or consent of instructor. Conversation on everyday topics. W, Sp.

362-363: *Aural Spanish.* 4-2-3 each. Preq., Foreign Language 261 or consent of instructor. Activities involving practice with spoken Spanish on an advanced level. Su.

364-365: *The Novel in Spain.* 0-3-3 each. Preq., Foreign Language 261 or consent of instructor. A study of the novel in Spain from the sixteenth century to modern times. F, W, odd.

366-367: *The Drama in Spain.* 0-3-3 each Preq., Foreign Language 261 or consent of instructor. A study of the drama in Spain from the sixteenth century to modern times. F, W, even.

368: *The Novel of Latin America.* 0-3-3. Preq., Foreign Language 261 or consent of instructor. A study of representative novels of Latin America, Mexico excepted. Sp, odd.

369: *Spanish Civilization.* 0-3-3. Preq., Foreign Language 261 or consent of instructor. Lectures and readings in Spanish history, geography, government, language, music, art, etc. W, odd.

370: *Commercial Spanish.* 0-3-3. Preq., Foreign Language 261 or consent of instructor. Study of common commercial forms for use in Spanish correspondence and business. Su.

371: *The Novel in Mexico.* 0-3-3. Preq., Foreign Language 261 or consent of instructor. A study of outstanding novels from 1800 to contemporary times. Su.

372: *Folklore and Traditions of Spanish Lands.* 0-3-3. Preq., Foreign Language 261 or instructor's consent. Traditions, folklore, folk heritage, children's literature of Spanish lands. Su.

400: *The Drama in France.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. A study of the drama in France up to 1914, with reading of outstanding examples. F, odd.

405: *The French Language.* 0-3-3. Preq., Foreign Language 202 or permission of instructor. General characteristics of the

language and intense review of grammar. Sp, odd.

460: *The Spanish Language.* 0-3-3. Preq., Foreign Language 261 or instructor's consent. Advanced grammar. General characteristics of the language, including sources, etymology, dialects. F.

461: *The Spanish Language.* 0-3-3. Preq., Foreign Lanugage 460 or instructor's consent. Advanced grammar. General characteristics of the language including sources, etymology, dialects. Sp, odd.

FOREIGN STUDIES

101: *Special Academic Studies.* 0-3-3. Special academic studies conducted in foreign countries. Su.

201: *Special Academic Studies.* 0-3-3. Special academic studies conducted in foreign countries. Su.

301: *Special Academic Studies.* 0-3-3. Special academic studies conducted in foreign countries. Su.

401: *Special academic studies.* 0-3-3. Special academic studies conducted in foreign countries. Su.

501: *Special Academic Studies.* 0-3-3. Special academic studies conducted in foreign countries. Su.

FORESTRY

101: *General Forestry.* 0-2-2. An introduction to forestry, wood utilization, relations to land management, and the uses of natural resources in furnishing goods and services.

202: *Forest Fire.* 0-2-2. Forest fire management, protection, and control.

205: *Dendrology.* 3-1-2. Preq., Botany 101 and Forestry 101. The identification, classification, characteristics, and distribution of the principal forest trees of the United States, with emphasis on conifers.

206: *Dendrology.* 3-1-2. A continuation of Forestry 205, with emphasis on hardwoods and spring and summer characteristics.

213: *Forestry Principles.* 3-2-3. For non-forestry majors. Study of forestry with emphasis on its application and correlation with agriculture, wildlife, and other fields.

214: *Forestry Principles.* 3-2-3. Preq., Forestry 213. Forestry practices and special study in the field of interest of the student.

301: *Silviculture; Silvics.* 3-2-3. Preq., Agronomy 302. Factors affecting the growth of trees and stands.

302: *Silviculture; Practice.* 3-2-3. Preq., Forestry 301. Reproduction methods, treatments, and improvements of trees and stands.

305: *Wood Technology.* 3-2-3. Preq., Botany 205. Identification, properties, and use of commercial woods.

306: *Forest Measurements.* 3-2-3. Preq., Mathematics 111 and 112. Measurements of tree and forest volume, growth and yield, and products.

312: *Forest and Forest Products Entomotogy.* 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.

315: *Forest Measurements.* 2 credit hours. Preq., Forestry 306. Execution of forest surveys; techniques of growth measurement; determination of volume of trees and stands.

316: *Forest Surveying.* 3 credit hours. Preq., Mathematics 112. Property surveys; topographic mapping; layout of forest roads and trails; lumber structures.

320: *Tree and Forest Development.* 2 credit hours. Forest trees and forest stands, methods of improvement.

321: *Land Use.* 2 credit hours. Land use in the Southern Forest Region.

322: *Bottomland Hardwoods.* 2 credit hours. Silviculture management and utilization of hardwoods of the Southern Forest Region.

340: *Wood Processes.* 3 credit hours. Conversion of trees into usable products, harvesting techniques, machinery, and milling methods.

341: *Bonding and Finishing of Wood.* 3 credit hours. Adhesive and cohesive properties of glues and finishes.

401-402: *Forest Management.* 3-1-2 each. Preq., Summer Camp. Principles and planning in forest management.

403: *Forest Finance.* 0-2-2. The economic and financial considerations applying to forestry. F, Sp.

407: *Forest Products.* 3-2-3. The uses of the forest crop other than lumber and its conversion into finished commodities.

408: *Seasoning and Preservation.* 3-2-3. Preq., Forestry 305 and 407. Theory and practice of air seasoning and kiln drying of forest products. The basis of wood preservation, preservatives, and methods of application.

409: *Forest Economics.* 0-3-3. Forests and their relation to economic, industrial, and social problems.

410: *Forest Policy.* 0-3-3. The basic principles and policies of federal, state, and private forestry. Sp.

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.

414: *Lumber and Plywood.* 3-1-2. Preq., Forestry 305 and 407. Manufacturing plant layout, veneers, ply and laminated products, hardwood and softwood lumber grades, and utilization of residues.

416: *Logging.* 3-1-2. Preq., Forestry 305 and 407. Logging methods, felling and bucking, skidding, loading, and hauling.

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. W, Sp.

422: *Seminar.* 0-1-1. Preq., senior standing. Review of research methods and programs.

GEOGRAPHY

200: *Introduction ot Geography.* 0-3-3. A survey of the field's scope, major concepts and methods of analysis and their relevance to present-day problems. F, W, Sp.

203: *Physical Geography.* 0-3-3. Fundamentals of physical and biogeography with an emphasis on world-wide distributions of patterns and processes. Su, F, W, Sp.

225: *World Human Geography.* 0-3-3. A survey of the peoples and places of Europe and the New World. Su, F, W, Sp.

226: *World Human Geography.* 0-3-3. Continuation of Geography 225; Africa, Asia, Australia, and the Pacific Islands. F, W, Sp.

250: *Geographical Methods and Techniques of Research.* 0-3-3. An introduction to the fundamentals of library, graphic, and field methods and techniques utilized in the field of geographical research. Sp.

260: *Conservation of Natural Resources.* 0-3-3. A study of the conservation of soils, minerals, forests, water, wildlife, human resources. F, W, Sp.

300: *The Eastern United States.* 0-3-3. By permission of the instructor. Course includes a 21-day field study involving approximately 5,000 miles of travel and observation of the United States east of the Mississippi River, and certain amount of required reading. Su, odd.

301: *The Western United States.* 0-3-3. By permission of the instructor. This course treats the region west of the Mississippi River similar to that of Geography 300 for the United States east of the Mississippi. Su, even.

305: *Geography of Anglo-American.* 0-3-3. A study of the natural environment, resources, and cultural patterns of the major geographic regions of the United States and Canada. F, even.

310: *Geography of Louisiana.* 0-3-3. Open only to junior, senior, and graduate students. The climate, natural regions, and resources of Louisiana; cultural development; sources and distribution of the population; settlements and agriculture. Su, W.

314: *Geography of Middle America and the West Indies.* 0-3-3. Physical, human, and economic geography of Mexico, Middle America, and the West Indies. F, even.

315: *Geography of South America.* 0-3-3. Physical, human, and economic geography of South America. W, even.

320: *Geography of Asia.* 0-3-3. Physical and human geography of Asia. Sp, even.

324: *Geography of Africa.* 0-3-3. Physical and human geography of Africa. Sp, odd.

330: *Geography of Australia.* 0-3-3. Physical and human geography of Australia, New Zealand, and the Pacific Islands. F, odd.

335: *Commercial and Industrial Geography.* 0-3-3. A world survey of economic geography. W, odd.

360: *Geography of Europe.* 0-3-3. Physical and human geography of Western and Central Europe, and the Mediterranean basin. Sp, even.

365: *Geography of the Soviet Union.* 0-3-3. Physical and human geography of the Soviet Union. W, odd.

374: *Elements of Weather and Climate.* 0-3-3. A survey of the basic elements of weather and climate including temperature, barometric pressure, precipitation, and the interaction of these elements. F, odd.

375: *Climatology.* 0-3-3. Preq., Geography 203, 374, or permission of the instructor. A survey of the climatic regions

of the world and the controlling factors of weather. W, even.

380: *Cartography.* 0-3-3. Elements of map interpretation and construction; interpretation, use and construction of graphs. Sp, odd.

403: *Field Methods.* 4-1-3. By permission of the instructor. A study of the tools and techniques for field research in geography with emphasis on special research problems in Louisiana geography. Su, odd.

501: *Physical and Cultural Elements of Geography.* 0-3-3.

GEOLOGY

111: *Physical Geology.* 0-3-3. Igneous, sedimentary, and metamorphic rocks; erosion of the earth by streams, oceans, winds, glaciers; phenomena of mountains, volcanoes, earthquakes; and the earth's interior. Su, F, W, Sp.

112: *Historical Geology.* 0-3-3. Preq., Geology 111. History of the earth as revealed in the character and fossil content of rocks. Su, F, W, Sp.

121: *Physical Geology Laboratory.* 3-0-1. Preq., registration or credit in Geology 111. Identification of minerals and rocks. Study of topographic maps and physiographic features shown thereon. Su, F, W, Sp.

122: *Historical Geology Laboratory.* 3-0-1. Registration or credit in Geology 112 and 121. Introduction to fossils, geologic maps, and the geologic history of selected portions of North America. F, Sp.

200: *Introduction to Oceanography.* 0-3-3. A survey of the oceans; their nature, structure, origin, physical features, circulation, composition, natural resources, and relationships to the atmosphere and solid earth. Su, F, W, Sp.

201: *Introduction to Minerals and Rocks.* 3-2-3. Preq., Geology 111, Chemistry 101. (Not open to geology majors.) Origin, occurence, character, and classification of common minerals and rocks and their identification.

206: *Map Interpretation.* 3-1-2. Preq., Geology 112 and 315. Interpretation of topographic maps, aerial photographs, geologic maps and geologic cross sections. Sp.

209: *Mineralogy.* 3-2-3. Preq., Geology 112, Chemistry 102. Crystallography and descriptive mineralogy. Occurrence, associations, and uses of minerals. F.

210: *Mineralogy.* 3-2-3. Preq., Geology 209. Continuation of descriptive mineralogy with emphasis on the study of minerals under the petrographic microscope. 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.

230: *Environmental Geology.* 0-3-3. Preq., Geology 111 or consent of the instructor. An introductory course stressing the relationships between geology and the environment.

302: *Introduction to Paleontology.* 3-2-3. Preq., Geology 111, 112. Survey of invertebrate paleontology; phylum Protozoa through phylum Arthropoda. History of the science, rules of nomenclature, and environment of lower animals. W.

305: *Principles of Stratigraphy and Sedimentation.* 0-3-3. Preq., Geology 112. Classification, composition, properties, and origin of sediments, environmental factors, sedimentary processes, facies, and principles of correlation. W.

315: *Structural Geology.* 3-2-3. Preq., Geology 111, Mathematics 112. The recognition, representation, interpretation, and mechanics of rock deformation. F.

317: *Engineering Geology.* 3-2-3. Materials of the earth's crust and their physical and chemical properties which affect foundation, surface and subsurface waters, and excavations. W.

320: *Summer Field Course.* 6 hours credit. Preq., Geology 111, 112. Course work at the Louisiana Tech geology camp, or the camp of any accredited college or university with the approval of the student's advisor. Su.

401: *Optical Mineralogy.* 3-2-3. Preq., Geology 210. Theory and practice of mineral identification with the petrographic microscope.

402: *Petrography.* 6-1-3. Preq., Geology 401. Study of rocks in thin section using the petrographic microscope.

408: *Subsurface Methods.* 3-2-3. Preq., Geology 305 and Computer Science 102. Correlation of subsurface horizons utilizing drill cores and cuttings, mechanical well logs, seismic exploration methods and computer technology. Sp.

412: *Geomorphology.* 0-3-3. Preq., Geology 112. Origin, development and classification of land formas. Readings in classical and current geomorphic studies. W.

413: *Petroleum Geology.* 0-3-3. Preq., Geology 111 and 315. Study of the origin, migration, and accumulation of petroleum. Reservoir characteristics and types of petroleum-bearing rock structures emphasized. F.

420: *Directed Study of Geologic Problems.* 0-3-3-(9). Preq., senior standing. Special topics within the student's field of interest. Su, F, W, Sp.

421: *Micropaleontology.* 3-2-3. Preq., Geology 302. Study of microfossils used in correlation of well cuttings and outcrop samples, especially foraminifera. Sp.

425: *General Studies in Earth Sciences.* 0-3-3. Preq., consent of the instructor. Open to education majors and experienced elementary and secondary school teachers. Student may elect to repeat the course number to take advantage of a variety of earth science studies.

428: *Computer Applications in Geology.* 0-3-3. Preq., Geology 305 and Computer Science 102. Use of the computer in geologic mapping, trend surface analysis, and simulation models.

442: *Geophysical Methods.* 0-3-3. Preq., Physics 210 or consent of instructor. Introduction to the elementary theory, computation fundamentals, and basic field practice for gravity, seismic, magnetic, and electrical methods of geophysical exploration.

445: *X-Ray Crystallography.* 3-1-2. Preq., Geology 209 and 210. Fundamentals of X-Ray crystallography. Analysis of minerals by powder diffraction method.

450: *Seminar.* 0-1-1. Preq., senior standing in geology. Written or oral reports in various phases of geology.

505: *Advanced Structural Geology.* 3-2-3. Preq., Geology 315. Structural problems and study of the evolution of various structural provinces of the Americas.

507: *Stratigraphy and Structure of the Gulf Coast.* 0-3-3. Stratigraphy and structure of the Gulf Coastal Plain of North America. Geologic history of the region will consider environments of deposition, lithology, fauna, and tectonics.

508: *Advanced Paleontology.* 3-2-3. Preq., Geology 304, Zoology 111-112. Systematic, stratigraphic, and environmental studies of selected assemblages of invertebrate fossils.

509: *Economic Geology of the Gulf Coast Region.* 0-3-3. Genesis, exploration, development, and utilization of the metallic and nonmetallic mineral resources of the Gulf Coast region.

521: *Special Problems.* 1-4 hours credit. Advanced study in geology designed to broaden basic knowledge in the student's field of specialization. Student may elect to repeat this course for a maximum of 8 hours credit.

HEALTH & PHYSICAL EDUCATION

100: *Exercises for Physical Development.* 3¾-0-1. May be repeated for degree credit on Pass-Fail basis. F, W, Sp.

101: *Flag Football and Basketball.* 3¾-0-1. Designed for nonmajors with emphasis on fundamental techniques, rules and team play. F.

102: *Volleyball and Softball.* 3¾-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play. Sp.

103: *Team Sports.* 3¾-0-1. The course includes fundamental skills, rules, and play of soccer, speedball and field hockey. F.

104: *Team Sports.* 3¾-0-1. The course includes fundamental skills, rules, and play of volleyball, basketball and softball. Sp.

105: *Fundamental Weight Training.* 3¾-0-1-(7). Fundamental weight training and strength development techniques.

106: *Adaptive Physical Education.* 3¾-0-1. This course is for those who are not able to take Physical Education 101-102 and 201-202. Su, F, W, Sp.

108: *Tumbling.* 3¾-0-1. Beginning tumbling. F.

109: *Advanced Tumbling and Gymnastics.* 3¾-0-1. Designed to assist the high school teacher with special problems in teaching gymnastics. W.

110: *Restricted Activities.* 3¾-0-1-(4). For students not physically able to participate in regular activity courses. Statement from physician listing restrictions is required. W.

111: *Wrestling.* 3¾-0-1-(2). Fundamentals of wrestling. F, W, Sp.

112: *Advanced Wrestling.* 3¾-0-1-(4). Preq., Consent of Instructor. Advanced competitive wrestling skills and techniques.

113: *Outdoor Recreation.* 3¾-0-1. Emphasis is on the modern principles of hunting and fishing. F, Sp.

115-116: *Physical Education Activity Credit.* 3¾-0-1. Credit given for varsity participation in a sport. Not more than four hours may be acquired in this manner. F, W, Sp.

118: *Karate.* 3¾-0-1. Instruction and practice in the basic arm and leg techniques, stances, warm up exercise, one step sparring, formal exercise and historical background of U.S. Karate. F.

119: *Basketball and Volleyball.* 3¾-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play. W.

121: *Recreational Sports.* 3¾-0-1. Instruction in table tennis, shuffleboard, bounceball, aerial tennis, table games and other recreational games. W.

130: *Physical Education Activities For Children In The Elementary School.* 3¾-0-1. Preq., Consent of the Area Coordinator. Opportunities are provided for students to participate in and teach a variety of physical education activities designed for children in the elementary school physical education program. F, W, Sp.

201: *Third Quarter Team Sports.* 3¾-0-1. Sp.

202: *Fourth Quarter Team Sports.* 3¾-0-1. Su.

205: *Gymnastic Apparatus.* 3¾-0-1. Basic instruction in the use of the balance beam, longhorse, uneven parallel bars, trampoline, springboard and traveling rings. Sp.

207: *Elementary Instruction In All Minor Sports.* 0-2-2. Preq., Consent of Area Coordinator. F. Sp.

210: *Advanced Weight Training.* 3¾-1-1-(2). Preq., Health and Physical Education 105. Advanced weight training and strength development techniques for the purpose of competition in varsity sports.

215-216: *Physical Education Activity Credit.* 3¾-0-1. Credit for varsity participation in a sport. Not more than four hours may be acquired in this manner. F, W, Sp.

218: *Karate.* 3¾-0-1. Preq., Physical Education 118 or comparable karate experience. Emphasis placed on advanced karate techniques, one step sparring, free style sparring, formal exercise and the history of karate. W.

220: *Creative and Rhythmic Activities for Children.* 3¾-0-1. Emphasis on developing skill and knowledge and creative and rhythmic activities for preschool and elementary school children.

225: *Outdoor Education and Recreation.* 3¾-2-3. Designed to acquaint recreation leaders, teachers, and administrators with the values, programs, opportunities, and relationships of outdoor education and recreation. F.

226: *Recreation Leadership Theory.* 0-3-3. Developing individual competency in leading recreational activities. W.

230: *Modern Dance.* 3¾-0-1. Conditioning exercises and techniques that provide a vocabulary of movement leading into dance composition. F.

231: *Modern Dance.* 3¾-0-1. Preq., Physical Education 230 or comparable dance experience. Intermediate techniques of modern dance movements and choreography. Opportunities for production of dance programs and teaching choreography. W.

232: *Modern Dance.* 3¾-0-1. Preq., Physical Education 231 or comparable dance experience. Advanced techniques of modern dance movements, choreography and production of dance programs. W.

233: *Fundamentals and Foundations of Movement.* 3¾-0-1. Includes body mechanics, conditioning exercises, and figure control. F, W, Sp.

234: *Development Conditioning.* 3¾-0-1. Preq., Physical Education 233 or consent of Area Coordinator. Circuit training, interval training, calisthenics, isometrics are utilized preparing individuals to advance from one fitness level to another. Methods stress attaining and maintaining fitness. W.

240: *International Folk Dance.* 3¾-0-1. Dances from various countries of the world are presented along with a study of the country and the people where the dances originated. F.

241: *Golf.* 3¾-0-1. Basic techniques, skills and rules of play are presented. Students provide own transportation to course used for play. Green fee. Sp.

243: *Fencing:* 3¾-0-1. The fundamental techniques, skills and rules of bouting are presented. W.

245: *Social Dance.* 3¾-0-1. Instruction and practice in the fundamental social dance steps such as the waltz, foxtrot, rhumba, cha cha cha, in addition to currently popular dances. F.

250: *Stunts, Tumbling, Floor Exercise.* 3¾-0-1. Instruction in basic stunts and tumbling skills and floor exercise composition. W.

261: *Square Dance.* 3¾-0-1. Square and round dances that are a part of American dance are included in the course. W.

262: *Bowling.* 3¾-0-1. Instruction in the fundamental techniques, rules and etiquette of bowling with provisions for practical application. Lane fee required. F.

271: *Tennis.* 3¾-0-1. Techniques, skills, and rules are presented for the beginning player. Su, F.

272: *Badminton.* 3¾-0-1. The course is designed to include techniques, skills, and rules of the game for the beginning player. W.

273: *Archery.* 3¾-0-1. Basic techniques, skills and rules of archery are presented to the beginning student. F.

280: *Swimming.* 3¾-0-1. Open to students who do not know how to swim or who are unable to swim safely in deep water. Su.

281: *Swimming.* 3¾-0-1. Preq., Health and Physical Education 280 or comparable swimming skill. Instruction for the student in the basic swimming strokes. Endurance and survival swimming. Su.

284: *Advanced Lifesaving.* 3¾-1-2. Preq., Health and Physical Education 281 or skill in the basic swimming strokes. Su.

285: *Water Safety Instructor.* 3¾-1-2. Preq., Current Advanced Lifesaving Certification. Techniques and skills required for American Red Cross WSI Certification. Su.

286: *Physical Education for Occupational Therapy.* 0-3-3. To familiarize individuals in the field of therapy for handling children of limited physical or mental resources as compared to normal children. F.

287: *Occupational Therapy for the Handicapped.* 0-3-3. Utilization of therapy procedures for the needs of the individual who is physically handicapped and the social implications of these handicaps. W.

288: *Field Archery.* 3¾-0-1. Instruction in instinctive and free style shooting. Repair, upkeep and maintenance of equipment. Students must furnish own equipment.

290: *Personal Health for College Students.* 0-3-3. To assist the student in acquiring accurate information regarding personal health and in understanding the relationship of health to everyday living. Su, F, W, Sp.

291: *School and Community Health.* 0-3-3. Preq., Physical Education 290 or Consent of Area Coordinator. To familiarize the student with the school health program, the organization, facilities, and services of community health. W.

300: *Safety Education.* 0-3-3. A survey of the accident problem, the social and emotional aspects involved, and the application to home, community, and industrial life. Su, Sp.

301: *Curriculum Innovations, Instructional Devices and Lab Instruction in Drivers Education.* 3¾-3-4. 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.* 0-3-3. Preq., Sophomore standing. This course covers the organization and administration of high school and college intramural programs. The student is required to assist in intramurals at Tech. W.

305: *Materials and Methods in Health Education in Secondary Schools.* 0-3-3. Preq., Physical Education 290, 291. Includes information relative to school health education program with emphasis on methods of instruction and use of materials in secondary schools. F, Sp.

306: *Principles and Practices of Baseball Coaching.* 0-2-2. Preq., Sophomore standing. Fundamentals: (1) throwing, batting, and fielding; (2) position play; (3) offensive and defensive team strategy; (4) training and practices; (5) officiating. Sp.

308: *Principles and Practices of Baseball Coaching.* 0-2-2. Fundamentals: (1) throwing, batting, and fielding; (2) position play; (3) offensive and defensive team strategy; (4) training and practices; (5) officiating. Sp.

310: *History and Principles of Physical Education.* 0-3-3. Preq., sophomore standing. A study of the history of physical education and of the principles upon which the teaching of physical education is based. F.

312: *Principles and Practices in Basketball Coaching.* 0-2-2. Preq., Sophomore standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating. W.

313: *Techniques in Coaching Team Sports.* 0-3-3. Preq., Physical Education 103 and 104. Study of team sports from viewpoint of teacher and coach. Sp, even.

314: *Principles and Practices in Track and Field.* 0-2-2 Preq., Sophomore standing. Fundamental movements involved in the different events: (1) staffing for the different events; (2)

training and practice; (3) officiating. Sp.

317: *Camp Leadership.* 0-3-3. Preq., sophomore standing. A study of duties and responsibilities of camp counselors, leadership techniques in program activities and camp organization. Sp, odd.

318: *Sport Karate.* 3¾-0-1. Preq., Physical Education 218 or comparable karate experience. Tournament techniques, advanced formal exercise, offensive and defensive free style sparring techniques, biomechanical and physiological principles of training, rules and etiquette. Sp.

320: *Organization and Administration of Physical Education.* 0-3-3. Preq., Sophomore standing. Development and practical application of physical education programs. F, Sp.

321: *First Aid.* 0-2-2. Lectures, discussions, and practical demonstrations of Red Cross methods in First Aid. Su, F, W, Sp.

326: *Applied Anatomy and Kinesiology.* 0-3-3. Preq., Zoology 225 & 226 or Consent of Area Coordinator. Analysis of movement based on a knowledge of anatomy and physiology as applied to the function of body mechanics. F, W.

340: *Materials and Methods in Physical Education and Health Education for Elementary Schools.* 0-3-3. Designed to prepare the teacher for the direction of children in physical education and for developing in children desirable knowledge, skills, and attitudes in health. F, W, Sp.

355: *Community Centers and Playgrounds.* 0-3-3. The specific problems and programs unique to recreation centers and playgrounds, emphasizing techniques for administration and operation. W.

362: *Bowling.* 3¾-0-1. Preq., Physical Education 262 or skill in basic bowling techniques. Instruction for individuals who know the fundamentals of bowling. Lane fee required. F, W.

370: *Techniques and Methods of Teaching Rhythms.* 3¾-0-1. Preq., Physical Education 230 and 240. Techniques, methods and materials related to teaching rhythms in the elementary and high school. F, odd.

371: *Tennis.* 3¾-0-1. Preq., Physical Education 271 or skill in basic tennis techniques. Advanced skills and game strategy are stressed. Sp.

372: *Badminton.* 3¾-0-1. Preq., Physical Education 272 or skill in basic badminton techniques. Advanced skills and game strategy are stressed. W.

404: *Introduction to Community Recreation.* 0-3-3. A survey of the type of community recreation programs and of recreation facilities. Sp.

405: *Athletic Injuries, Prevention, Diagnosis and Treatment.* 0-2-2. Preq., Health and Physical Education 326 or consent of Area Coordinator. Training room procedures; treatment of injuries and rehabilitation; use of athletic training room equipment; use of protective equipment for all sports. W.

410: *Building and Maintaining Recreational Facilities.* 0-3-3. The designing, building and maintenance of recreational facilities. F, odd.

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. W, odd.

414: *Teaching Physical Education to the Exceptional Child.* 0-3-3. To familiarize students with the instruction of physical education to exceptional children. Sp, even.

415: *Camp Counseling and Administration.* 15-3-6. Preq., junior or senior standing. The study of duties and responsibilities of camp counselors, leadership techniques in program activities and camp organization. Su.

433: *Special Problems in Health and Physical Education.* 0-3-3. (Maximum of three semester hours credit.) Designed to deal with selected problems in Health and Physical Education.

509: *Tests and Measurement in Physical Education.* 0-3-3. This course is designed to enable the student to learn the fundamental processes in testing and measuring boys and girls at the elementary and high school level. The most important elements to be measured: strength, skills, coordination, and cardiovascular conditions.

516: *Education for Physical Fitness.* 0-3-3. Factors involved in total fitness; developing, maintaining and evaluating physical fitness.

517: *Organization and Administration of Physical Education.* 0-3-3. Routine specific administration problems of program, staff, equipment, policies, public relations and finance.

518: *Recent Literature and Research in Physical Education and Recreation.* 0-3-3. Review and evaluation of reports of recent research in physical education, recreation, and related fields; review of reports of professional committees, conferences, and year books.

519: *Alcohol and Narcotics Education.* 0-3-3. Research and evaluation of the effects of alcohol and narcotics.

520: *Problems in Motor Learning.* 0-3-3. Nature of motor learning, factors affecting success in motor learning, application of principles to class organization, presentation of new materials, teaching the slow learner.

525: *Supervision of Physical Education.* 0-3-3. Techniques of supervision and their application in improving health and physical education programs in the elementary and high schools. Study of problems met by supervisors and methods of solving them.

526: *Physiology of Exercise.* 0-3-3. Physiology, anatomy, and kinesiology used to assist the student in gaining an understanding of conditions and factors affecting the body functions during physical activity.

527: *Foundations of Physical Education.* 0-3-3. Philosophy of physical education and of current trends and developments.

528: *Administration and Organization of Physical Education in Elementary Schools.* 0-3-3. Techniques of organization and administration of a health and physical education program in the elementary school, with emphasis on the importance of the role of the special teacher and the classroom teacher.

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. A course designed to familiarize the student with the administrative problems in school and community recreation.

531: *Physical Education for the Handicapped.* 0-3-3. Needs of the blind, deaf, cardiac, and motor handicapped individual, and physical and social implications of disability as related to the physical education program. Study of special activities and methods.

532: *Interscholastic Athletics.* 0-3-3. This course is designed to meet the needs of those persons preparing to coach and/or those already coaching high school athletic teams. It deals with state and national athletic association make-up, plus problems of scheduling, transportation, insurance, etc.

533: *Problems in Health, Physical Education, Recreation and Athletics.* 0-3-3. The selection and study of problems in the fields of health, physical education, recreation, and athletics. Work will be done on an individual basis under the direction of the staff. May be repeated once for credit.

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.

550: *Current Trends in Health, Physical Education, and Recreation.* 0-3-3. A survey of current literature in health, physical education, and recreation with emphasis upon recent research studies.

HISTORY

101: *World History to 1500.* 0-3-3. A survey of civilizations of the world to 1500. Major emphasis on Western Civilization. Su, F, W, Sp.

102: *World History since 1500.* 0-3-3. A survey of civilization of the world since 1500. Major emphasis on Western Civilizations. Su, F, W, Sp.

201: *History of the United States, 1492-1877.* 0-3-3. A survey of American history from discovery through Reconstruction. Su, F, W, Sp.

202: *History of the United States, 1877 to the Present.* 0-3-3. A survey of American history from Reconstruction to the present. Su, F, W, Sp.

300: *The Eastern United States.* 0-3-3. By permission only. A 21-day field study of the region east of the Mississippi River, with lectures and required reading. Su, odd.

301: *The Western United States.* 0-3-3. By permission only. A 21-day field study of the region west of the Mississippi, with lectures and required reading. Su, even.

ALL OF THE 300 AND 400 COURSES LISTED BELOW CARRY PREREQUISITES: HISTORY 101 AND 102 FOR ALL ADVANCED COURSES IN NON-AMERICAN HISTORY AND HISTORY 201 AND 202 FOR ALL ADVANCED COURSES IN AMERICAN HISTORY.

310: *American Military History to 1900.* 0-3-3. A survey of the major wars and campaigns to 1900 including their causes and significance. F.

311: *American Military History, 1900 to the Present.* 0-3-3. A survey of the major wars and campaigns since 1900 including their causes and significance. W.

328: *History of the Ancient Near East.* 0-3-3. A survey of the civilization of Egypt and Mesopotamia from earliest times to the Arab conquest in the 7th century. F, even.

329: *History of the Ancient Near East.* 0-3-3. A survey of the civilizations of the Hittites, Hebrews, Canaanites, Philistines, Phoenicians, Carthaginians, Lydians, and Persians to the middle of the 7th century. W, even.

330: *The Intellectual and Cultural History of the Western World from the Hellenic Era to the End of the Middle Ages.* 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Greeks to the beginning of the Renaissance. F, odd.

331: *The Intellectual and Cultural History of the Western World in Modern Times.* 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Renaissance to the present. W, odd.

332: *History of Greece.* 0-3-3. A political, economic, social, and cultural study of Greek history from earliest beginnings through the Hellenistic era. F, odd.

333: *History of Rome.* 0-3-3. A survey of the political, economic, social, and cultural history of Rome from earliest beginnings through the fifth century A.D. W, odd.

334: *Medieval Europe.* 0-3-3. A survey of Europe from the decline of Rome to the advent of the Renaissance. F, even.

335: *Renaissance and Reformation.* 0-3-3. A study of the political, economic, and cultural evolution of Europe from 1300 to 1648. W, even.

336: *History of the Modern Near East.* 0-3-3. A history of the Arabic world from the fifteenth century to the present. Sp.

340: *History of Latin America to 1924.* 0-3-3. A survey of Latin American history from European and Indian backgrounds to 1924. F.

341: *History of Latin America since 1924.* 0-3-3. A survey of political, economic, and social developments in Latin America since 1924. W.

342: *History of Mexico.* 0-3-3. The history of Mexico from pre-Columbian Indian civilizations to the present with emphasis on those forces which shaped modern day Mexico. Sp, odd.

343: *The A B C Powers: Argentina, Brazil, and Chile.* 0-3-3. A history of the major countries of South America, from their independence in 1923 to the present. Sp, even.

350: *The American Frontier.* 0-3-3. A study of the American frontier from the colonial period to 1890, with special emphasis on social and economic growth. Sp.

360: *History of Traditional China.* 0-3-3. A study of the development of political, social, and cultural institutions of China from antiquity to the establishment of the Manchu dynasty. F, even.

361: *History of Modern China.* 0-3-3. A history of China from 1644 to the present with emphasis on China's response to Western influence. W, even.

370: *History of Traditional Japan.* 0-3-3. A study of the historical development of Japan from the earliest times to 1603. F, odd.

371: *History of Modern Japan.* 0-3-3. A study of the political, social, and intellectual history of Japan from 1603 to the present. W, odd.

380: *History of England to 1688.* 0-3-3. A study of the development of the English people from the earliest times to the accession of William and Mary. F.

381: *History of England since 1688.* 0-3-3. A study of English political, social, and economic institutions and policies in the eighteenth, nineteenth, and twentieth centuries. Sp.

385: *History of Modern Germany.* 0-3-3. A study of German history since 1648 with special emphasis on major developments in the nineteenth and twentieth centuries. Sp.

400: *Diplomatic History of the United States to 1898.* 0-3-3. A study of American foreign policy from colonial beginnings through the Spanish American War. F, odd.

401: *Diplomatic History of the United States Since 1898.* 0-3-3. A study of American foreign policy from our emergence as a world power to the present. W, odd.

410: *History of Modern Russia.* 0-3-3. A survey of Russian history with special emphasis on twentieth century developments. F.

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 Napolean 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.

440: *Seminar in Latin American History.* 0-3-3. Preq., History 340 and 341 or permission of the instructor. An intensive study of a subject in Latin American history to be chosen by the instructor. Sp.

445: *Seminar in Asian History.* 0-3-3. An intensive study of selected historical developments in China, Japan, and Southeast Asia. Sp.

450: *History of the Old South.* 0-3-3. A study of the political, economic, and social development of the ante-bellum South. Su, odd; Sp, even.

451: *History of the New South.* 0-3-3. A study of the political, economic, and social development of the South since the Civil War. Su, even; Sp, odd.

460: *History of Louisiana.* 0-3-3. A study of Louisiana history from early explorations to the present. Su, F, W, Sp.

465: *Early 20th Century America.* 0-3-3. A study of the social, political and economic development of the United States from 1900 to the end of the New Deal.

466: *Contemporary America.* 0-3-3. An examination of United States history from World War II to the present, emphasizing the expansion of America's role in world affairs.

470: *Social and Intellectual History of the United States to 1865.* 0-3-3. A survey of the major forces and ideas that shaped American history to 1865. F, even.

471: *Social and Intellectual History of the United States since 1865.* 0-3-3. A survey of the major forces and ideas that have shaped American history since 1865. 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.

510: *Independent Study and Research.* 9-0-3. Independent reading and research in selected history topics.

515: *Seminar in Louisiana History.* 0-3-3. Selected reading and research in Louisiana History, with particular emphasis on the twentieth century.

520: *Colonial America.* 0-3-3. A study of colonial life from European colonization through the American Revolution.

521: *The Federal Period, 1783-1825.* 0-3-3. A study of the formative years of the United States from the Confederation period to the rise of Jacksonian Democracy.

522: *The Middle Period, 1825-1860.* 0-3-3. A study of the growth and development of the United States from Jacksonian Democracy to the Civil War.

524: *The Emergence of Modern America, 1876-1900.* 0-3-3. A study of the new American nation from the end of Reconstruction to its emergence as a world power.

525: *Seminar in Recent American History.* 0-3-3. Selected reading and research in contemporary America, with particular emphasis on events since World War II.

530: *Seminar in Ancient History.* 0-3-3. Selected reading and research topics in Ancient History.

535: *Seminar in Medieval History.* 0-3-3. Selected reading and research topics in Medieval History.

540: *Recent European History.* 0-3-3. An intensive study of a restricted subject in recent history (to be chosen by the instructor), with an introduction to scholarly research in this field.

545: *Seminar in Near East History.* 0-3-3. Independent study, research, and writing in Near East History, with an introduction to scholarly research, in this field.

548: *Seminar in East Asian History.* 0-3-3. Selected reading and research topics in East Asian History.

550: *Seminar in British History.* 0-3-3. Selected reading and research topics in British History.

HOME ECONOMICS

100: *Marriage and Family Living.* 0-3-3. Significant factors for successful marriage, marital adjustment, and family living. Su, F, W, Sp.

103: *Nutrition and Weight Control.* 0-1-1. Designed for non-majors. Health and Physical Education 233 recommended to parallel course. Personalized weight control program based on behavior modification, energy balance and recommended nutrients.

107: *Introduction to Home Economics.* 0-1-1. Introduction to policies and practices fundamental to optimum performance at the University level. A brief survey of careers in home economics. F.

112: *Food Study and Preparation.* 6-1-3. Food preparation approached from the standpoint of composition and basic preparation procedures. F, W, Sp.

117: *Women Studies.* 0-3-3. Roles of women in families, education, employment and the community. Influences on changing roles. Emphasis on career opportunities and personal development. W.

118: *Clothing Construction.* 6-0-2. Principles of basic construction and fitting and the use of commercial patterns to create clothing suitable to the individual. F, W, Sp.

128: *Clothing Selection.* 0-2-2. Consideration of appropriate and becoming clothing for individuals with recognition of social, economic, and psychological factors. Design and manufacture of clothing. F, W, Sp.

201: *Introduction to Child Development and Early Childhood Education.* 0-2-2. A survey of child development and early childhood education with emphasis on history, occupational possibilities and recent developments in the field. F, Sp.

202: *Collegiate Cooking.* 3-2-3. Designed for non-majors to assist in cooking appetizing and nutritious meals using basic preparation techniques and managing time, energy, and money. F, W, Sp.

203: *Nutrition.* 0-3-3. Functions of various nutrients and their interrelationships in children and adults with emphasis on personal food habits and selection. Su, F, W, Sp.

207: *Professional Dietetics.* 0-1-1. Dietitian's role in providing quality nutritional care for individuals and groups of people. F.

212: *Meal Management.* 6-1-3. Preq., Home Economics 112. Family meal management including food purchasing and storage. Preparation in terms of basic methods and composition. Functional adaptation of traditional food service procedures. F, W, Sp.

213: *Group Nutrition.* 0-3-3. Preq., Home Economics 203. Nutrition for the pre-school and school age child, the elderly and the ill.

218: *Intermediate Clothing Construction.* 6-0-2. Preq., Home Economics 118. Development of judgment, originality, and skill in construction. Emphasis on pattern selection, use of uncommon fabrics, decorative and special techniques for oneself and other family members. F, W.

219: *Textiles.* 0-2-2. Study of properties and production of textile fibers. Consumer approach to fabric selection, use and care. F, W, Sp.

222: *Food Cost Control.* 0-2-2. Records and analysis as applied in food cost control in the food service organization. W.

223: *Nutrition Education.* 0-2-2. Basic principles of nutrition with special emphasis on the school-age child. Techniques of presenting nutrition information to children. (Planned for non-majors.) Su, F, W, Sp.

236: *Household Equipment.* 0-3-3. Proper selection, use, and care of equipment. Wiring and lighting of the home, kitchen planning. F, Sp, odd.

242: *Food Service Supervision.* 3-2-3. Problems in directing, supervising and controlling personnel, sanitation, purchasing, and storage for small food service organizations.

258: *Fashion Merchandising Fundamentals.* 0-2-2. Processes of buying and merchandising of fashion. The merchandising function is studied with emphasis on the market and in-store operations of the buyer. F, W.

272: *Food Service Field Experience.* 24-0-6. Supervised experience in a commercial institutional food service.

282: *Food Service Field Experience.* 36-0-9. Supervised experience in a commercial institutional food service.

300: *Parenting.* 0-3-3. Study of the parenting role. Emphasis on parent-child interaction and relationships as they influence growth. Open to non-majors. Sp.

301: *Early Childhood Development.* 3-2-3. Preq., Psychology or Home Economics 201. The development of young children. Theory and practice are correlated through readings, class discussions, and nursery school laboratory experiences. Su, F, W, Sp.

302: *Advanced Meal Management.* 6-1-3. Preq., Home Economics 212. Problems of management for group activities and special occasions. Sp.

313: *Introduction to Diet Therapy.* 0-2-2. Principles of normal nutrition adapted to human needs in stress and illness. To be taken concurrently with Medical Records Administration 102. F.

317: *Seminar in Consumer Problems.* 0-1-1-(2). Current readings emphasizing the family and the consumer. Su, W.

327: *Demonstration.* 6-0-2. Preq., Speech 110. Improvement of communication by practical application of demonstration techniques. For teachers or home economists in business. F.

338: *Tailoring.* 6-0-2. Preq., Home Economics 218 or consent of instructor. Fundamental construction processes reviewed and basic principles of tailoring applied in the construction of tailored garments. W.

342: *Quantity Cookery.* 6-2-4. Preq., Home Economics 212. Experience in food preparation and service, menu planning, and methods of purchasing for institutions.

352: *Quantity Food Production.* 16-2-6. Quantity food preparation and service, menu planning, and methods of purchasing for food service systems. Supervised experience. F.

358: *Fashion Merchandising.* Three hours credit. Preq., Home Economics 258 and Marketing 335 or consent of instructor. Supervised experience in salesmanship and other phases of merchandising in retail firms cooperating with the College of Home Economics. F, Sp.

362: *Computer Assisted Food Service Management.* 3-1-2. Application of computer solutions to problems of management through the use of an education model, Dietetic Compak. W.

400: *Contemporary Family Living.* 0-3-3. Family living concerned with stages of family life with emphasis on issues affecting families. W.

401: *Creative Activities and Organization of Preschool Programs.* 0-3-3. Preq., Home Economics 301 or consent of instructor. Organization of preschool programs with emphasis on creative activities, materials and facilities. F.

405: *Home Economics Methods.* 0-3-3. An understanding of the home economics education programs with emphasis on philosophy, principles and methods of teaching in home economics areas. F, Sp.

406: *Special Problems in Home Economics.* 0-3-3-(12). Special offerings selected by student with approval of advisor. May be repeated for credit with Dean's permission. Su, F, W, Sp.

407: *Seminar.* 0-1-1-(2). Investigation of current literature in the various fields of home economics. F, Sp.

411: *Methods in Early Childhood Education.* 3-2-3. Preq., Home Economics 301. Important factors in planning for preschool children. Emphasis on objectives, planning nursery school experiences, and evaluation. W.

412: *Food Science and Technology.* 6-1-3. Preq., Home Economics 112 and 212. An experimental approach to studying the chemical and/or physical nature of foods. Recent developments in technology. Individual investigations of selected problems including literature review, laboratory experiments and written reports. F, Sp.

416: *Home Furnishings.* 0-2-2. A study of period furniture and styles, china, glassware, silverware and other accessories for the home. W.

421: *Student Teaching in Early Childhood Education: Nursery School.* 9-1-4. Preq., Home Economics 301 and 411. An intensive practical experience in supervised nursery school teaching. Sp.

423: *Nutrition Theory.* 0-3-3. Preq., Chemistry 271 or 351. Physiological and chemical significance of various nutrients and their interrelationships in the human body. W.

426: *Housing.* 0-3-3. Physical aspects of planning a house. History of housing. Social aspects such as zoning, government regulations, etc. W, Sp. even.

428: *Dress Design and Pattern Construction.* 6-1-3. Preq., Art 175, Home Economics 338, or consent of instructor. Flat pattern and draping techniques in developing original design. Emphasis on appropriate use of line, color, and texture. Sp.

433: *Nutrition Theory Laboratory.* 3-0-1. Preq., Chemistry 271 or 351. Coreq., Home Economics 423. Nutrient provision and utilization as demonstrated by menu analysis; animal feeding and metabolic studies. W.

436: *Home Management House Residence.* 18-2-4. Preq., Home Economics 212, and advanced junior standing. Residence in the home management house where students

plan, coordinate, and evaluate all phases of homemaking. (Six weeks only.) Su, F, W, Sp.

438: *Historic Costume.* 0-2-2. Development of costume from ancient Egypt through the 19th century, with emphasis on social, economic, and aesthetic influences of its design. Sp.

443: *Applied Human Nutrition.* 4-3-4. The application of basic nutrition principles to determining nutrient needs and designing appropriate food patterns for individuals at various stages in the life cycle and at various economic levels. Supervised experience. Sp.

452: *Food Service Administration.* 16-2-6. Principles of organization and management applied to food service systems. F.

453: *Patient Nutritional Care.* 8-3-5. Preq., Home Economics 443. Dietary modifications used in the treatment of disease conditions with emphasis on individualized patient nutritional care. F.

456: *Management of Consumer Resources.* 0-2-2. Processes of management and decision making as applied to the family. F, Sp.

463: *Patient Nutritional Care.* 20-3-8. Preq., Home Economics 453. A continuation of Home Economics 453. W.

473: *Field Training-Clinical Dietetics.* 16-1-5. Working experience as a clinical dietitian in health care programs. Sp.

482: *Field Training-Food Systems.* 16-1-5. Working experience as an Administrative Dietitian in Food Service Systems. Sp.

498: *Fashion Merchandising International.* (Pass-Fail) 3 to 12 hours undergraduate credit and 3 to 9 hours graduate credit. European fashion study tour (3 hrs. Undergraduate or graduate credit.) Supervised paid work experience in metropolitan fashion center (9 hrs. undergraduate or 6 hrs. graduate credit.) Applications required.

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 Experimental Food Problems.* 6-1-3. Individual experimental investigations related to a specific topic become the basis for class study including oral and written reports, literature reviews, and lectures. Topics involving a variety of principles basic to quality foods for family use are selected subject to approval of the instructor.

503: *World Nutrition Problems.* 0-3-3. A study of world wide nutritional problems with special emphasis on recent research in this field. In addition to class work, each student makes an independent investigation of one topic in the field of nutrition. Open to non-majors and especially recommended for teachers.

504: *Methodology in Home Economics Research.* 0-3-3. Techniques and principles of design for experimental and educational research.

505: *Vocational Home Economics Supervision.* 0-3-3. The value of supervision with emphasis on responsibilities and techniques desirable for effective working relationships with student teachers.

506: *Special Problems in Home Economics.* 4-1-3-(12). Directed individual study of advisor approved topics. May incorporate college teaching experience.

508: *Advanced Tailoring.* 6-1-3. A study of production and motivation of consumers in the field of clothing. Special problems in clothing construction are chosen to incorporate new techniques.

509: *Advanced Textiles.* 0-3-3. A study of recent trends and developments in textiles from the standpoint of their chemical composition and physical properties.

512: *Food Science and Technology.* 0-3-3. Recent developments in science and technology underlying current practices in quality preservation, and problems in non-bacterial spoilage mechanisms of food. Includes survey of freeze drying, irradiation, antibiotics, antioxidants, enzymes, food additives, and packaging.

522: *Quantity Food Purchasing.* 0-3-3. Specifications, receiving, and storage of foods for quantity food service.

532: *Food Service Organization and Management.* 0-3-3. Preq., Home Economics 342. Quantity food service operations as related to management principles, methods of control, selection and training of personnel.

542: *Quantity Food Equipment.* 0-3-3. Preq., Home Economics 342. Selection, arrangement and maintenance of equipment and furnishings for quantity service.

551: *Research and Thesis.* 3 hours credit or multiples thereof. Maximum credit is 6 hours.

HORTICULTURE

100: *Horticulture Laboratory.* 3-0-1-(3). A series of exercises, planned on a seasonal basis, to provide experience in horticultural practices. F, W, Sp.

103: *Basic Floral Design.* 0-1-1. Design, mechanics and construction of simple floral pieces for retail floristry. F.

200: *Design Laboratory.* 3-0-1-(3). Exercises in commercial floral design and /or landscape design. Su, F, W, Sp.

201: *Vegetable Growing.* 0-2-2. Methods and practices of home and commercial vegetable production, with special emphasis on those produced in the South. Sp.

205: *Fruit Growing.* 0-2-2. Home and commercial production of tree ftruits, small fruits, and nuts adapted to the South. W, odd.

210: *Flower Growing.* 0-2-2. Principles and practices involved in growing garden and green house flower crops. F, odd.

215: *Flower Arranging.* 3-1-2. Element and principles of contemporary American amateur flower arranging. Su, F.

219: *Introduction of Landscape Design.* 0-1-1. A survey of the field of landscape design as it applies to home and city beautification. F, even.

220: *Elementary Landscape Design.* 0-2-2. Elements and principles of landscape design as applied to the home grounds. W.

300: *Advanced Horticulture Laboratory.* 9-0-1-(4). Field trips to experiment stations, large wholesale florists and nurseries, and large horticultural areas.

302: *Ornamental Plants.* 0-2-2. Woody and herbaceous ornamental plants and their use in landscape. Sp, odd.

307: *Landscape Design.* 3-2-3. Elements and principles of design as applied to small parks, institutional grounds, and other large areas. F, Sp.

311: *Japanese Flower Arranging.* 0-1-1. Classical and modern Japanese flower arranging as it is practiced by Americans. W, even.

315: *Plant Propagation.* 0-2-2. Principles and practices of sexual and asexual methods of propagating horticultural plants. F, add.

400: *Special Problems in Horticulture.* 3-0-1-(3). Preq., senior standing as a horticulture major or consent of instructor. F, W, Sp.

403: *Commercial Floral Design.* 0-1-1. Principles and practices of commercial floral design as practiced by the florist industry. Sp.

404: *Creative Floral Design.* 6-1-3. Original designs executed by the students. Mechanics are devised and sketched, directions for construction are formulated and written for a portfolio. Sp, even.

409: *Nursery Management.* 0-1-1. Production practices, management, grading, and marketing of fruit, vegetable, and ornamental nursery plants. F, even.

410: *Greenhouse Management.* 0-1-1. Principles and practices of greenhouse management. May be given as a 3-day short course in the summer. Su, W, odd.

412: *Flower Shop Management.* 0-1-1. Principles and practices of retail flower shop management. Sp, odd.

INDEPENDENT STUDY

498-499: *Readings and Research-Major Field.* 9-0-3 each. Preq., admission to Independent Study program. Departmental honors course for independent research and reading. Offered by each department in the College of Arts and Sciences. Su, F, W, Sp.

INDUSTRIAL ENGINEERING

201: *Introduction to Industrial Engineering.* 0-3-3. Preq., sophomore standing. Introduction to man-machine system. F.

301: *Industrial Cost Analysis.* 0-3-3. Analysis and control of manufacturing costs. W, even.

400: *Engineering Statistics.* 0-3-3. Preq., Mathematics 231. Application of probability and distribution theory to various branches of engineering. F, Sp.

401: *Engineering Statistics.* 0-3-3. Preq., Industrial Engineering 400. Inferences concerning proportions, regression analysis, analysis of variances, quality control, reliability, and life testing. W.

402: *Introduction to Operations Research.* 0-3-3. Preq., Industrial Engineering 400. Inventory theory, replacement

theory, waiting lines, game theory, allocation and sequencing. F.

404: *Operations Research.* 0-3-3. Preq., Industrial Engineering 402. Industrial engineering applications of dynamic programming, critical path methods, projects evaluation review technique (PERT), and computer simulation of large systems. W.

408: *Facilities Planning.* 0-3-3. Preq., Mechanical Engineering 251 and Industrial Engineering 201. Detail planning for plant location, buildings, services, materials handling and transportation. Sp.

409: *Production Engineering.* 3-2-3. Preq., Mechanical Engineering 251. Methods engineering, work measurement, and production standards. F. Sp.

410: *Industrial Engineering Design.* 0-3-3. Preq., Industrial Engineering 409. Principles of plant layout related to the design of man-machine systems. Su, W.

411: *Operations and Facilities Design.* 0-2-2. Preq., Industrial Engineering 400, 408 and 409. Introduction to industrial engineering systems design. Selection and analysis of an engineering problem from industry or any other field where industrial engineering techniques are applied. W.

412: *Operations and Facilities Design.* 0-2-2. Preq., Industrial Engineering 411. The development of a solution to the engineering problem started in Industrial Engineering 411. Sp.

420: *Introduction to Human Factors Engineering.* 0-3-3. Preq., junior standing. Human biological and psychological capabilities and limitations. Man-machine-environment systems.

421: *Human Engineering for Equipment Design.* 0-3-3. Preq., Industrial Engineering 420 and credit or registration in Industrial Engineering 422. Engineering design for the man-machine interface. Design of controls, displays, work stations. System evaluation and testing.

422: *Human Factors Laboratory.* 3-1-2. Preq., junior standing. Laboratory methods and techniques for deriving design criteria applicable to human engineering.

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. Sp.

425: *Industrial Safety.* 0-3-3. Preq., junior standing. Principles of domestic and industrial safety. W.

426: *Materials Handling.* 0-3-3. Preq., Industrial Engineering. Modern materials handling methods, systems, equipment and control.

427: *Construction Safety.* 0-3-3. Preq., junior standing or consent of instructor. Fundamentals of construction safety.

429: *Industrial Hygiene.* 0-3-3. Fundamentals of Industrial Hygiene. Sp.

430: *Fire Protection.* 0-3-3. Consent of instructor. The study of fire, potential fire hazards, and fire detection and extinguishing systems. Sp.

451: *Tool Design.* 4½-1-2. Preq., Industrial Engineering 409, Mechanical Engineering 251. Analysis and design of production tools.

501: *Operations Research.* 0-3-3. Preq., Graduate standing. Mathematical Model design, linear programming, the transportation problems, queuing theory, game theory, inventory theory and Monte Carlo processes.

502: *Operations Research.* 0-3-3. Preq., Graduate standing. Continuation of Industrial Engineering 501. 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 501 or consent of instructor. Optimizing operating conditions for systems involving waiting lines. Single and multi-channel 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 501 or equivalent. Effect of income tax on decision making. Retirement and replacement analysis. Capital management. Elements of economic measurement, analysis and forecasting in the face of uncertainty.

510: *Advanced Work Measurement.* 0-3-3. Preq., Industrial Engineering 409, or consent of instructor. Advanced methods improvement and work measurement techniques. Design of complex work systems. Work sampling, construction of standard data and mathematical models of work systems.

512: *Reliability Engineering.* 0-3-3. Preq., Industrial Engineering 400. Application of statistical theory in engineering design. Testing methods for determining reliability. Design of components and assemblies for reliability.

513: *Inventory Control.* 0-3-3. Preq., Industrial Engineering 400 or equivalent. Analytical methods of determining reorder size and minimum points of various inventory system. Mathematical models with restrictions and quantity discount. Forecasting techniques and production smoothing.

514: *Industrial Statistics.* 0-3-3. Preq., Industrial Engineering 400 or equivalent. Application of statistical techniques to industrial problems, relationships between experimental measurements using regression, correlation theories and analysis of variance models.

520: *Graph and Network Analysis.* 0-3-3. Preq., Industrial Engineering 400. Basic Concepts of graph theory and networks, their applications to production scheduling, transportation models, and other systems.

521: *Methods of Optimization.* 0-3-3. Preq., Graduate standing and FORTRAN IV. District elimination methods of sequential search, even-block search, Fibonacci search and golden section and odd-block search. Pattern search, gradient method and geometric programming.

524-525-526: *Graduate Seminar.* 0-1-1 each. Critical group examination of the subject matter currently developed in the literature related to industrial engineering and operations research.

550: *Special Problems.* 1-4 semester hours credit. Advanced problems in industrial engineering.

INSTRUMENTATION TECHNOLOGY

201: *Instrument Maintenance and Calibration.* 3-2-3. Preq., Electro-Technology 270. Instruction and practical laboratory experience in the mechanical and electrical maintenance and calibration of industrial instruments. Introduction to the standards laboratory, and awareness of the importance of traceable calibrations. Sp.

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. F, Sp.

310: *Copy Editing.* 0-3-3. Preq., Journalism 101. Course dealing with methods of editing copy and the writing of headlines. Su, W.

311: *Advanced Copy Editing.* 0-3-3. Preq., Journalism 310. Techniques of newspaper makeup and layout; includes writing headlines, editing wire copy, cropping and sizing photography, principles of makeup and dummying of pages. Sp.

320: *Feature Writing.* 0-3-3. Preq., Journalism 101. Practical instruction in gathering material for "human interest" and feature articles of various types for magazines as well as newspapers. F, Sp.

330: *Editorial Writing.* 0-3-3. Preq., Journalism 101. Course in the study of fundamentals and practice in editorial writing. Course includes units on recent history and current events. W.

350: *Practical Reporting.* 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, and 310. Writing of articles for the university newspaper upon assignment or consultation with faculty supervisor. May be repeated for two additional semester hours credit. Su, F, W, Sp.

353: *General Newspaper Work.* 6-0-2. Open only to journalism

majors or minors. Preq., Journalism 101. Practical lab work on university newspaper. May be repeated for two additional semester hours credit. F, W, Sp.

355: *Practical Reporting.* 6-0-2. Preq., Journalism 101. Open to majors and minors only. 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 principle, 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.

376: *Sports News Coverage.* 0-2-2. Preq., junior or senior standing. Course designed to include keeping box scores, statistics, preparation of brochures and program pamphlets, publicizing athletic events and reporting of games.

450: *Public Relations.* 0-3-3. Comprehensive approach into diverse functions of the practitioner as a specialist, analyst and counselor relevant to public relations' role involving monitoring public opinion. Sp.

451: *Advanced Practical Reporting.* 6-0-3-(9). Junior and Senior majors only and by permission of instructor. Consists of practical news work in professional media, work ranging from basic news beat coverage to news writing. Su, F, W, Sp.

455: *Scholastic Journalism.* 0-3-3. Preq., Journalism 101 or permission of instructor. A practical course in basic techniques designed to aid secondary school journalism curriculum development with emphasis on advising publications.

LIBRARY SCIENCE

Library Science courses numbered 300 and 400 are open only to junior and seniors.

201: *Books and Materials for the Elementary School.* 0-3-3. A study of the reading interests of children. Selection and evaluation, sources and use of materials with children. Extensive reading of children's books. Su, F, W, Sp.

210: *Libraries and Librarianship.* 0-3-3. Introductory survey of libraries and librarianship designed for students entering the profession. F.

301: *School Library Administration.* 0-3-3. Administration of the school library with emphasis on planning for effective use of library services and materials in cooperation with instructional staff. Su, even; F.

302: *Acquisition and Organization of Library Materials.* 0-3-3. Preq., Library Science 301 or consent of instructor. Basic principles of cataloging and classifying print and non-print materials. Study of Dewey Decimal Classification System. Su, odd; W, Sp.

303: *Introduction to Reference Materials and Service.* 0-3-3. Selection, evaluation and use of basic reference works. Practice in solution of typical reference problems. Emphasis on school library as learning center. Su, F, Sp.

305: *Books and Materials for the Young Adult.* 0-3-3. Selection and evaluation, sources and use of print and non-print materials that meet the needs of the young adult. Extensive reading of books for the young adult. Su, F, W, Sp.

315: *Advanced Reference and Bibliography.* 0-3-3. A study of important reference works in all fields of knowledge with emphasis on bibliography.

330: *Problems in Librarianship.* 0-3-3. Preq., 12 hours of Library Science. Investigation of problems relating to school library learning centers. Sp.

410: *Selection of Books and Audio-Visual Materials.* 0-3-3. Methods and criteria for selection of print and non-print materials in all types of libraries. W.

440: *Library Automation.* 0-3-3. Preq., Library Science 210, 302 or consent of instructor. Planning and implementing automated library procedures using the COBOL programming language and IBM 360 series computer. W.

450: *Literature for Children.* 0-3-3. Designed to relate understanding of child development to knowing and using print and non-print materials with children. Practical experience in story-telling and creative drama. Su, Sp.

451: *Workshop in School Librarianship.* 0-3-3. Preq., professional school experience and consent of instructor. An in-depth study of school library learning center programs. May be repeated for credit when topics vary. Su.

LIFE SCIENCES

101: *Orientation.* 0-1-1. Basic rules, policies, history, and organization of the University with special application to life sciences. F, Sp.

200: *Introduction to Environmental Sciences.* 0-3-3. Basic laws, principles and issues related to the causes, effects and controls of environmenal problems. Man-environment interaction. Su, F, W, Sp.

300: *Principles of Genetics.* 0-3-3. Fundamental laws of heredity as applied to plants, animals and man. A basic course for students in all fields of study. Su, F, W, Sp.

301: *Basic Genetics Laboratory.* 3-0-1. Fundamental experiments designed to show application of laws of inheritance in selected organisms. Su, F, W, Sp.

420: *Statistical Methods.* 0-3-3. Preq., consent of the instructor. Methods of designing experiments and analyzing biological data. Su, F, W, Sp.

425: *Special Problems.* 1-3 hour(s) credit. Consent of instructor. Credit depends on the nature of the problem and work accomplished. Su, F, W, Sp.

456: *Technology and the Bioenvironment.* 0-3-3. Principles of waste management, pollution control and environmental conservation. Topics include sources, effects, extent and control of air, water, soil and solid waste pollution. Su, F, W, Sp.

509: *Life Sciences Seminar.* 0-1-1. Survey of literature on current topics on state-of-the-art in either Bacteriology, Botany, Microbiology, or Zoology, where appropiate. May be repeated for total of two hours credit.

530: *Life Sciences Special Problems.* 1-6 hours credit as limited by the Department. Permission of the instructor and the Department head. Individual advanced study of Special Problems in Botany, Bacteriology, Microbiology, or Zoology, where appropriate.

551: *Research and Thesis.* Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six hours.

MANAGEMENT

105: *Introduction to Business.* 0-3-3. The university organization, curricula, learning process, educational practices; careers in business; society and administration of the business firm. (Open only to freshmen and sophomores. Honors class in fall quarter for freshmen students having ACT composite of 25 or higher.) Su, F, W, Sp.

201: *Supervisory Techniques.* 0-3-3. Basic supervision of small employee groups including employee hiring and dismissal, planning and organizing work assignments, evaluating performance, necessary records, and legal aspects. (Associate degree credit only in CAB) F, Sp.

311: *Organizational Behavior, Planning and Control.* 0-3-3. Preq., Junior standing. Nature and development of management theory, individual and group behavior, leadership, communications and organizational design, organizational planning and control. Su, F, W, Sp.

312: *Production.* 0-3-3. Preq., Quantitative Analysis 335. An introduction to the production function in business firms, including elementary decision models. Su, F, W, Sp.

340: *Small Business Management.* 0-3-3. Preq., Management 311. Organizing and operating the small business, with special attention to personal qualifications, capital requirements, location, sources of assistance. F, Sp, even.

350: *Production Management.* 0-1-1. Preq., junior standing. A study of the production management function in business utilizing simulation techniques. Su, F, W, Sp.

444: *Business Simulation.* 0-1-1. Preq., senior standing College of Administration and Business. Sequential decision-making structured around a model of a business operation in which the student assumes the role of managing a simulated firm. Su, F, W, Sp.

446: *Transportation.* 0-3-3. (Same as Economics 446). Development of domestic transportation systems; rate theory and rate-making practices; principles and practices of transport regulation by government agencies. F.

447: *Labor 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 labor law. Su, W.

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. Sp.

470: *Personnel Management.* 0-3-3. A study of the functions and procedures in personnel management with emphasis on the procurement, development, maintenance and utilization of the work force. Su, F, 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 312. Management principles as applied to industrial production introducing such topics as production costs, quality control, time study, work simplification, scheduling, plant layout, and labor-management relations. F, Sp.

476: *Systems and Operations Management.* 0-3-3. Preq., Quantitative Analysis 430. Advanced studies and case problems in the design, management and control of industrial operations. Topics include OR techniques, inventory and queuing models, forecasting, scheduling, and optimization. W.

480: *Administrative Office Management.* 0-3-3. Preq., (See Office Administration 480). Su, F, Sp.

484: *International Administrative Problems.* 0-3-3. Preq., senior standing. Case studies and special research reports by students, stressing the inter-relationships of the different fields of business and economics. Administrative decision-making in international and multinational companies.

485: *International Business Management.* 0-3-3. Preq., Management 311. Readings and cases in international business: governmental activities, regionalism, market opportunities, structure of international companies, company intelligence, human relations, operating policies, procedures and problems. Sp, odd.

495: *Administrative Policy.* 0-3-3. Preq., all other Common Body of Knowledge courses and senior standing in the College of Administration and Business. Administrative policy determination through integration and application of knowledge gained in previous courses; emphasizes interrelationships of major functions of business under conditions of uncertainty; utilizes case approach. Su, F, W, Sp.

500: *Organizational Theory and Policies.* 0-2-2. Preq., Graduate School admission. Organizational theory and policies, with particular emphasis on employee and group behavior and their effect on management practices.

501: *Production Management and Policies.* 0-2-2. Preq., Graduate School admission. The design, operation, and control of the production function, with emphasis on policy determination, strategy, and decision-making.

520: *Directed Research and Readings.* 0-3-3. Research methodology; problems requiring independent organization of research, implementation, outline of solution, and preparation of reports. Emphasis placed on problem-solving for policy-making decisions.

521: *Administrative Policy.* 0-3-3. A synthesis of materials learned in accounting, management, marketing, economics, and finance. Specific problems and actual cases as basis for executive decision-making.

526: *Advanced Industrial Management.* 0-3-3. Preq., Management 312 or permission of instructor. Analytical approach to industrial systems, design, operation and control.

527: *Manpower Management.* 0-3-3. Preq., Management 311 or equivalent in other courses or experience. An advanced course in the management of the personnel function with emphasis on such topics as compensation systems, evaluation systems, and the legal environment affecting personnel.

528: *Seminar in Management Theory.* 0-3-3. Seminar with emphasis on important contributions to modern management thought as evidenced in the writings of major contributors.

529: *Seminar in Current Management Issues.* 0-3-3. Survey of contemporary social, political, and technical developments and their impact upon the function of management.

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.

572: *Organizational Behavior.* 0-3-3. Preq., Satisfactory background in behavioral science area. A seminar in behavioral science concepts and theories which are relevant to the organization's external operation.

573: *Seminar in Behavioral Research Methodology.* 0-3-3. Analysis and intensive study of research and research methodology utilized in the behavioral sciences. The method of science as applied to management is emphasized.

MARKETING

300: *Marketing Principles and Policies.* 0-3-3. Preq., Economics 201, 203 or 315 and junior standing. Marketing functions; institutions; policies and strategies with their business, economic, and social implications. Su, F, W, Sp.

307: *Salesmanship.* 0-3-3. Preq., junior standing. A study of the selling process with emphasis on the economic aspects of salesmanship and the role of the salesman in buyer-seller realtionships. W.

320: *Consumer Behavior.* 0-3-3. Preq., junior standing. A study of the consumer and the relation to the marketing process. Su, F, W, Sp.

335: *Fundamentals of Retail Store Operation.* 0-3-3. Preq., junior standing: not designed for students in the marketing option. An introduction to operations of retail stores; retail salesmanship, purchasing control, and supervision. F, 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. Su, W.

425: *Sales Management.* 0-3-3. Preq., Marketing 300. Relation of sales department to other departments; types of sales organizations, management of sales force; market analysis; price policies, sales budgets; distribution costs. Sp.

435: *Retailing Management.* 0-3-3. Preq., Marketing 300 and senior standing. Merchandise distribution by retail organization; emphasis on retailing in the distributive system and problems of management and control. W.

440: *Credit Management and Collections.* 0-3-3. Preq., Marketing 300. Credit and collection policies and procedures; sources of credit information and its analysis and evaluation; determination of credit limits; relation of credit to sales.

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. Su, odd; F, Sp.

482: *Marketing Research.* 0-3-3. Preq., Quantitative Analysis 337. A consideration of marketing research as a tool management; application of research techniques to various marketing problems. Su, even; 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. Sp., even.

500: *Marketing Concepts and Policies.* 0-2-2. Preq., Graduate School admission. Concepts and policies dealing with product, price, promotion, and place decisions.

530: *Marketing Management.* 0-3-3. A course to assist the marketing manager in analyzing management problems involving pricing, advertising and other promotion, sales management, product decision, marketing research.

531: *Marketing Theory.* 0-3-3. Analysis of the evolution of marketing theory.

532: *Seminar in Price Policies.* 0-3-3. Problems and practices involved in formulating and administering price policies.

533: *Advanced Marketing Research.* 0-3-3. An in-depth study of research philosophy, theory, objectives, techniques, and problems as applied to marketing.

534: *Marketing Dynamics.* 0-3-3. A course designed to examine the marketing organism and its adjustments to the legal, political, economic, social, and cultural environment.

535: *Seminar in Marketing.* 0-3-3. An examination of concepts and research findings related to selected topics in marketing. Presentation and critical evaluation of reports from related disciplines.

MATHEMATICS

105: *Basic Mathematics.* 0-3-3. A review of the basic concepts of arithmetic and algebra. Designed for students who have

an inadequate mathematical background. (A non-credit course in Arts and Sciences.) S, F, W, Sp.

107: *General Mathematics.* 0-2-2. Dependent on Math. Placement Score. Sets and natural numbers, the arithmetic and algebra of integers, rational numbers, first degree equations and inequalities, equations with two variables. Su, F, W, Sp.

108: *General Mathematics.* 0-2-2. Preq., Mathematics 107. Further extensions of the number system; polynomials; relations, function, and graphs; ratio, proportion, and variation; basic trigonometry. Su, F, W, Sp.

109: *General Mathematics.* 0-2-2. Preq., Mathematics 108. Logarithms; compound interest and annuities; permutations, combinations, and probability; binomial theorem; some topics in statistics. Su, F, W, Sp.

110: *Basic Algebraic Skills.* 0-3-3. Preq., Dependent upon Math Placement Score. The algebra of integers, first and second degree equations, algebraic fractions, factoring, exponents and radicals. (Credit is not allowed for both Math 110 and any part or all of the Math 107-108 sequence.) Su, F, W, Sp.

111: *College Algebra.* 0-3-3. Preq., Dependent on Math Placement Score. Sets, inequalities, functions, systems of equations, determinants, permutations and combinations, quadratic equations. Su, F, W, Sp.

112: *Trigonometry.* 0-3-3. Solution of right triangles, reduction formulas, functions of several angles and of multiple angles, trigonometric equations, inverse functions, and complex numbers. Su, F, W, Sp.

113: *Plane and Solid Geometry.* 0-3-3. An integrated course in plane and solid geometry for a student who has not taken plane geometry in high school, or for a student who needs demonstrative solid geometry. F, W.

114: *Mathematics for the Consumer.* 0-3-3. Dependent on Math Placement Score. Decimals, percentages, discounts, markups, overhead, depreciation, profit, interest, installment buying, charts, graphs, averages, interpretation of computer printouts. F, Sp.

115: *Mathematics of the Metric System.* 0-1-1. A study of the metric system. Units of measure, changing units, estimation in metric units, conversion from English to metric and metric to English units, and applications. Su, W.

200: *Basis Statistics.* 0-3-3. Preq., Two semester hours of mathematics numbered above 107 or consent of the instructor. Frequency distributions, histograms, data grouping, mean, median, mode, standard deviation, basic probability, expected values, sampling, normal distribution, correlation, linear regression, simple tests of hypothesis. Su, W.

220: *Applied Calculus.* 0-3-3. Preq., Mathematics 111 and Mathematics 112. For students in the Architecture and Construction Technology curriculums. Functions and graphs, the derivative, applications of derivatives, indefinite integrals, application of definite integrals. Su, F, W, Sp.

222: *Calculus for Business Administration and Economics.* 0-3-3. Preq., Mathematics 111. Functions and graphs, the derivative, the indefinite integral and the definite integral; applications as applied to business and economics. F, Sp.

228: *Introductory Probability Theory.* 0-3-3. Preq., Mathematics 111 or consent of instructor. Probability from an elementary set theory standpoint in discrete probability spaces; and introductory statistical terminology and techniques. Su, F, Sp.

230: *Analytic Geometry and Calculus.* 0-3-3. Preq., Mathematics 111 and 112; also dependent on math placement score. Introduction to analytic geometry, differentiation of algebraic functions, applications of the derivative. Su, F, W, Sp.

231: *Analytic Geometry and Calculus.* 0-3-3. Preq., Mathematics 230. Applications of integration, curve sketching, trigonometric functions, logarithmic and exponential functions. Su, F, W, Sp.

232: *Analytic Geometry and Calculus.* 0-3-3. Preq., Mathematics 231. Methods of integration, vectors in the plane, indeterminate forms and improper integrals, polar coordinates. Su, F, W, Sp.

303: *Mathematics for Elementary Teachers.* 0-3-3. Preq., Mathematics 107 or 111. Development of the structure of the real number system, from the concept of sets through the systems of natural numbers and algorithms. Su, F, W, Sp.

304: *Mathematics for Elementary Teachers.* 0-3-3. Preq., Mathematics 303. A continuation of the study of real number systems from integers to rational numbers to real numbers to abstract number systems; topics from geometry. Su, F, W, Sp.

307: *Contemporary Mathematics for Secondary School Teachers.* 0-3-3. Preq., Mathematics 109, 112, or 113. Sets, relations, functions, equations, inequalities, proofs, structure of algebra, evaluation of experimental programs in mathematics. F.

308: *Introduction to Linear Algebra.* 0-3-3. Preq., Mathematics 230. Matrices, systems of linear equations, vectors, vector spaces, linear transformations, eigenvalues and eigenvectors. Su, F, W, Sp.

313: *Introductory Numerical Analysis.* 0-3-3. Preq., Mathematics 231 and Computer Science 102. Introduction to numerical techniques in finding roots of equations, solving systems of equations, approximating functions, derivatives and integrals. F, Sp.

318: *Introduction to Abstract Algebra.* 0-3-3. Preq., Mathematics 231. Fundamental set concepts, groups, rings integral domains, fields, polynomials. Su, F, Sp.

330: *Analytic Geometry and Calculus.* 0-3-3. Preq., Mathematics 232. Infinite series, vectors and solid analytic geometry, applications to physical problems, partial differentiation, multiple integral. Su, F, W, Sp.

340: *Introduction to Real Analysis.* 0-3-3. Preq., Mathematics 330. A rigorous introduction to the calculus of functions of one real variable.

350: *Ordinary Differential Equations.* 0-3-3. Preq., Mathematics 330 or consent of instructor. Equations of first order and first degree, singular solutions, applications to geometry and physics, linear equations of higher order.

375: *Mathematical Methods in Engineering.* 0-3-3. Preq., Mathematics 350. Selected topics from Partial Differential Equations, Fourier Analysis, Numerical Methods and Statistics and Probability with applications to engineering problems. F, Sp.

401: *College Geometry.* 0-3-3. Preq., Mathematics 230 or consent of instructor. Logical systems and basic laws of reasoning, axiomatic geometry, selected Euclidean geometry, harmonic elements and cross ratio, non-Euclidean and metric projective geometrics. W, Sp.

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 intitial boundary-value problems using Fourier series, Fourier integral methods, F, Sp.

410: *Advanced Engineering Mathematics.* 0-3-3. Preq., Mathematics 330. Power series, Taylor's formula, applications, complex series, Fourier series, functions of several variables.

411: *Advanced Engineering Mathematics.* 0-3-3. Preq., Mathematics 330. Vectors, fundamental operations and applications, linear vector spaces and matrices, coordinates and function, transformation theorems, application.

412: *Vector and Tensor Analysis.* 0-3-3. Preq., Mathematics 411 or consent of instructor. The algebra of vectors, differential vector calculus, differential geometry, integration, static and dynamic electricity, mechanics, hydrodynamics, and electricity, tensor analysis and Riemann geometry, further applications of tensor analysis.

413: *Foundations and Fundamental Concepts.* 0-3-3. Preq., Mathematics 231 or consent of instructor. Mathematics before Euclid, Euclid's "elements," non-Euclidean geometry, Hillbert's "Grundlagen," algebraic structure, the modern mathematical method, sets, logic and philosophy.

414: *Numerical Analysis.* 0-3-3. Preq., Math 308, Knowledge of FORTRAN, or consent of instructor. Roots of polynomial and other nonlinear equation. Solutions of systems of simultaneous equations. Numerical applications of matrix theory and linear algebra. Interpolating polynomials.

415: *Numerical Analysis.* 0-3-3. Preq., Math 350, Math 414, or consent of instructor. Curve fitting techniques. Function approximation techniques. Numerical differentiation. Numerical integration. Numerical solution of differential equations and systems of differential equations and boundary value problems.

416: *Abstract Algebra.* 0-3-3. Preq., Mathematics 318 or consent of instructor. Number theory, equivalences, and congruences, groups, ideals. F.

418: *Introduction to Statistical Procedures.* 0-3-3. Preq., Mathematics 228 or consent of instructor. Sampling, normal population, group-comparisons, tests of hypotheses, t-test, F-ratios, correlation, regression and one-way analysis of variance.

428: *Experimental Design.* 0-3-3. Preq., Mathematics 418. Multiway analysis of variance to include randomized block design, Latin square design, Graeco-Latin square design, factorial analysis, repeated measures design, and split-plot design.

430: *Projective Geometry.* 0-3-3. Preq., Mathematics 308, 330 or consent of instructor. Ideal elements, duality, harmonic sets, projectivity, projective theory of conics, theory of poles and polars.

440: *Linear Programming.* 0-3-3. Preq., Mathematics 230 and 308 or consent of instructor. Characteristics of linear programming problems, properties of linear programming solutions, the simplex method with variations, optimality analysis, the dual problem, the transportation problem.

441: *Non-linear Programming.* 0-3-3. Preq., Mathematics 440. Advanced topics in linear programming, quadratic programming, dynamic programming.

445: *Theory of Functions of Complex Variables.* 0-3-3. Preq., Mathematics 330. Complex numbers, analytic functions, elementary functions, mapping elementary functions, integrals, power series, residues, poles, conformal mappings, applications of conformal mappings.

448: *Theory of Probability.* 0-3-3. Preq., Mathematics 330 or consent of instructor. Discrete and continuous density functions, expected value moments and moment generating functions, central limit theorem.

449: *Theory of Statistics.* 0-3-3. Preq., Mathematics 448 or consent of instructor. Sampling distributions, estimation of parameters, inference, maximum likelihood estimators.

450: *Ordinary Differential Equations.* 0-3-3. Preq., Mathematics 340 and 350 or consent. First-order equations, second-order linear equations, general linear equations and systems, existence and uniqueness theorems, plane autonomous systems.

460: *Number Theory.* 0-3-3. Preq., Mathematics 318. Divisibility properties of integers, prime numbers, congruences, number theoretic functions.

470: *Introduction to Topology.* 0-3-3. Preq., consent of instructor. Introduction of concepts, metric spaces, countability axioms, separation axioms, connectedness, compactness, product spaces, continuous mappings and homeomorphisms, homotopy, quotient spaces.

480: *Introductory Analysis.* 0-3-3. Preq., Mathematics 340. A study of functions in metric spaces-limits, continuity, integration, uniform convergence, approximations.

490: *Topics in Mathematics.* 0-3-3. Various topics in the field of Mathematics. May be repeated for credit.

502: *Special Functions in Applied Mathematics.* 0-3-3. Preq., Mathematics 330. Orthogonal functions, solutions of differential equations of Legendre, Gauss, Hermite, Tchebysheff, Laguerre, and Bessel, properties of these solutions, coordinate system, and boundary value problems.

507: *Partial Differential Equations.* 0-3-3. Preq., Mathematics 407. Continuation of Mathematics 407. Existence, uniqueness, and representation of solutions, problems in higher dimensions, Green's formulas, multiple Fourier series, Fourier transforms, boundary value problems in infinite domains.

510: *Functional Analysis.* 0-3-3. Preq., Mathematics 405, 470. Linear spaces, normed spaces, metric spaces, Banach spaces, Hilbert spaces.

511: *Functional Analysis.* 0-3-3. Preq., Mathematics 510. Linear topological spaces, metric spaces, Banach spaces, Hilbert spaces.

515: *Numerical Analysis.* 0-3-3. Preq., Consent of instructor. Numerical analysis of problems in linear algebra, norms for vectors and matrices, convergence properties of sequence and series of vectors and matrices, convergence of iterative techniques for linear systems. Numerical differentiation and integration. Numerical solutions of differential equations using infinite series of linear operators.

520: *Theory of Ordinary Differential Equations.* 0-3-3. Preq., Mathematics 450. Existence and uniqueness theorems, dependence of solutions on a parameter, linear and nonlinear differential equations, differential inequalities, oscillation and comparison theorems, stability of solutions, pertubation theory.

530: *Algebraic Topology.* 0-3-3. Preq., Mathematics 470 and 416. Categories and functions, Eilenberg-Steenrod axioms, construction of the homology 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 330 and 405 or consent. Homogeneous linear equations and linear dependence, projections and rigid motions, homogeneous cartesian coordinates, linear dependence of points and lines, point geometry and line geometry, harmonic division and cross ratio, one-and-two dimensional projective transformations.

558: *Linear Statistical Models.* 0-3-3. Generalized inverses, quadratic forms, Gauss Markov Theory, estimability, full rank models, non-full rank models and covariance.

562: *Advanced Linear Algebra.* 0-3-3. Preq., Mathematics 405. Eigenvalues, linear functionals, bilinear and quadratic forms, orthogonal and unitary transformations, normal matricies.

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.

568: *Experimental Design.* 0-3-3. Preq., Mathematics 428. Incomplete block designs, hierarchical designs, confounding, fractional replicates, response surface analysis.

570: *Stochastic Processes.* 0-3-3. Preq., Mathematics 448. Generating functions, recurrent events, random walk models, Markov processes, branching processes, homogenous and non-homogeneous processes, queuing processes.

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., Math 580. Metric Spaces, Topological Spaces and Banach Spaces.

584: *Topics in Algebra.* 0-3-3. May be repeated for 3 hours credit each time.

586: *Topics in Analysis.* 0-3-3. May be repeated for 3 hours credit each time.

587: *Topics in Applied Mathematics.* 0-3-3. May be repeated for 3 hours credit each time.

588: *Topics in Topology.* 0-3-3. May be repeated for 3 hours credit each time.

MECHANICAL ENGINEERING

200: *Fundamentals of Energy.* 0-3-3. Preq., Mathematics 108. Science Elective for non-engineering students. Study of energy: sources; scientific laws governing conversions; environmental effects; economic, social and political developments; and individual consumer's role. Sp.

201: *Mechanisms.* 3-1-2. Preq., Mathematics 230. Kinematic analysis of mechanisms. The use of analytical and graphical methods in determining velocities and accelerations in mechanism motions. Applications to machines. Gears and cams. W, Sp.

251: *Manufacturing Processes.* 3-1-2. A study of the processes of manufacture of machine parts. Lectures describe processes. Laboratory is operational practice and

demonstration of machine tools, foundry, and welding. F, W, Sp.

307: *Materials of Engineering.* 3-1-2. Preq., Chemical Engineering 306, Chemistry 102, 104 and Mechanical Engineering 251. The properties of engineering materials are evaluated and correlated with their internal structures. F, W.

309: *Machine Design.* 0-2-2. Preq., Engineering Mechanics 301 and credit or registration in Engineering Mechanics 203. Further study in strength of materials and properties of materials. Combined stresses and strains, curved beams, Castiglianos theorem, and theories of failure. F, W, Sp.

315: *Thermodynamics.* 0-2-2. Preq., Mathematics 231 and Physics 201. No credit for Mechanical Engineering 315 unless Mechanical Engineering 316 is taken. Fundamental concepts and definitions, properties of a pure substance, work and heat, first and second laws of thermodynamics. F, W, Sp.

316: *Thermodynamics.* 0-2-2. Preq., Mechanical Engineering 315. Entropy, irreversibility and availability, vapor and air-standard power and refrigeration cycles. Su, F, W, Sp.

317: *Thermodynamics.* 0-2-2. Preq., Mechanical Engineering 316. Ideal gas mixtures, thermodynamic relations, flow through nozzles and blade passages, chemical reactions, and chemical equilibrium. W, Sp.

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. F.

351: *Instrumentation and Measurements.* 3-0-1. Preq., Electrical Engineering 213 and Mechanical Engineering 315. Experimental methods, report writing, characteristics of instruments with emphasis on pressure and temperature; the use of statistical methods in analyzing data. F, W.

353: *Mechanical Engineering Problems.* 3-0-1. Preq., Mathematics 350 and credit or registration in Mechanical Engineering 315. Solution of mechanical engineering problems using basic analog and digital computing techniques. W, Sp.

354: *Mechanical Engineering Problems.* 3-0-1. Preq., Mechanical Engineering 353. A continuation of Mechanical Engineering 353. Solution of mechanical engineering problems using numerical methods and digital computing techniques. F, Sp.

402: *Machine Design.* 3-2-3. Preq., Mechanical Engineering 201, 307, 309, 353. Application of mechanics, kinematics, and stress analysis in design of machine elements. Use of mechanical measuring techniques, analog computer, and experimental stress analysis as design tools. F, W, Sp.

403: *Machine Design.* 0-2-2. Preq., Mechanical Engineering 402. A continuation of Mechanical Engineering 309. Further study of energy methods, plates and shells, vibrations and impact loading, conjugate beams, introduction to stress fields.

404: *Mechanical Systems Design.* 3-1-2. Preq., Mathematics 375 and Mechanical Engineering 402. the analysis and design of a complete mechanical system. F, W, Sp.

405: *Thermal Engineering.* 3-2-3. Preq., Mechanical Engineering 317, 351, and credit or registration in Mechanical Engineering 421. Analysis and testing of thermal components and systems. F, W, Sp.

409: *Thermal Design.* 0-2-2. Preq., Mechanical Engineering 405. Methodology of design; the design of complete thermal systems. Su, F, Sp.

410: *Thermal Systems Designs.* 3-1-2. Preq., Mathematics 375 and Mechanical Engineering 409. The analysis and design of complete thermal systems. Su, F, Sp.

413: *Combustion Engineering Processes and Design.* 0-3-3. A study of the chemistry and the dynamics of combustion processes and their application to the design of combustion devices.

414: *Air Pollution and Its Control.* 0-3-3. Preq., Mechanical Engineering 316 or Chemical Engineering 321. Demonstrates ways in which studies from engineering science relate to an understanding of the technological aspects and solutions to a major societal problem. W.

418: *Transport Phenomena.* 0-3-3. Preq., Engineering Mechanics 321 and Mechanical Engineering 421. A study of the principles and equations governing the transfer of heat, mass, and momentum with emphasis on similarities.

421: *Heat Transfer.* 0-3-3. Preq., Mathematics 350, Mechanical Engineering 316, and credit or registration in Engineering Mechanics 321 and Mechanical Engineering 354. Fundamental laws of heat transfer by conduction, convection, and radiation; steady and unsteady states; application to heat transfer equipment. Digital and analog computer solutions. F, W, Sp.

423: *Gas Dynamics.* 0-2-2. Preq., Engineering Mechanics 321 or Aerospace Engineering 321. A study of the fundamental laws applied to compressible fluid flow. Isentropic flow, normal shocks, Fanno flow, Rayleigh flow and finally generalized compressible flow. F.

424: *Seminar.* 0-1-1. Preq., senior standing. Conference type technical discussions, reading assigned papers, informal talks by students, instructors and professional engineers on subjects of current technical interest. Instruction in oral delivery. F, W, Sp.

429: *Experimental Stress Analysis.* 3-2-3. Preq., Mechanical Engineering 309 or Civil Engineering 346 and Electrical Engineering 213. A thorough study of bonded resistance stain gages and photoelasticity and a survey study of other areas of experimental stress analysis. F.

431: *Feedback Control Systems.* 3-2-3. Preq., senior standing or consent of the instructor. The analysis, design, and synthesis of mechanical systems employing feedback control. Methods of determining system stability. Typical mechanical control elements and their transfer functions. Sp.

433: *Mechanical Vibrations.* 0-3-3. Preq., Mathematics 350, Engineering Mechanics 203 and 301. Single and multiple degrees of freedom systems. Rayleigh's method, normal modes, dynamic balancing, vibration isolation and absorption in machines. Vibration of elastic bodies. Sp.

435: *Internal Combustion Engines.* 0-3-3. Preq., Mechanical Engineering 316. The study of principles of operation of internal combustion engines. Theories of combustion and detonation. Injection and carburetion. Engine timing and lubrication theories. W.

437: *Engineering Analysis.* 0-3-3. Preq., Mathematics 350 and senior standing. Development and application of analytical, graphical and approximate methods for solving engineering problems. Use of dimensional analysis, models, relaxation techniques, and development of alignment charts.

439: *The Finite Element Method.* 0-3-3. Introduction of matrix algebra, basic equations of elasticity, energy theorems, matrix displacement method, stiffness properties of structural elements, structural synthesis, non-linear structural analysis. W.

441: *Air Conditioning and Refrigeration.* 0-3-3. Preq., senior standing or consent of the instructor. A study of psychrometric processes, heating and cooling load calculations, and systems, and the thermodynamics of refrigeration cycles. Design of air conditioning and refrigeration systems. Sp.

442: *Solar Energy Design.* 0-3-3. Preq., M.E. 316 or equivalent. Studies in defining, measuring, collecting, transmitting, converting, and utilizing solar energy. Design of solar energy systems.

445: *Cryogenic Systems.* 0-3-3. Preq., Mechanical Engineering 316 or consent of instructor. A study of systems which produce, maintain, and utilize very low temperatures. F.

447: *Engineering Acoustics.* 0-3-3. Preq., Physics 202, Mathematics 350. A study of acoustical radiation, transmission, and absorption; noise control; acoustic measurements. Su.

450: *Special Problems.* 1-4 hours credit. Preq., senior and consent of instructor. Topics selected will vary from term to term for the purpose of covering selected topics of current importance or special interest. S, F, W, Sp.

452: *Senior Mechanical Laboratory.* 3-0-1. Preq., Mathematics 375 and credit or registration in Mechanical Engineering 405. Groups perform experiments or investigate problems related to heat transfer, refrigeration and air conditioning, compressible fluid flow, and special problems involving other areas of study. Su, F, W.

502: *Advanced Machine Design.* 0-3-3. The study of various topics from advanced mechanics as are applicable in the design of machines.

503: *Advanced Heat Transfer.* 0-3-3. Steady and unsteady state conduction in one, two and three dimensional systems. Free and forced convection in laminar and turbulent flow, radiation.

506: *Theory of Elasticity.* 0-3-3. Analysis of stress and strain in three dimensions, generalized Hookes law. Extension, torsion, and flexure of beams. Two-dimensional elastostatic problems.

508: *Theory of Plates and Shells.* 0-3-3. Pure bending of plates. Laterally loaded circular and rectangular plates. Membrane theory of shells. Bending of cylindrical shells.

510: *Photoelasticity.* 3-2-3. Experimental verification of the stress optic law, and its application to practical stress analysis problems in two dimensions. An introduction to three-dimensional stress analysis. The preparation of photoelastic materials and models.

513: *Principles of Heat Exchangers.* 0-3-3. A study of the thermal and mechanical design of heat exchangers, regenerators, and radiators.

515: *Advanced Thermodynamics.* 0-3-3. The fundamental laws of thermodynamics, entropy concept, phase changes, and chemical equilibrium; from microscopic view. Kinetic theory gas model, velocity distributions, types of statistics, partition function and its use; from microscopic view.

517: *Thermal Stresses.* 0-3-3. Thermal stress equations for one- and two-dimensional thermal stress fields; transient temperature and thermal stresses in simple systems; thermal fatigue, creep, and inelastic thermal stresses at elevated temperatures; thermal effects on deflection.

519: *Potential Flow Theory.* 0-3-3. Equations of motion; complex variables; velocity potential and streamlines; irrotational motion; Green's theorem; two- and three-dimensional systems; vortex motion, tidal waves and surface waves.

523: *Advanced Gas Dynamics.* 0-3-3. A study of compressible fluid flow in two and three dimensions at subsonic, transonic and supersonic conditions, oblique shocks; and turbulence.

524-525-526: *Graduate Seminar.* 0-1-1 each. Surveys, investigations, and discussions of current problems in mechanical engineering.

527: *Boundary Layer Theory.* 0-3-3. Review of fundamentals of potential flow; Navier-Stokes equations and exact solutions; similarity concept; Prandtl boundary layer equations, thermal boundary layers, transition and turbulence.

529: *Two-Phase Flow.* 0-3-3. A study of current theories of heat, mass and momentum transfer in internal two-phase, gas-liquid flow. Topics covered will include current practical information needed for design of two-phase flow equipment as well as the more advanced theoretical subjects.

533: *Dynamics of Machinery.* 0-3-3. Advanced dynamics and its application to the design and control of machinery. Balancing of machinery, engine dynamics, and dynamics of automatic-control systems.

535: *Design of Momentum Transfer Machinery.* 0-3-3. The design of centrifugal devices; fans, pumps and compressors. The design of axial flow devices: compressors, turbine sand propellors. The design of nozzles for propulsion.

539: *Advanced Computing Techniques in Mechanical Engineering.* 0-3-3. Techniques for the analysis and solution of problems in mechanical engineering utilizing advanced mathematical methods and digital computer programming techniques. Designed to enhance the problem-solving capabilities of the engineer both in an industrial job and in graduate research.

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.

MECHANICAL TECHNOLOGY

101: *Introduction to Mechanical Technology.* 0-3-3. The Mechanical Technology Curriculum; a study of units, dimensions, the use of the sliderule, handbooks, technical tables, charts, graphs and manufacturers catalogs.

151: *Pressure, Temperature, and Flow Measurement.* 3-1-2. A study of the principles and devices used in the measurement of pressure, temperature and flow.

201: *Mechanisms and Motion.* 3-1-2. Preq., Mathematics 112. Kinematic analysis of mechanisms. The use of analytical and graphical methods in determining velocities and accelerations in mechanism motions. Applications to machines. Gears and cams.

204: *Technical Writing and Creativity.* 3-1-2. Preq., Mechanical Technology 201. Fundamentals of technical writing; technical reports; principles used in generating ideas; characteristics of creative people; practice in written expression of ideas.

206: *Materials Science.* 3-2-3. A study of the properties of materials and the way these properties affect the behavior and use in engineering technology.

215: *Thermal Science.* 0-3-3. Preq., Mathematics 112. Temperature; heat; work; first law of thermodynamics; basic principles of heat transfer.

221: *Fluids Technology.* 0-2-2. Coreq., Mathematics 220. Fluid properties, basic laws of fluid behavior; principles of hydraulics and pneumatics.

226: *Mechanical Equipment.* 3-1-2. Preq., Mechanical Technology 201 and 221. Coreq., Mechanical Technology 215. A study of the types and uses of mechanical equipment such as pumps, engines, compressors, boilers, heat exchangers, etc.

231: *Instruments and Controls.* 3-2-3. Preq., Sixth quarter standing. A study of principles and devices used in controlling process plant equipment, fluid transmission system equipment, machine tools, etc.

250: *Manufacturing Processes.* 3-0-1. Operational practice in the use of machine tools, foundry, welding and other processes for the manufacture of machine parts. Su.

251: *Manufacturing Processes.* 3-1-2. A study of the processes of manufacture of machine parts. Lecture describes processes. Laboratory in operational practice and demonstration of machine tools, foundry and welding.

252: *Fabricating Processes.* 3-1-2. Preq., Mechanical Technology 251. A continuation of Mechanical Technology 251 with special emphasis on forming and welding of mechanical components.

253: *Tool Design.* 6-0-2. Preq., Mechanical Technology 251. Design of jigs and fixtures, cutting tools and handling equipment.

MEDICAL RECORD ADMINISTRATION

100: *Introduction to Medical Record Administration.* 0-1-1. A survey of health care professions; the medical record practitioner's career opportunities; and policies, rules and information concerning the Medical Record Administration Program, curriculum, and hospital affiliation. F.

102: *Introduction to Medical Terminology.* 0-1-1. A basic study of the language of medicine including word construction, definition and use of terms. To be taken concurrently with Home Economics 313. F.

103: *Introduction to Medical Terminology.* 0-3-3. A basic study of the language of medicine including word construction, definition and use of terms and an elementary study of the human anatomy, structures and functions with medical terminology application. F. W.

202: *Medical Terminology & Transcription.* 3-0-1. Coreq., Medical Record Administration 103. Advanced course in medical transcription and terminology practice in various specialties. Sp, Su.

203: *Medical Terminology and Transcription.* 6-2-4. Preq., MRA 103 and Office Administration 201 or equivalent typing skill. Introduction to medical transcription with emphasis on medical terminology and transcription of medical record forms.

301: *Medical Record Science.* 0-3-3. An introduction to the field of medical record science, including history of medical records, professional ethics and function of a medical record department. F.

302: *Medical Record Science Lab.* 3-0-1. Coreq., Medical Record Administration 301. Laboratory practice of the functions of a medical record department. F.

303: *Medical Record Science.* 0-3-3. Preq., Medical Record Administration 301. An indepth study of the medical record, its components, development and use. W.

304: *Medical Record Science Lab.* 3-0-1. Coreq., Medical Record Administration 303. Laboratory practice in analyzing medical records, coding, indexing and research techniques. W.

305: *Legal Concepts of the Health Fields.* 0-2-2. A study of the principles of law as applied to the health field and medical record practice. W.

308: *Fundamentals of Medical Science.* 0-2-2. Preq., Zoology 225 and 226. A study of the nature and cause of disease, treatment and management of patients necessary for Medical Information Management. F.

309: *Fundamentals of Medical Science.* 0-2-2. A continuation of the study of disease as listed in 308. W.

310: *Fundamentals of Medical Science.* 0-2-2. Preq., Medical Record Administration 309. A continuation of the study of diseases by system. Sp.

401: *Medical Record Science.* 0-3-3. Preq., Medical Record Administration 303. The study of health statistics, preparation and uses. The composition of the medical staff and committees. Sp.

402: *Medical Record Science Laboratory.* 3-0-1. Coreq., Medical Record Administration 401. Laboratory practice in accumulating medical statistics, research methods and comparison of various medical information systems. Sp.

403: *Trends in Health Care Delivery.* 0-3-3. A review of trends and changes in the health care field with special emphasis on legislation and governmental intervention in health care. W.

404: *Directed Experience.* 12-0-2. Preq., Consent of Director of Medical Record Administration Program. A supervised learning experience to develop insight, understanding and skill in the basic medical record procedures. Su, F, W, Sp.

405: *Directed Experience.* 30-0-5. A supervised learning experience to develop insight, understanding and skill in specialized medical record procedures and management. Su, F, W, Sp.

406: *Affiliation.* 30-0-5. A planned program to give the student a broad background in various procedures and types of equipment in a variety of health care institutions. Su, F, W, Sp.

407: *Problems in Medical Record Administration.* 0-2-2. A discussion of topics arising from students' study and experience in Medical Record Administration. Su, F, W, Sp.

408: *Organization and Administration of Health Care Services.* 0-3-3. Organization and administration of medical record department. Analysis of organizational patterns in hospitals and other health care facilities. Sp.

490: *Advanced Medical Science Seminar.* 0-1-1. Professional seminar. Medical practitioners to lecture on recent trends in their field of expertise. May be repeated. Maximum 2 hours credit.

MEDICAL TECHNOLOGY

110: *Orientation in Medical Technology.* 0-1-1. An introduction to the field of medical technology: professional ethics, a brief survey of laboratory procedures, and discussions concerning career opportunities. F.

242: *Histological Sectioning.* 8½-0-2. Preq., Zoology 115 or equivalent. Methods of preparing tissues for microscopic examination.

245: *Clinical Analysis.* 4¼-2-3. Preq., Zoology 115 and Chemistry 102. A study of the qualitative and quantitative laboratory methods used to demonstrate the physiological state of the body.

341: *Hematology.* 4½-2-3. Preq., Zoology 115. Quantitative and qualitative methods for determining the condition of cellular blood and a study of its histology, morphology and physiology.

346: *Medical X-Ray Technology.* 4½-1-2. Preq., Zoology 111 and 112. Methods of obtaining routine radiographs, stressing proper positions and dark room techniques.

351: *Medical Technology Problems.* 4¼-0-1. Preq., junior standing or consent of instructor. An introduction to the principles of research.

352: *Medical Technology Problems.* 8½-0-2. Preq., junior standing and permission of instructor. An introduction to the principles of research.

353: *Medical Technology Problems.* 12¾-0-3. Preq., junior standing and permission of instructor. An introduction to the principles of research.

448: *Serology.* 4¼-2-3. Preq., Zoology 115. A study of the body defenses against viral and bacterial diseases and serodiagnostic procedures based on the antigen-antibody reactions.

449: *Biological and Clinical Applications of Radioisotopes.* 8½-0-2. Preq., Chemistry 212 and Zoology 202. Intensive training in the use of specialized equipment for measuring ionizing radiations used in biological systems.

452: *Medical Technology Seminar.* 0-1-1. Preq., junior standing and permission of the 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. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Medical Technology 454, 455, and 456 are completed. Su, F, W, Sp.

454: *Medical Technology Internship.* 8 semester hours; 40 contact hours per week. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Medical Technology 455 and 456 are completed. Su, F, W, Sp.

455: *Medical Technology Internship.* 8 semester hours; 40 contact hours per week. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Medical Technology 456 is complete. Su, F, W, Sp.

456: *Medical Technology Internship.* 6 semester hours; 40 contact hours per week. Includes lectures and laboratories in branches of medical technology. Credit will be given on completion of this course for Medical Technology 453, 454, and 455. Su, F, W, Sp.

MUSIC

101: *Introduction to Music Literature.* 0-2-2. A broad survey of the history of music and its literature at the freshman level. Su, F.

102: *Theory.* 3-2-2. Beginning study of fundamentals of music covering the areas of notation, ear-training, sight singing, and functional keyboard. F.

103: *Theory.* 3-2-2. Preq., Music 102. Continuation of 102 with increasing emphasis on common-practice harmonic vocabulary. W.

104: *Theory.* 3-2-2. Preq., Music 103. Continuation of 103. Sp.

105: *Advanced Music Literature.* 0-2-1. Continuation of 101 with increasing emphasis on analytical listening skills relative to the history of music and its literature at the freshman level. W.

107: *Hymnology.* 0-3-3. The development of Christian hymnody; an appreciation of its value and an appraisal of suitability for worship. F.

201: *Theory.* 3-2-2. Continuation of first year course with emphasis on the organization and interaction of melodic, harmonic and rhythmic concepts and musical forms. Aural training and functional keyboard is intensified in proportion to the depth of course content. F.

202: *Theory.* 3-2-2. Preq., Music 201. Continuation of 201.

203: *Theory.* 3-2-2. Preq., Music 202. Continuation of 202.

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 with emphasis on liturgies. Sp.

215-216: *Techniques of Musical Stage Production.* 3-1-2 each. Practical study of theories, practices and techniques of musical stage production. Su, Sp.

230: *School Music.* 0-2-2. Fundamentals of music, study of rhythm and sight-singing for the elementary education major. Su, F, W, Sp.

234: *School Music.* 0-2-2. Preq., Music 230. For juniors and seniors. Designed to give prospective classroom teacher materials and methods for teaching music in elementary grades. Review of fundamentals, study of rhythm and singing. Su, F, W, Sp.

303: *Choral Arranging.* 0-2-2. A study of writing for the individual voices and the combinations of voices in choral ensembles. W.

304; *Composition.* 0-3-3. A survey of some of the techniques of 20th century composition with projects consisting of the writing of short compositions illustrating these techniques. Su, F, W, Sp.

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 through the colonial era to the 20th century.

310: *Form and Analysis.* 0-3-3. 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. 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. An indepth study of the specific periods of music and its literature, from antiquity through the baroque. F.

318: *History of Music.* 2-2-2. Continuation of Music 317, from the rococo and into the romantic era. W.

319: *History of Music.* 2-2-2. Continuation of Music 318, from the late romantic to the present time. Sp.

330: *Music Appreciation.* 0-2-2. Designed to provide students not majoring in music with materials to develop a higher degree of understanding and enjoyment of music literature by many composers. Su, F, W, Sp.

401: *Counterpoint.* 0-3-3. A study of contrapuntal practice of the 18th and 19th centuries with emphasis on the understanding of counterpoint within a harmonic context. W.
402: *Problems in Theory for the Music Educator.* 0-2-2. A functional approach in music theory designed to assist the teacher in applying more theory to classroom teaching. Sp.
407: *Organization and Administration of Church Music.* 0-3-3. The ministry of music with reference to materials, and organization. Field work with faculty supervision and evaluation is required. F.
408: *Survey of Oratorio Solo Literature.* 1-1-1. Study, preparation, and performance of basic oratorio solos from the standpoint of vocalist and organist. F.
409: *Survey of Organ Literature.* 3-0-1. A review of six centuries of organ literature for the organ major or musicologist. Su.
445: *Instrument Maintenance and Repair.* 2-1-2. Practical methods of maintenance, adjustment, and repair of musical instruments. A course designed for student with experience in instrumental music.
450: *Special Problems.* 1-4 semester hours. Preq., consent of advisor. Credit depends on the nature of the problem. May be repeated for credit.
455: *Undergraduate Recital:* 0-1-0. Preq., Music Committee approval. As partial fulfillment for the Bachelor of Fine Arts Degree, all candidates must present a recital in their applied music major. Su, F, W, Sp.
464: *Piano Methods, Materials, and Practice Teaching.* 0-2-2. Methods and materials used in teaching piano to beginners. Required by the State Department of Education for teachers wishing their pupils to be eligible for high school credit in piano. W.
465: *Piano Methods, Materials, and Practice Teaching.* 0-2-2. Continuation of 464. Sp.
467: *Survey of Piano Literature.* 0-3-3. A survey of piano literature from the classic period to the present. Literature composed for earlier keyboard instruments will also be included. Su, Sp.

474: *Seminar.* 0-1-1. Discussions and guided research based upon professional problems which confront the musician and the teacher. Su, F, W, Sp.
475: *Seminar:* 0-1-1. Continuation of 474. Su, F, W, Sp.
476: *Vocal Pedagogy and Materials.* 1-2-2. Procedures, materials, and methods. Designed for those planning specialization in teaching of voice. Su.
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. Preq., graduate standing and undergraduate composition credit.
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.
518: *Advanced History and Literature of Music.* 0-3-3. Continuation of 517.
519: *Music in the Humanities.* 0-3-3. (Open to qualified graduate students). A survey of music literature and its contribution to human development.
520: *Supervision in the School Music Program.* 0-3-3. Principles of supervision of public school music teachers.
524: *Conducting.* 0-3-3. Technique of the baton, score reading, principles of interpretation, and problems which face the conductor. The work will be adapted to the individual's needs with respect to vocal or instrumental emphasis.
540: *Bibliography and Research Sources in Music.* 0-2-2. Music source materials for research or reference.
550: *Special Problems.* 1-4 semester hours. Preq., consent of advisor. Advanced course dealing with special problems in the different fields of elementary and secondary music. May be repeated for a maximum of six hours credit.
555: *Graduate Recital.* 3 semester hours. As partial fulfillment for the master's degree, all candidates must present a recital program in their applied music major, of scope and technique acceptable to the faculty of the Music Department.
560: *Selected Topics.* 1-4 S.H. Preq., consent of advisor. Advanced course dealing with selected topics in the different fields of elementary and secondary music. May be repeated for credit for a maximum of six hours.
564: *Piano Literature.* 0-3-3. A survey of piano 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. A survey of organ literature. (See Music 564).
566: *Vocal Literature.* 0-3-3. A survey of vocal literature. (See Music 564).
567: *Instrumental Literature.* 0-3-3. A survey of instrumental literature. (See Music 564).

APPLIED MUSIC: Keyboard, Voice, Theory and Composition, Strings, Woodwinds, Brass and Percussion.

MUSIC (APPLIED)

Music performance courses are divided into seven principal divisions:

Organ — Voice
Piano
Strings
(Violin, Viola, Violoncello and Double Bass)
Woodwinds — Brass
Percussion

The first digit of an applied music course number signifies the year 1, 2, 3, or 4.

The second digit denotes one of eight principal divisions as follows:

1 Piano	5 Strings
2 Organ	6 Woodwinds
3 Voice	7 Brass
4 Theory & Composition	8 Percussion

The final digit indicates the number of hours credit. Each course number may be repeated for credit as necessary in order to complete requirements for freshman, sophomore, junior, and senior level.

The student must have the approval of the applied music instructor before registering for these courses.

PIANO

100 courses: Instruction in basic styles and techniques of piano playing. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

ORGAN

100 courses: Basic manual and pedal techniques from the leading organ methods. A wide acquaintance with organ literature and preparation for church service playing.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

VOICE

100 courses: Application of the principles of voice production and song interpretation through the study of vocalises and the standard vocal literature. Prescribed repertoire to include English, Italian, French, and German songs and arias in advanced studies.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

THEORY

100 courses: Instruction in the basic techniques of music theory. Selected studies in harmonic and melodic dictation-ear training-fundamental study in composition.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continutaion of 300 courses.

STRINGS
(Violin, Viola, Violoncello, Double Bass)

100 courses: Instruction in the basic techniques of major instrument. Selected scale studies and etudes. Development of repertoire including the standard works of the literature.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

WOODWIND

100 courses: Instruction in the basic techniques of the major instrument. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

BRASS

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

PERCUSSION

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.
200 courses: Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

MUSIC (ENSEMBLE)

144: *Choir,* 1 credit hour optional.
166: *Orchestra,* 1 credit hour optional.
177: *Band,* 1 credit hour optional.
Each course number may be repeated as many times as necessary. Music majors should familiarize themselves with maximum allowable credits and with requirements for Ensemble participation.

NURSING

101: *Introduction to Nursing.* 0-3-3. An introduction to the field of professional nursing with emphasis on its historical development and the cultural and socio-economic influences affecting its evolution. F.
102: *Fundamental Nursing Skills Laboratory.* 6-0-2. Preq., For Nursing Majors only. Affords students opportunities to develop nursing skills in giving direct patient care. Emphasis on nursing activities which aid individuals to cope with their health problems. F.
103: *Introduction to Adult Health Maintenance.* 0-3-3. Preq., Nursing 101 and 102 and credit or registration in Zoology 225 and 226. Course planned to study and identify basic nursing knowledge and skills related to medical/surgical nursing. Emphasis on patient-centered care using problem-solving techniques. W.
104: *Adult Health Maintenance Laboratory.* 9-0-3. Preq., Nursing 101 and 102 and credit or registration in Nursing 103. Application of principles and techniques to gain beginning skills in safe, basic nursing care. W.
105: *Nursing Assessment and Intervention in Adult Health Maintenance.* 0-3-3. Preq., Nursing 103 and 104 and Bacteriology 212. A study employing the nursing process in relation to prevention, maintenance, and restoration of the adult requiring medical/surgical intervention. Sp.
106: *Nursing Assessment and Intervention Laboratory.* 9-0-3. Preq., Credit or registration in Nursing 105. Application of principles acquired in Nursing 105 by giving care to selected patients with medical/surgical problems. Sp.
107: *Psychiatric Nursing.* 0-3-3. Preq., credit in Psychology 102, Nursing 105 and 106. A course planned to study the psychological and emotional factors in illness as they are related to nursing care. Emphasis on prevention, observation, and communication, Su.
108: *Psychiatric Nursing Laboratory.* 9-0-3. Preq., Credit or registration in Nursing 107. Application of principles acquired in Nursing 107 by giving care to selected patients in the hospital, home, and clinic who have psychological and emotional problems. Su.
201: *Nursing Assessment and Intervention in Material Health Maintenance.* 0-3-3. Preq., Nursing 105 and 106. Study of principles and concepts of family-centered maternity care. Emphasis on the reproductive cycle, normal and abnormal, and care of the newborn. F.
202: *Maternal Health Maintenance Laboratory.* 9-0-3. Preq., credit or registration in Nursing 201. Application of principles acquired in Nursing 201 by caring for selected patients during antepartal, intrapartal, postpartal, and newborn periods in hospitals and out-patient facilities. F.
203: *Nursing Assessment and Intervention in Child Health Maintenance.* 0-3-3. Preq., Credit or registration in Nursing 105, 106, and Psychology 408. Study of the child from infancy through adolescence during health and illness. Emphasis on growth and development, the family, and prevention of illness. W.
204: *Child Health Maintenance Laboratory.* 9-0-3. Preq., credit or registration in Nursing 203. Application of principles acquired in Nursing 203 by observing and/or caring for children in nursery school, clinics, and the hospital. W.
205: *Nursing Seminar.* 0-2-2. Preq., credit in all other nursing courses. Study of current nursing trends in light of evolving patterns and practices. Emphasis on legal aspects of nursing practice and professional opportunities and obligations. Sp.
206: *Nursing Practicum.* 24-0-8. Preq., credit or registration in Nursing 205. Application of principles and techniques acquired in previous nursing courses to gain additional skill in working as a team member and in directing auxiliary personnel. Sp.

OFFICE ADMINISTRATION

201: *Basic Typewriting.* 2½-1-2. Beginning course emphasizing operation and care of typewriter. Instruction in fundamental skills and techniques. Typing simple letters; manuscripts, and tabulated reports. Su, F, W, Sp.
202: *Typewritten Communications.* 2½-1-2. Preq., Office Administration 201 or equivalent; Office Administration and Business Education students must have at least a grade of "C" in 201 or equivalent. Emphasis on skill in layout and production of typewritten communications such as business forms, correspondence, and reports. (Meets intermediate typewriting requirements for teacher trainees.) Su, F, W, Sp.
203: *Advanced Typewritten Communications.* 2½-1-2. Preq., at least a grade of "C" in Office Administration 202 or equivalent. Electric typewriting. Complicated reports, correspondence, forms, legal documents. Introduction to various reproduction processes. Efficiency in handling multiple copies and other typing problems. Su, F, W, Sp.
206: *Gregg Theory.* 0-3-3. Preq., satisfactory score on basic communications test given in the course or take Office Administration 209. Theory of Gregg shorthand system. Principles stressed through reading and writing office communications in shorthand. Emphasis on development of vocabulary. Simple dictation. Su, F, W.
207: *Intermediate Shorthand.* 0-3-3. Preq., at least a grade of "C" in Office Administration 206 or equivalent: satisfactory score on basic communications test given in Office Administration 206 or take Office Administration 209. Development of ability in reading, writing, and transcribing Gregg shorthand. Building recording speed from timed dictation. F, W, Sp.
208: *Dictation and Transcription.* 0-3-3. Preq., at least a grade of "C" in Office Administration 206 and 207 or equivalent. Intensive shorthand vocabulary development and business vocabulary development for business communications. Emphasis on speed and accuracy in recording dictation. Su, W, Sp.
209: *Basic Communication Skill Development.* 0-3-3. Preq., English 101. Emphasis on reviewing and further developing student understanding of and use of written and oral communications as applied to business. (Associate degree credit only in CAB) Su, F, Sp.
210: *Introduction to Machine Transcription, Dictation and Statistical Typewriting.* 0-3-3. Preq., Office Administration 209. Introduction to machine transcription for producing typewritten materials. Emphasis on good dictation habits, written communication skill and improvement in statistical typewriting. F, W.
211: *Machine Transcription Skill Development.* 0-3-3. Preq., Office Administration 210: at least a grade of "C" in Office Administration 210. Refinement of typewritten machine

transcription skill. Introduction to forms and styles of communication commonly transcribed from recorded media. Emphasis on speed and accuracy in handling correspondence. W, Sp.

212: *Specialized Machine Transcription.* 0-3-3. Preq., Office Administration 211: at least a grade of "C" in Office Administration 211. Concentration on development of ability to handle proficiently the vocabulary and problems peculiar to the student's area of specialization; i.e., medicine, law, and other technical areas. F, Sp.

250: *Office Management.* 0-3-3. The role of office management in business institutions; organization of office operations; control of office costs; leadership and motivation of office personnel; business information systems. F, Sp.

303: *Advanced Dictation and Transcription.* 0-3-3. Preq., at least a grade of "C" in Office Administration 203 and 208 or equivalents and demonstrated ability to take sustained dictation at a minimum of 90 words a minute. Shorthand vocabulary expanded. Continued development of speed and fidelity in recorded dictation. Transcription skill developed with emphasis on mailable copy. Electric typewriters. F, W, Sp.

304: *Secretarial Recording and Reporting Problems.* 0-3-3. Preq., at least a grade "C" in Office Administration 303 and demonstrated ability to take dictation at a minimum of 100 words a minute. Transcription of complicated business correspondence and reports. Office-style dictation. Electric typewriters. Su, W, Sp.

305: *Communications.* 0-3-3. Preq., Office Administration 202 and English 102. Practice in analyzing and composing all types of business letters and business reports. Su, F, W, Sp.

307: *Office Systems and Procedures.* 0-3-3. Reproduction processes; communications systems; transmittal services: transcribing machines; records management and filing; calculating machines; special typewriters and office equipment. Su, F, W, Sp.

309: *Professional Development and Problems in Secretarial Administration.* 0-3-3. Administrative career development and professional advancement; a survey of specialized secretarial and business fields; analysis of business problems pertinent to the administrative assistant. F, W, Sp.

310: *Secretarial Practicum.* 4½-1-2. Preq., at least a grade of "C" in Office Administration 303 and 307. Experience in transportation of office-style dictation, reproduction processes, demonstration of efficient work habits and office procedures, special typewriters and office equipment. Su, F, W, Sp.

400: *C.P.S. Problems and Review.* 0-3-3. Preq., permission of advisor. A review course for those preparing to take the Certified Professional Secretary Examination. W.

480: *Administrative Office Management.* 0-3-3. (Same as Management 480) Administrative organizational principles; techniques of organizational analysis; analysis and design of information systems; information technology; communications and records management; physical facilities; performance standards and control. Su, F, W, Sp.

482: *Special Problems in Office Administration.* 0-(1-3)-(1-3). (Maximum of six semester hours credit.) Selected topics dealing with advanced problems in office administration and business education. The problems and projects will be timely and will be treated by current methods of professional practice. Su.

PETROLEUM ENGINEERING

200: *Story of Petroleum.* 0-3-3. Science Elective for non-Engineering students. Petroleum industry pictured from land leasing to product marketing. Importance of petroleum in economic, social, and political development reviewed. Su, F, W, Sp.

202: *Exploration and Drilling.* 0-2-2. Principles and methods of oil field exploration and drilling with emphasis on drilling fluids, power plants and hoisting operations. F.

305: *Laboratory.* 6-2-4. Preparation, testing, and alternation of drilling muds and oil well cement; analysis of well formation samples. F.

311: *Petroleum Reservoir Fluids.* 3-2-3. Preq., Petroleum Engineering 202. Pressure-volume-temperature behavior of oil field hydrocarbon systems. Gas, gas-condensate and under saturated reservoirs. W.

402: *Petroleum Reservoir Engineering.* 0-2-2. Preq., Petroleum Engineering 311. Single drive and multi-drive reservoirs, reservoir fluid flow, and displacement of oil and/or gas. F.

403: *Petroleum Reservoir Engineering.* 0-2-2. Preq., Petroleum Engineering 402. Continuation of Petroleum Engineering 402. W.

404: *Drilling and Production Design.* 0-3-3. 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 402. 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.

414: *Natural Gas Engineering.* 0-2-2. Production, measurement, compression and transmission of natural gas; well potential and deliverability. Su, W.

415: *Natural Gas Engineering Laboratory.* 3-0-1. Preq., credit or registration in Petroleum Engineering 414. Specific gravity and calorific content of gases: testing and calibration of orificies, positive displacement meters, safety valves and regulators. Su, W.

425: *Special Problems.* 0-3-3. Preq., consent of instructor. Study of recent developments in petroleum production practices, methods, and equipment with emphasis on secondary recovery. Sp.

450: *Computer Applications.* 3-2-3. Preq., consent of instructor. Advanced probelms 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.* 0-3-3-(9). Preq., consent of instructor. Application of logging, reservoir, and economic engineering techniques to field cases. Su.

503: *Advanced Reservoir Engineering.* 0-2-2. Preq., consent of instructor. Application of differential equations to the flow of fluids through porous media; well-spacing, secondary recovery, gas drive reservoirs, and water drive reservoirs.

504: *Advanced Reservoir Engineering [continued].* 0-2-2. Preq., consent of instructor.

505: *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.

526: *Advanced Natural Gas Engineering [continued].* Preq., consent of instructor.

550: *Special Problems.* 1-4 semester hours. Preq., consent of instructor. Advanced problems in petroleum engineering will be assigned according to the ability and requirements of the student.

PETROLEUM TECHNOLOGY

101: *Petroleum Exploration and Drilling Technology.* 0-3-3. Principles and methods of oil field exploration and drilling with emphasis on drilling fluids, power plants and hoisting operations from a field operating standpoint. F.

102: *Oil Field Testing and Production Technology.* 3-2-3. Oil field development and operation, single and multi-phase fluid flow; production decline curves; electrical, radioactive, and sonic logging; well testing and deliverability. W.

103: *Production Measurement and Transmission.* 3-2-3. Production, measurement, compression and transmission of natural gas; testing and calibration of orifices; positive displacement meters, safety valves and regulators. Sp.

104: *Petroleum Field Practice.* 6-2-4. An application of petroleum technology in the laboratory and in actual field practice.

PHILOSOPHY

201: *Introduction to Philosophy.* 0-3-3. Preq., junior standing or permission of the instructor. Philosophical vocabulary; types and problems of philosophy; major philosophical positions. Su, F, W, Sp.

251-252: *Logic and Scientific Method.* 0-3-3 each. Traditional formal logic: inductive logic and scientific method; symbolic logic. F, Sp.

305: *Ethics.* 0-3-3. Preq., Philosophy 201 or permission of the instructor. A study of the writings of the major moral philosophers, beginning with the Greeks and continuing to the present. Sp.

310: *Philosophy of Religion.* 0-3-3. Preq., Philosophy 201 or permission of the instructor. A comparative study of the philosophical aspects of the major world religions: their doctrines of God, the cosmos, and man. W.

311: *Philosophy of Religion.* 0-3-3. A study of the philosophical implications of religious experience and of the varieties of belief and disbelief. Sp.

325-326: *Political Philosophy, European and American.* 0-3-3 each. Preq., Philosophy 201 or permission of the instructor. A study of the writings of the major political philosophers, beginning with the Greeks and continuing to the present. F, W.

350-351: *History of Philosophy.* 0-3-3 each. Preq., Philosophy 201 or permission of the instructor. A survey of philosophical speculation in the West, from its beginnings in the Mediterranean world to the present. W.

401: *The American Mind.* 0-3-3. (Same as English 401). Important currents of ideas that have found expression in American literature. F, Sp.

423: *English Words and Idioms.* 0-3-3. (Same as English 423). Rhetoric and logic as applied to critical thinking. Semantics. Exercises in propaganda analysis. Vocabulary building. Su, F, W, Sp.

424: *Semantics and Linguistic Analysis.* 0-3-3. Preq., Philosophy 350-351 or permission of the instructor. The twentieth century revolt against the philosophical tradition with emphasis on Ayer, Carnap, and Wittgenstein. F, Sp.

430: *History of American Philosophy.* 0-3-3. Preq., Philosophy 201. A historical survey of philosophical thinking in America from the seventeenth century to the present. Su, W.

450: *Philosophy of History.* 0-3-3. Lectures in the philosophy of history with attention to theories from Augustine to Voegelin. Su.

PHYSICS

101: *Introductory Modern Physics.* 4½-2-3. Quantum theory with associated laboratory experiments, relativity with Brehme diagrammatic method, introductory calculus with emphasis on physical interpretations, Fortran computer programming.

201: *General Physics.* 0-3-3. Preq., Mathematics 230. Coreq., Physics 261. Thorough treatment of fundamental principles and detailed analysis of important physical situations. Su, F, W, Sp.

202: *General Physics.* 0-3-3. Preq., Physics 201 and Mathematics 231, Coreq., Physics 262. A continuation of Physics 201. Su, F, W, Sp.

203: *Optics.* 3-3-4. Preq., Physics 202. This course is an extension of the general physics offerings. It is designed to present geometrical optics and some physical optics in a manner consistent with current optical applications such as laser optics.

205: *Descriptive Physics.* 0-3-3. For non-science majors interested only in the cultural aspects of the subject. Su, F, W, Sp.

206: *Descriptive Physics.* 0-3-3. A continuation of Physics 205. Su, F, W, Sp.

207: *Astronomy.* 0-3-3. The earth, moon, sun, planets, coordinate systems, motion in solar system, the seasons, the gallactic system. May be accompanied by Physics 208. F, W, Sp.

208: *Observational Astronomy.* 3-0-1. To accompany Physics 207. Optional. Identification of principal constellations, bright stars and planets. Telescopic observation of nebulae, double stars, moon and planets. F, W, Sp.

209: *Elementary Physics.* 0-3-3. Preq., Mathematics 111-112. For pre-medical, pre-dental, pre-pharmacy, and science education students. A study of the fundamental principles of physics and their applications. Su, F, W, Sp.

210: *Elementary Physics.* 0-3-3. Preq., Physics 209. A continuation of Physics 209. Su, F, W, Sp.

212: *Elements of Quantum Physics.* 0-3-3. Preq., Physics 202. An analysis of the structure of matter preceded by the necessary background in quantum mechanics.

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.

222: *Introduction to Astrophysics.* 0-3-3. A continuation of Physics 221.

261: *General Physics Laboratory.* 4½-0-1. Preq., Mathematics 111 and 112. Laboratory investigations of basic physical principles. Su, F, W, Sp.

262: *General Physics Laboratory.* 4½-0-1. Preq., Physics 261. A continuation of Physics 261. Su. F, W, Sp.

304: *Physical Optics.* 0-3-3. Preq., Physics 202. A thorough exposition of the wave theory of light and an introduction to the quantum theory. F.

307: *Thermodynamics.* 0-3-3. Preq., Physics 202. Classical thermodynamics and introductory classical and quantum statistical mechanics. F.

309: *Introduction to Relativity.* 0-3-3. Preq., Mathematics 230. Einstein's special theory of relativity and applications to physics and astronomy. Elementary general relativity.

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.

351: *Laser Laboratory.* 4½-0-1. Preq., six hours of Physics. The basic mechanisms of lasers are investigated through initial exercises in atomic spectra and coherence effects of helium-neon and ruby lasers.

360: *Physics For Teachers.* 0-4-4. The central ideas, principles and relationships of physical theory as pertains to the everyday environment.

361: *Physics For Teachers.* 0-4-4. A continuation of Physics 360.

380: *Physics of Solid State Materials.* 0-2-2. Study of the electrical, thermal, and magnetic properties of solid state materials.

401: *Experimental Physics.* 4½-0-1. Preq., Physics 202. This course gives the student an indoctrination in the actual laboratory techniques employed by the research physicist.

402: *Experimental Physics.* 4½-0-1. Preq., Physics 202. A continuation of Physics. 401.

404: *Electricity and Magnetism.* 4½-3-4. Preq., Physics 202. A study of the fundamental theories of electricity and magnetism. An application of basic principles is stressed.

405: *Electricity and Magnetism.* 4½-3-4. Preq., Physics 404. A continuation of Physics 404.

410: *Modern Physics.* 4½-3-4. Preq., Physics 202. An advanced course in general physics stressing the modern developments of the subject. W.

411: *Modern Physics.* 4½-3-4. Preq., Physics 410. A continuation of Physics 410. Sp.

418: *Solid State Physics.* 4½-3-4. Preq., Physics 202. An elementary treatment of representative aspects of the physics of solids.

422: *Physical Mechanics.* 0-3-3. Preq., Physics 202. Statics, particle dynamics, dynamics of a rigid body, kinetic theory, elasticity, wave motion, and behavior of fluids. Fundamental importance of mechanical principles in all fields of physics emphasized. W.

423: *Physical Mechanics.* 0-3-3. Preq., Physics 422. A continuation of Physics 422. Sp.

430: *Atomic and Space Physics.* 0-3-3. Preq., Physics 411. A survey of the developments in contemporary theories of atoms, molecules, matter, and radiation and their applications to astrophysics.

431: *Nuclear and Space Physics.* 0-3-3. Natural and artificial radioactivity methods for the detection of nuclear particles, nuclear fission, and the utilization of nuclear energy and their applications to astrophysics.

460: *Physics of Photography.* 0-3-3. Preq., Physics 205. A descriptive and non-mathematical treatment of the physics and chemistry applicable to photography is presented for photography majors and other non-technical students interested in photography.

462: *Modern Physics for Teachers.* 0-4-4. Preq., 8 hours of physics. A survey of modern physics as used by the high school teacher of physics.

463: *Modern Physics for Teachers.* 0-4-4. Preq., 8 hours of Physics. Dissemination of information on physical science curricula for secondary schools.

465: *Physics of Sound.* 0-3-3. Preq., Physics 205. The physical and psychophysical processes associated with sound are studied so that the basic mechanisms of hearing, speech and music can be better understood.

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.

479: *Plasma Physics.* 3-3-4. Preq., Physics 411. An introduction to the kinetic and magneto-hydro-dynamic approaches to

plasma physics is given. The laboratory will explore several types of plasma phenomena using diagnostic techniques.

480: *Modern Astrophysics.* 0-3-3. Preq., Physics 411. Astrophysics is discussed in light of the tremendous amount of data accumulated from areas such as high energy experimental physics and elementary particle theory.

511: *Electromagnetic Theory.* 0-3-3. An advanced treatment of the theory of electricity and magnetism.

512: *X-Rays.* 4½-3-4. A general treatment of the theory of x-rays with special emphasis on x-ray crystallography.

521: *Theoretical Mechanics.* 0-3-3. A presentation of advanced classical mechanics oriented towards modern theories of physics.

522: *Quantum Mechanics.* 0-3-3. Preq., Mathematics 502. An outline of the principles of wave mechanics and quantum mechanics, followed by their application to problems in atomic and nuclear theory.

531: *Theories of Physics.* 0-3-3. Selected topics. Contemporary theories dealing with recent trends in physics.

532: *Theories of Physics.* 0-3-3. A continuation of Physics 531.

POLITICAL SCIENCE

201: *National Government in the United States.* 0-3-3. A study of the development of the national government with emphasis on problems connected with the federal system and separation of powers. Su, F, W, Sp.

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. F.

303: *State Government and Administration in the United States.* 0-3-3. A study of the role of the state in the American Union including nation-state and interstate relations. Sp.

304: *The Government of Louisiana.* 0-3-3. A study of the functions and structure of the state government of Louisiana including constitutional development. F.

310: *Governmental Regulation of Business.* 0-3-3. A study of public policy toward business including constitutional and administrative problems. W.

312: *Public Administration.* 0-3-3. A study of the legal responsibility, organizational structure, personnel policies, and fiscal management of different levels of government in the United States. F.

314: *American Municipal Government and Administration.* 0-3-3. A study of the authority, legal limitations and functions of present-day American municipalities; specific current legislative, judicial and administrative problems will be analyzed. W.

318: *American Political Parties.* 0-3-3. A study of political parties as an essential factor in democratic government. Sp.

320: *Legislation in the United States: Federal and State.* 0-3-3. A study of the legislative process and of the influences that determine the nature of the legislative product. Sp.

325: *History of European Political Theory.* 0-3-3. Preq., one previous course in political science or philosophy and junior class standing, or consent of instructor. A study of Western political philosophy from its beginnings to the nineteenth century. F.

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. W.

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). Sp.

330: *The American Presidency.* 0-3-3. A study of the American Presidency including its origins, roles, functions, and problems. F.

345: *Scope and Methods in Social Sciences.* 0-3-3. An introduction to basic statistics, research design, and the application of the qualitative and quantitative methods to the social sciences. F.

350: *International Relations.* 0-3-3. Preq., one previous course in political science or consent of instructor. An introductory study of political contacts between modern nation-states, the origin of nationalism and imperialism, and the causes and effects of power politics. W.

402: *Comparative Communist Systems.* 0-3-3. A comparative study of the governments and ideological diversities of countries of the communist bloc; particular attention will be paid to domestic affairs. W.

403: *Communist Foreign Policies.* 0-3-3. A study of the world communist movement in terms of the foreign policies of individual countries. Sp.

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. Sp.

420: *Contemporary Problems in Government.* 0-3-3. Preq., One of the following courses: Political Science 201, or 303, or 304, and junior standing. Problems will be selected in conference with the instructor. Sp.

426: *American Constitutional Law.* 0-3-3. Introduction to judicial institutions and processes as well as a case method study of the constitutional issues of judicial review, federalism, government economic regulation, and others. W.

427: *American Constitutional Law.* 0-3-3. A continuation of the case method study of constitutional law, with emphasis on political and civil rights (speech, press, assembly, religion, race, criminal procedure, etc.). Sp.

440: *The British Commonwealth.* 0-3-3. A study of the development of the Anglo-American political tradition. Su, odd.

445: *Comparative Governments of Southern Asia.* 0-3-3. A study of the governmental and political systems of India and Pakistan as compared and contrasted to China and Japan. Su, even.

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. Sp.

PROFESSIONAL AVIATION

103: *Introduction to Aviation.* 0-4-4. An introduction to the airplane, weather, navigation, radio procedures and rules of the air. Prepares the student for the FAA Private Pilot Written Examination. Su, F, W, Sp.

113: *Introduction to Flight.* 3-0-1. Preq., Professional Aviation 103 or concurrent enrollment. Provides the student with approximately 20 hours of dual and solo flight instruction. Designed to meet the flight experience requirements for the FAA Private Pilot flight check. May be repeated once for credit. Special fee. Su, F, W, Sp.

120: *Introduction to Airport Administration Flight.* 3-0-1. Preq., Professional Aviation 121 or concurrent enrollment. Provides the student with 10 hours of dual flight instruction as an introduction to flight. Special fee. Su.

121: *Introduction to Airport Administration.* 0-2-2. History of aviation and opportunities in the Aerospace field. A study of FAA rules and regulations for the private pilot, aerodynamics of flight and general safety practices. Su.

122: *Airframes and Powerplants.* 0-2-2. Preq., Professional Aviation 121. Background course in the study of the various types of airframes and powerplants used in general aviation aircraft. Includes FAA maintenance and inspection requirements. F.

123: *Dead Reckoning Navigation.* 0-2-2. Preq., Professional Aviation 121. Basic elements of air navigation. Use of the plotter, computer and aerial charts. Solves for radius of action, double drift, off course and interception problems. W.

141: *Basic Aircraft Structures.* 6-1-3. Introduction to aircraft major components, aircraft terminology and theory of flight. Federal Aviation regulations. Cost analysis. Sp.

142: *Basic Powerplant Systems.* 6-1-3. Theory of engines and principles of operation. Internal combustion engines-radial and opposed. Carburetors and direct fuel injection systems. Research and preparation of technical reports on supercharging and water injection. Su.

201: *Intermediate Aviation.* 0-2-2. Preq., Professional Aviation 103. An intermediate study of navigation, the computer, publications, and flight planning. Su, F, W.

202: *Intermediate Aviation.* 0-2-2. Preq., Professional Aviation 103. An intermediate study of aircraft and engines, aerodynamics, and weather. Su, F, Sp.

203: *Intermediate Aviation.* 0-2-2. Preq., Professional Aviation 201 and 202. An intermediate study of communications, rules of the air, attitude instruments, and physiological flight. Prepares student for FAA Commercial Pilot written examination. F, W, Sp.

204: *Intermediate Aviation.* 0-2-2. Preq., Permission of instructor. Provides the student with the theory of multiengine flight. F, Sp.

213: *Intermediate Flight.* 6-0-2. Preq., Professional Aviation 113. Provides the student with approximately 40 hours of dual and solo flight instruction. Designed to meet the flight experience requirements for the FAA Commercial Pilot Certificate. May be repeated three times for credit. Special Fee. Su, F, W, Sp.

221: *Basic Meteorology.* 0-2-2. Preq., Professional Aviation 121. Designed to explain how to read and use the various reports and forecasts published by the U.S. Weather Bureau. W.

222: *Radio Navigation Aids.* 0-2-2. Preq., Professional Aviation 123. Study in depth of the radio aids and communication facilities required and available in the use and control of air traffic—both ground and airborne components are discussed. Sp.

223: *Fixed Base Operations.* 0-3-3. Preq., Professional Aviation 123. Detailed study of the functions and responsibilities of the typical Fixed Base Operator. W.

231: *Air Traffic Rules.* 0-2-2. Preq., Professional Aviation 103 and 113. In-depth study of air traffic rules with emphasis placed on the knowledge requirements of the air traffic control specialist.

232: *Operating Procedures.* 0-2-2. Preq., Professional Aviation 231. Flight assistance service and Communication operating procedures.

233: *Air Navigation.* 0-2-2. A detailed study of the procedures used in VOR, ILS, DME and Areas Navigation systems.

241: *Aircraft Systems.* 6-1-3. Methods of repair or replacement of aircraft components. Functions of pumps, pressure regulators, valves, actuators, power brakes, steering devices and de-icing systems.

242: *Aircraft Electrical Systems.* 6-1-3. Fundamentals of aircraft electrical systems. Ohm's law and impedance formulas. Theory of capacitance and induction.

271: *Special Intermediate Flight.* 6-0-2. Preq., permission of department head. Provides student with approximately 35 hours of flight instruction. Designed for the commercial helicopter pilot to obtain his fixed-wing ratings. Special fee. Su. F, W, Sp.

272: *Special Intermediate Flight.* 6-0-2. Preq., Professional Aviation 271. Consists of approximately 35 hours of flight instruction. A continuation of Professional Aviation 271. Prepares student for Single-Engine Airplane Commercial Pilot's flight check. Special fee. Su, F, W, Sp.

273: *Special Intermediate Flight.* 3-0-1. Preq., permission of department head. Consists of 20 hours of dual and solo single-engine flight to provide a Multi-Engine rated student with a Single-Engine Rating. Special fee. Su, F, W, Sp.

300: *Advanced Weather.* 0-2-2. Preq., Professional Aviation 203 or concurrent enrollment. An advanced study of aviation weather. Student learns to analyze and interpret U.S. Weather Bureau maps and charts. Su, F, W.

301: *Advanced Aviation.* 0-2-2. Preq., Professional Aviation 203. Study of altitude instrument flying procedures as well as departure, enroute, and arrival instrument flying procedures. Includes a study of FAA Regulations pertaining to instrument flight. F, W, Sp.

302: *Advanced Aviation.* 0-2-2. Preq., Professional Aviation 300 and 301. A problem-solving course in advanced aviation, recalling and reviewing material covered in Professional Aviation 300 and 301. Prepares the student for the FAA Instrument Pilot's written examination. Su, W, Sp.

303: *Aerodynamics.* 0-3-3. Preq., Professional Aviation 203. A study of advanced aircraft design, aerodynamics and performance. W.

313: *Advanced Flight.* 3-0-1. Preq., Professional Aviation 213. Provides the student with approximately 20 hours of dual instrument flight instruction necessary to meet the experience requirements for the FAA Instrument Rating Flight Check. May be repeated once for credit. Special fee. Su, F, W, Sp.

321: *Economics of Air Transportation.* 0-2-2. Preq., junior standing. Development and present status of the air transportation industry, the federal regulation of air transportation, and its effect on the development of passenger and cargo business. W.

322: *Aviation Law.* 0-2-2. Preq., Business Law 355. Study of legislation covering aviation, air safety, and economic regulations governing the aviation industry. F. Sp.

323: *Space Flight.* 0-2-2. Preq., Professional Aviation 122 and Physics 206. Survey course covering the general principles, history and development of space flight. General preview of the vehicles and propulsion systems used as well as future travel and exploration. Sp.

324: *Advanced Aircraft Systems.* 0-3-3. Preq., Professional Aviation 121 or permission of department head. Introduction to jet aircraft and engine nomendature, design, features, advanced systems components and construction. W.

331: *Airport Traffic Control.* 3-2-3. Preq., Professional Aviation 232. A study of airport traffic control regulations, procedures and separation standards required by the Federal Government. F.

332: *Enroute Traffic Control.* 3-2-3. Preq., Professional Aviation 331. Study of the enroute air traffic control procedures, regulations, separation standards, and communications procedures. On-the-job training. W.

333: *Arrival Traffic Control.* 3-2-3. Preq., Professional Aviation 332. Study of arrival air traffic control procedures in a non-radar environment. Study of regulations, procedures, and separation standards required by the Federal Government. Sp.

341: *Jet Propulsion Systems.* 6-1-3. Theory of jet propulsion, principles of jet engine operation, study of thrust. Includes disassembly, inspection, reassembly, run-up, test and trouble shooting. Includes turbojet, turbofan and turboprop. W.

342: *Engine and Accessory Overhaul.* 6-1-3. Complete disassembly and overhaul of engines and accessories, including repair and inspection procedures. Powerplant operations, trouble shooting and testrun procedures. W.

402: *Applied Aviation Theory.* 0-3-3. Preq., Professional Aviation 302 and Psychology 102. Provides the student with fundamentals of flight instruction including the psychology of administering flight training. F, Sp.

403: *Applied Aviation Theory.* 3-2-3. Preq., Professional Aviation 402 or concurrent enrollment. Provides the student with the fundamentals necessary to understand and analyze visual reference flight maneuvers. Prepares the student for the FAA Flight Instructor's Written Examination. W, Sp.

404: *Applied Aviation Theory.* 3-2-3. Preq., Professional Aviation 403. Provides the student with fundamentals necessary to understand and analyze visual reference multiengine maneuvers required in multiengine flight instruction. Su, W.

405: *Applied Aviation Theory.* 3-2-3. Preq., Professional Aviation 403. Provides the student with fundamentals necessary to analyze and instruct instrument reference flight maneuvers and procedures. Prepares student for FAA Instrument Flight Instructor written examination. F, Sp.

407: *Professional Aviation Theory.* 0-3-3. Preq., Permission of department head. Provides the student with the problem solutions and application of theory of flying transport aircraft. Prepares student for FAA Airline Transport Pilot written examination. W.

413: *Applied Flight.* 6-0-2. Preq., Professional Aviation 313 and 403 or concurrent enrollment. Provides the student with flight instruction necessary to meet the experience requirements necessary for FAA instructor or Airline Transport certificates and ratings. May be repeated three times for credit. Special fee. Su, F, W, Sp.

419: *Directed Flight Instruction Experience.* 3-0-1. Preq., Permission of Chief Flight Instructor and 2.0 GPA. Directed observation, participation and critique related to actual flight instruction. May be repeated three times for credit. Su, F, W, Sp.

421: *Airport Planning.* 0-2-2. Preq., junior standing. Designed to acquaint the student with airport planning and construction. Includes factors influencing airport location within the community. F, Sp.

424: *Airport Administration.* 0-2-2. Preq., junior standing. A study of the administration of an airport. Includes lighting, fuel systems, field markings, field buildings, hangars, communications, and other airport facilities. W.

425: *Air Cargo Practices and Procedures.* 0-2-2. Preq., junior standing. A study of the problems of handling of cargo, mail, express, and freight are considered as are related problems of marketing and advertising. F, Sp.

426: *Airline Administration.* 0-2-2. Preq., Professional Aviation 321. Designed to cover the administrative aspects of airline operation. Includes the administrative and operational airline organizational structure. W.

427: *Aviation Industrial Problems.* 0-2-2. Preq., Professional Aviation 424 and senior standing. Selected readings and topics on current aeronautical administrative problems.

Study and analysis of problems facing aviation executives at all levels. Sp.

431: *Arrival Traffic Control.* 0-2-2. Preq., Professional Aviation 333. A study of arrival in traffic control procedures in a radar environment. Sp.

432: *Problems in Air Traffic Control.* 0-3-3. Preq., Professional Aviation 431. Study of air traffic density and future trends with emphasis on air safety and controller fatigue.

441: *Aircraft Structures.* 6-1-3. Training and knowledge needed to overhaul and maintain modern aircraft. Study of new aircraft structures and their manufacture. W.

442: *Weight and Balance and Propellers.* 6-1-3. Weight and Balance, Center of Gravity determination. Theory, design and function of propellers. Sp.

443: *Problems in Maintenance Administration.* 6-1-3. Study of supervisory problems in maintenance including compliance with FAA directive, log keeping and repair estimates. F.

PSYCHOLOGY

102: *General Psychology.* 0-3-3. A survey of fundamental processes and concepts of human behavior.

202: *Advanced General Psychology.* 0-3-3. Preq., Psychology 102. An intensive survey of literature and procedures in general psychology. W.

204: *Educational Psychology.* 0-3-3. Education Majors only. A survey course designed to meet the needs of prospective teachers by bringing an application of psychological principles to the instructional setting. Su, F, W, Sp.

205: *Child Psychology.* 0-3-3. Preq., for Education Majors or Home Economics Education majors. Admission to upper division. A study of the physical and mental growth of the child, the social, emotional, motor development, interests, and imaginative activities. Su, F, W, Sp.

206: *Adolescent Psychology.* 0-3-3. Preq., for Education Majors or Home Economics Majors. Admission to upper division. A study of the physical and mental growth of youth during the period of adolescence and the transition from childhood to adulthood. Su, F, W, Sp.

300: *Elementary Statistical Methods in the Social Sciences.* 0-3-3. A course designed to provide an orientation to statistical concepts used in the behavioral science field. Sp.

301: *Fields of Psychology.* 0-3-3. A study of the history of major fields and trends in psychology. Sp.

302: *Physiological Psychology.* 0-3-3. Preq., Zoology 225 and 226, 310 (or concurrent enrollment), Psychology 202. An intensive study of the physiology of the nervous system, and its relation to behavior. F.

304: *Social Psychology.* 0-3-3. Preq., Psychology 202. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions. W.

307: *Elementary Experimental Psychology.* 3-2-3. Preq., Psychology 302 and 321. A beginning course in applying the scientific method to the problems of psychology. W.

310: *Psychology of Personality.* 0-3-3. Preq., Psychology 202. A study of major theories of personality. Sp.

312: *Psychology of Learning.* 0-3-3. A survey of current theories of learning. Sp.

321: *Psychological Testing.* 0-3-3. Preq., Psychology 300. An introduction to the principles and practices of psychological testing and evaluation. F.

400: *Behavior Modification.* 0-3-3. Applied analysis to individual behaviors using concepts, and principles from experimental analysis of behavior. Sp.

404: *Seminar In Psychology.* 0-3-3-(9). An intensive survey in selected current topics in the field of psychology.

407: *Advanced Experimental Psychology.* 3-2-3. Preq., Psychology 307. Emphasis on investigating specific learning, motivation, and perception topics from methodological and historical viewpoints. W.

408: *Human Growth and Development.* 0-3-3. A seminar for the study of human growth. W.

414: *Dynamics of Adjustment.* 0-3-3. A comprehensive study of the problems of self-adjustment and self-management and the development of a well integrated personality. F, Sp.

418: *Abnormal Psychology.* 0-3-3. Preq., Psychology 302 and 310. A study of the nature and development of abnormal behavior from a psychological viewpoint. F.

450: *Introduction to Clinical Psychology.* 0-3-3. Preq., Consent of instructor. Introduction to clinical psychology as a science and profession. Lectures, discussions, demonstrations, and field observations are provided for an overview of clinical psychology. W.

459: *Research Methods in Psychology.* 0-3-3. Preq., Psychology 300. An examination of the practical problems of designing, conducting, and interpreting research and of the structure and organization of research writing. F.

460: *Field Research in Psychology.* 1 to 3 hours credit by arrangement. Preq., Psychology 459. Consent of the instructor. Supervised practice in methods of field research as a basic tool of psychology. Each student develops and executes a field research project. May be repeated for a maximum of 9 hours credit.

465: *Industrial Psychology.* 0-3-3. The application of psychological findings and concepts to the industrial environment. Sp.

490: *Human Relations.* 0-3-3. The application of the behavioral science, methods and techniques, to the study of human relations. Develops a theoretical rationale for human relations training and provides laboratory experiences for developing interpersonal communications skills.

491: *Human Relations.* 0-3-3. Preq., Psychology 490 and consent of instructor. Continued study of human relations plus supervised practice in performing group leadership and other facilitative roles.

492: *Human Relations in Industry.* 0-3-3. To understand the basic principles of psychology and how these principles may be applied in industry to make for more effective Human Relations.

493: *Behavioral Analysis in Industry.* 0-3-3. Application of behavioral analysis in industry. A study of the concepts, principles and skills essential for designing and implementing a behavior change plan in organizational settings.

494: *Psychology of Decision Making.* 0-3-3. A study of the techniques and issues in the process of decision making.

496: *Communication in Human Relations.* 0-3-3. A review of the concepts, principles and skills essential for effective communication in working with people.

500: *Individual Testing I.* 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Wechsler Intelligence Scales with emphasis upon practice in administering, scoring, and interpreting test results.

508: *Psycholinguistic Assessment.* 3-2-3. Preq., Psychology 500 and consent of the instructor. Application course in administration, scoring, and interpretation of the Illinois Test of Psycholinguistic Ability (ITPA) and the Utah Test of Language Development. Application of related achievement and visual-motor tests will also be studied.

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.

520: *Individual Testing II.* 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Wechsler Intelligence Scales with emphasis upon practice in administering scoring and interpreting test results.

521: *School Psychology.* 0-3-3. An introduction to the functions of a school psychologist and a survey of professional issues and problems of concern to the school psychologist. The course considers such topics as qualifications for test administration, confidentiality, relations with other professions, problems of referral, and report writing.

QUANTITATIVE ANALYSIS

220: *Introduction to Business Information Systems.* 0-3-3. Preq., Sophomore standing. Concepts of information systems including use of electronic computers. Su, F, W, Sp.

310: *FORTRAN Programming.* 0-2-2. Junior standing, preferably will precede other programming courses. Programming by the FORmula TRANslation (FORTRAN) common compiler language; applications to business, industry, pure and applied science, mathematics, and other fields depending on student's interest. Su, F, W, Sp.

315: *COBOL Programming.* 0-2-2. Preq., Junior standing. Conceptional introduction to computer languages (machine and common), COmmon Business-Oriented Language (COBOL); programming problems and systems of increasing complexity for business, industry, and government. F, Sp.

335-336-337: *Business Statistics.* 0-2-2 each. Preq., Junior standing. Descriptive statistics; application of probability, inference, and regression and correlation in business and production; time series and index numbers. Su, 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 DBA quantitative methods field of study.

391: *Information Systems.* 0-1-1. (Not open to students who have had Quantitative Analysis 220.) Background in information systems. Sp.

426: *PL/1 Programming.* 0-2-2. Preq., Knowledge of another programming language. Programming Language 1. A general purpose compiler language for programming business and scientific problems. W.

428: *Assembler Language Programming.* 0-2-2. Preq., Knowledge of another programming language. Programming in machine and symbolic assembler languages for business. Sp.

430: *Management Science Methods.* 0-3-3. Preq., Quantitative Analysis 337. Linear programming including sensitivity analysis, the transportation problem, inventory analysis, and PERT. Su, F, W, Sp.

432: *Intermediate Business Statistics.* 0-3-3. Preq., Quantitative Analysis 337. Applied statistical methods utilizing the computerized Statistical Analysis System; multiple regression and correlation, chi square, analysis of variance, and non-parametric methods. Su, odd; W.

433: *Applied Multivariate Statistics.* 0-3-3. Preq., Quantitative Analysis 337, Matrix algebra, multivariate analysis of variance, discriminant analysis, canonical correlation, multivariate regression, principal component analysis, and multivariate analysis of discrete and categorical data. Sp.

435: *Information Systems Analysis and Design.* 0-3-3. Preq., Quantitative Analysis 220 or equivalent and senior standing. Information systems for management decision making; systems construction and computer utilization, organizational concepts, systems analysis and data systems designed for accounting, marketing, production, personnel, and finance. F, Sp.

436: *Advanced Data Management and Computer Analysis.* 0-3-3. Preq., a high level processing language. Advanced application in systems design and utilization of current programming packages. An individual project is required. W.

525: *Management Science.* 0-3-3. Preq., Quantitative Analysis 337. Introduction to management science methods, mathematical and dynamic programming; applications of operations research methods to management.

532: *Econometric Methods.* 0-3-3. (Same as Economics 532). Preq., Quantitative Analysis 432 or other acceptable courses. An investigation of the role and use of statistical techniques in economic research including estimation and interpretation of parameters of micro and macroeconomic models. Attention will be given to the problems of economic measurement using statistical techniques, model specification, identification and to problems of aggregation.

535: *Advanced Computer Applications.* 0-3-3. Preq., knowledge of a programming language. Seminar in the management use and organization of future computer systems; computer languages, time sharing, real-time systems, multiprocessing and multiprogramming as applied to business and finance areas.

540: *Advanced Management Science Methods.* 0-3-3. Preq., Quantitative Analysis 390 or equivalent. Quantitative analysis in management decision making including linear, integer and parametric programming; project planning and scheduling with CPM/PERT and MAP as applied to business management.

541: *Advanced Management Science Methods.* 0-3-3. Preq., Programming Language. Systems analysis for management control: design, construction, testing, and operation of process meodels for simulation; simulation of queuing, inventory and large-scale industrial models.

550: *Individual Research Problems.* 1-3 hours credit. Hours and credits to be arranged. Special problems in statistics, operations research, or management science solved with the aid of an electronic computer. Research report required which describes the problems, methods, results and conclusions.

READING

100: *Developmental Reading for College Freshmen.* 0-3-3. Instruction and practice in reading fundamentals. Designed for those students whose ACT scores in English and Social Studies are below an established score. Non-degree credit. F, W, Sp.

200: *Reading Skills Improvement.* 0-3-3. This course is designed to assist any student who would like to improve basic reading skills. Emphasis on comprehension, concentration and speed. F, W, Sp.

SOCIAL SCIENCE

470: *Senior Reading Program.* 0-3-3. A reading course in selected basic works optional for all majors in geography, history, political science, and sociology. Su, F, W, Sp.

SOCIAL WELFARE

200: *Introduction to Social Welfare.* 0-3-3. The history of social work as a field: body of knowledge; method and process of operation of the specialized social work services in contemporary society. F, W.

SOCIOLOGY

201: *Principles and Elements of Sociology.* 0-3-3. An introduction to the structures and processes of group behavior. Su, F, W, Sp.

202: *Social Problems.* 0-3-3. Selected social problems in contemporary American society. Su, F, W, Sp.

205: *Introduction to Anthropology.* 0-3-3. Introduction to the origin and development of man; the nature and development of culture. Su.

304: *Social Psychology.* 0-3-3. (Same as Psychology 304.) Preq., Psychology 102 or 202, and Sociology 201. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions. W.

306: *Juvenile Delinquency.* 0-3-3. Preq., Psychology 102 or Sociology 201 or 202. The nature, causes, extent, and methods of treatment of juvenile delinquency. Sp.

308: *The Family.* 0-3-3. A study of the family as a social institution with comparisons of family life in various societies. Su, W.

310: *Sociology of Adolescence.* 0-3-3. Preq., Sociology 201 or 202, or Psychology 102. Analysis of adolescence in selected societies with emphasis on the contemporary United States. F.

312: *Minority Groups.* 0-3-3. Minority/dominant relationships, their formation, stabilization and modifications. Su, W,

314: *Criminology.* 0-3-3. Theories of the genesis of crime; analysis of specific types of offenders, prevention, control, and treatment. F, Sp.

318: *Social Control.* 0-3-3. Informal and formal regulative processes in social behavior, with reference to techniques and processes of social control. Su.

330: *Rural Sociology.* 0-3-3. An examination of rural society with emphasis on its organization, processes and contemporary trends. Su.

340: *Urban Sociology.* 0-3-3. The influence of socio-cultural factors and their consequences for urban America. F.

401: *Social Theory.* 0-3-3. Preq., junior standing. The development of sociological theory and its relation to research. Sp.

415: *Sociology of Industrial Relations.* 0-3-3. Preq., junior standing. Analysis of the relationships between industry and society; work roles, theoretical models, industrial bureaucracy. W.

420: *Treatment of Offenders.* 0-3-3. Preq., Sociology 314. A study of principles of treatment of offenders; application of social science principles to treatment of offenders; interviewing, guidance, and counseling of offenders. Sp.

424: *Probation and Parole.* 0-3-3. Preq., Sociology 314. Probation and parole as part of a continuum for treating offenders. W.

430: *The Modern American Community.* 0-3-3. Preq., junior standing. A study of recent changes in American community life and of social organization in the modern community. Su, odd.

460: *Population Problems.* 0-3-3. Preq., junior standing. Scientific analysis of population distribution, composition, growth, migration, and vital processes. F, Sp.

SPECIAL EDUCATION

300: *Introduction to Exceptional Children.* 0-3-3. A survey of the physical, emotional, social, and learning characteristics of exceptional children; educational programs; incidence and prevalence. Su, F, W, Sp.

301: *Learning Disabilities.* 0-3-3. Preq., Special Education 300. Learning principles, issues, models of learning disabilities,

assessment and remediation of visual and auditory perception; cognitive processes; receptive and expressive language; gross motor coordination. F, W, Sp.

305: *Language Development for the Child with Learning Disabilities.* 0-3-3. The essentials of language needed to guide children with language-learning problems, including word meaning, language interactions, verbal-habit families, concepts and syntactical habits.

325: *Introduction to Mental Retardation.* 0-3-3. Preq., Special Education 301. Medical, psychological, social, and educational aspects of mental retardation. Su, F, Sp.

335: *Information on Childhood Diseases and Crippling Conditions.* 0-3-3. Emphasis on orthopedic conditions and chronic medical health problems with implications for education, psychology, social work, and occupational, physical, and speech therapy. Sp.

340: *Behavior Disorders.* 0-3-3. Preq., Special Education 300. Foundations of behavioral science, operant analysis of human behavior, behavior modification principles and techniques; educational programs. Su, F, W.

360: *Education of the Partially Seeing Child.* 0-2-2. Preq., Special Education 301. Learning behavior, curriculum adaptation, educational programs, environmental movement and control, and behavioral characteristics of children with visual impairment. Sp.

375: *Education Procedures and Materials in Special Education.* 4-2-3. Preq., Special Education 325, 335, or 340. Specific procedures of educating and re-educating children with retarded development, behavior problems, crippling and special health problems, use of special materials, crafts, art. Guided observation, Su, F, W, Sp.

450: *Education of Gifted Children.* 0-3-3. The nature and needs of exceptionally able students with special emphasis on curriculum adjustment and research in the field. 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 children. Su, W.

490: *Psycho-social and Educational Appraisal of Exceptional Children.* 3-2-3. Concepts of measurement applied to exceptional children; normative assumptions, measures of receptive and expressive language, social maturity, and perceptual-motor functions, observations of procedures. F, Sp.

501: *Contemporary Issues in Special Education.* 0-3-3. Historical and comparative approaches to theoretical issues and research, critical examination of assumptions, sampling, and tactics of research.

502: *Psycho-social and Educational Appraisal of Exceptional Children II.* 7-1-3. Preq., Special Education 490. Administration and interpretation of specialized individual tests for exceptional children, use of infant scales of development, non-verbal tests for the linguistically impaired, verbal tests for the visually and physically impaired.

503: *Educationally Disadvantaged.* 0-3-3. Biological, learning, interpersonal, and motivational determinants of behavior, cultural deprivation as a factor in school learning; educational implications.

520: *Advanced Seminar: 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 Seminar: 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 Seminar: 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 Children.* 12-0-3. 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 children.

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.

570: *Advanced Seminar: Learning Disabilities.* 0-3-3. Advanced study of the bilogical, 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 children through programming and behavior modification; use of automated equipment for direct control of stimuli and contingencies.

SPEECH

110: *Principles of Speech.* 0-3-3. Designed to develop the principles of effective oral communication in typical speaker-audience situations, through practice in informative and persuasive speaking. (Cannot be taken for credit if student has credit for Speech 377.) Su, F, W, Sp.

200: *Discussion and Debate.* 0-3-3. Preq., Speech 110 or equivalent. A study of the principles of group discussion and debate with practical experience in each. F.

201: *Introduction to Theatre.* 0-3-3. A comprehensive overview of the elements that comprise the theatre; intended as a basic preparation for an understanding of theatre art. F.

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.

212: *Introduction to Clinical Procedures.* 7½-2-4. Preq., Speech 411. Beginning students are taught basic principles and procedures of clinical practice through lecture, observation, and supervised clinical experience. Su, F, W, Sp.

222: *Phonetics.* 0-3-3. A study of vocal and physical aspects of standard American language and deviations therefrom as found in various regional dialects of the United States. W.

240: *Acting.* 0-3-3. Basic training in the art of acting with emphasis upon the physical and vocal skills required for character portrayal. W.

312: *Clinical Procedures.* 7½-2-4. Preq., Speech 212. Students are taught principles and procedures used with clients with serious speech disorders through lecture, observation and supervised clinical experience. Su, 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.

319: *Group Interpretation.* 0-3-3. Preq., Speech 110 and 315. Interpretation of prose, poetry, and drama through the group mediums of Chamber Theatre, Reader's Theatre, and Choral Reading.

330: *Voice and Diction.* 0-3-3. Preq., Speech 110. Designed to meet the practical needs of the elementary school teacher including training in phonetics, pronunciation, reading to children, and public address. F, Sp.

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.

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.

363: *Motion-Picture Techniques.* 3-2-3. Provides direct experience in the production of short motion-pictures; includes consideration of live action, single-frame animation, fictional and documentary styles, and problems of lighting.

377: *Oral Communications.* 0-3-3. Designed to establish a foundation for effective speaking in informative speaking, in the interview, and in the communication from the manuscript. (Cannot be taken for credit if student has credit for Speech 110.) Su, F, W, Sp.

404: *Theatre Practicum.* 4-0-1. Practical experience in interpretation, acting, directing, or technical theatre. May be repeated for a maximum of 4 hours credit. Su, F, W, Sp.

406: *Play Production.* 0-3-3. An introductory course in the problems of play production, including directing, scenery construction and painting, stage lighting, backstage organization, stage makeup and costuming. W.

407: *Advanced Play Production.* 0-3-3. Preq., Speech 406. A seminar course with emphasis on play directing. Each person registering for this course will produce and direct a full-length play for public production. Sp.

411: *Diagnostic Procedures.* 0-3-3. Principles and procedures for differential diagnosis of speech and language disorders. Administration and interpretation of various tests, parent interviewing, and clinical observation of behavior. Sp.

412: *Advanced Clinical Procedures.* 7½-2-4. Preq., Speech 312. Students are taught principles and procedures used with children with language disorders through lecture, observation, and supervised clinical experience. Su, F, W, Sp.

413: *Articulation.* 0-3-3. A study of the nature, etiology, and retraining procedures related to defective articulation with emphasis on current research. W.

415: *Shakespeare.* 0-3-3. The major plays and the poems. (Same as English 415.)

416: *Advanced Oral Interpretation of Literature.* 0-3-3. Preq., Speech 315. A continuation of Speech 315 in which the student increases skill in analyzing literature, and further develops the ability to communicate the author's meaning. Sp.

418: *Language Disorders in Children.* 0-3-3. Preq., Speech 470. A beginning course in the study of language disorders in children with emphasis on evaluation and treatment procedures. W.

420: *Anatomy and Physiology of the Speech Mechanism.* 0-3-3. Introduction to the study of the structure and function of the systems related to speech production including the respiratory, phonatory, articulatory and nervous systems. Sp.

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.

440: *Principles of Communicative Interaction.* 0-3-3. The study of principles and processes basic to communicative interaction.

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.

451: *Advanced Discussion and Debate.* 0-3-3. Preq., Speech 200 or equivalent. Designed to prepare students for organizing and conducting a forensic program.

453: *Rhetorical Theory.* 0-3-3. The evaluation of speech composition from classical to modern times.

454: *American Public Address.* 0-3-3. Preq., Speech 110. Study of American oratory from colonial times to the present. W.

460: *Applied Forensics.* 3-0-1. Practical experience in debate and other forms of forensic speaking. May be repeated for a maximum of 4 hours credit. Su, F, W, Sp.

465: *Applied Practicum.* 6-0-2. Practical experience in clinical activities related to service programs. May be repeated for a maximum of 6 hours credit. Registration by permission of instructor.

466: *Group Processes.* 1-1-1. Practical experience in conducting group meetings, group discussions, and parliamentary procedure. Open to all students.

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.

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. Public address; drama; speech therapy; broadcasting; interpretation; qualified graduate students will be permitted to register for seminar in each area of general concentration. Problems must be selected with approval of major professor before registration.

502: *Studies in Scene Design and Stage Costuming.* 0-3-3. Preq., Speech 406 or equivalent. A seminar course in the theory and practice of design and construction of stage scenery and stage costume.

508: *Practicum in Communicative Disorders.* 6-0-2-(8). Supervised clinical experience with individuals who have disorders of communication.

509: *British Public Address.* 0-3-3. A study of significant oratory in British history.

510: *Speech Science.* 0-3-3. Study of normal speech and voice production with emphasis on respiratory and phonatory mechanism, speech acoustics, speech perception and control.

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.

516: *Studies in the History of Interpretation.* 0-3-3. Preq., Speech 315 and 319. Consideration of critical writings in interpretation from ancient times to the present.

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.* 7½-2-4. 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.* 0-3-3. Preq., permission of instructor. A study of the linguistic and neurological aspects of behavior relative to disorders of language in children with emphasis on assessment and treatment.

522: *Experimental Phonetics and Linguistics.* 0-3-3. Study of selected current issues and developments in experimental phonetics with opportunity for individual research projects.

523: *Aphasia.* 0-3-3. A study of the etiology and symptomatology with emphasis on principle theoretical treatment, instruments for evaluation and methods of clinical management of aphasia and related disorders.

524: *Seminar in Voice Disorders.* 0-3-3. A study of the etiology, symptomatology and treatment procedures for voice disorders, including those that result from laryngeal pathologies.

525: *Cleft Palate.* 0-3-3. A study of the articulatory, resonance and phonatory problems associated with cleft palate and facial maxillary disturbances including medical and speech therapy, habilitative and rehabilitative procedures.

526: *Seminar in Stuttering.* 0-3-3. A critical review of the literature to synthesize information regarding the definition of stuttering, theories of etiology, symptomatology, therapy and methods of research.

528: *Neurological Disorders.* 0-3-3. A study of communication disorders which result from damage to the central and peripheral nervous system, their etiology, symptomatology, diagnosis, and treatment.

530: *Special Problems in Communicative Disorders.* 0-3-3. Registration by permission of instructor. Individual research assignments in Speech Pathology and Audiology.

533: *Differential Audiology.* 0-3-3. Discussion, demonstration and interpretation of special tests used to differentiate various audiological problems.

535: *Hearing Aids.* 0-3-3. Involves discussion of hearing aids, selection procedure, and the amplification needs of the individual.

540: *Industrial Audiology.* 0-3-3. Directed toward the study of management and control of hearing problems in industry, and conservation of hearing in occupations and activities involving excessive noise exposure.

543: *Seminar in Pediatric Audiology.* 0-3-3. Investigation of the audiological problems of children.

545: *Clinical Audiological Experience.* 9-0-3. Supervised practice in the use of various audiological tests on patients having hearing impairments. Includes report writing and counseling procedures. May be repeated one time for credit.

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.

560: *Therapeutic Communication in Speech Pathology and Audiology.* 0-3-3. Emphasizes investigation of recent findings concerning communication between and among human beings, both directly and through media systems.

570: *History of Speech Education.* 0-3-3. Development of speech as a discipline in general education from ancient to modern times.

TECHNICAL DRAFTING

101: *Elementary Drafting.* 6-1-3. Care and use of drawing equipment. Freehand lettering. Freehand sketching and mechanical drawing of simple objects. F.

102: *Machine Drafting.* 6-0-2. Preq., Technical Drafting 101. Continuation of Technical Drawing 101. Sections, auxiliary views and dimensioning. W.

103: *Working Drawings.* 6-0-2. Preq., Technical Drafting 102. Assembly drawings. Tolerancing. Threads and fasteners. Mating parts. Sp.

201: *Pictorial Drawings.* 6-0-2. Preq., Technical Drafting 102. Axonometric drawings. Oblique drawings. Perspective drawings. F.

202: *Advanced Topics in Technical Drawings.* 6-0-2. Preq., Technical Drafting 103. Piping drawings. Welding drawings. Tool design drawings. Structural drawings. Process flowcharts. W.

203: *Organization and Administration of the Drafting Function.* 0-2-2. Preq., Technical Drafting 103. Reproduction of drawings. Numbering and filing of drawings. Security of drawings. Sp.

VETERINARY SCIENCE

301: *Anatomy and Physiology of Animals.* 3-2-3. The structures and functions of the tissues and organs of animals. Sp.

401: *Animal Pathology.* 3-2-3. Preq., Bacteriology 210. The etiology, symptoms, prevention, control, and eradication of the major diseases of farm animals. F.

ZOOLOGY

111: *Concepts in Zoology.* 0-3-3. A course for general academic students and beginning science majors. Presents basic concepts and principles in zoology, especially as they relate to man and the environment. Su, F, W, Sp.

112: *Laboratory Studies in Zoology.* 3-0-1. Preq., Zoology 111 or concurrent enrollment. Student-oriented experiments integrated with a survey of animal life. Su, F, W, Sp.

115: *Animal Diversity.* 4¼-3-4. Preq., Zoology 111 and 112 or equivalent. A study of the diversity of form and function based on the several animal phyla. W, Sp.

200: *Human Reproduction.* 0-1-1. (Pass-Fail). A factual study for the proper understanding of the physical, emotional, and behavioral aspects of human reproduction. W.

202: *Comparative Anatomy of Vertebrates.* 8½-2-4. Preq., Zoology 111, 112, 115. Comparative anatomy and evolution of the vertebrates. F, Sp.

225: *Human Anatomy and Physiology.* 0-3-3. Preq., Zoology 111, 112, strongly recommended; Consult with your advisor. The structures and functions of the organ systems of the human body, including anatomy of the vocal and hearing mechanisms. (Not open to students in premedicine, predentistry or zoology majors.) Su, F, W, Sp.

226: *Anatomy and Physiology Laboratory.* 4¼-0-1. Preq., credit for or registration in Zoology 225. A laboratory to permit the student to observe through specially designed exercises the physiology and anatomy of mammals. F, W, Sp.

313: *Animal Ecology.* 4¼-2-3. Preq., Zoology 111 or 112. The fundamental principles of ecology as they apply to population dynamics, communities and zoogeographic distribution of animals. F, Sp.

317: *Game Management Techniques.* 4¼-2-3. Preq., Zoology 111, 112. A study of the principles employed in the management of game birds and mammals and their identification. W.

320: *Principles of Animal Physiology.* 4½-3-4. Preq., Zoology 111, 112; recommended Zoology 115, 202. A general and comparative approach to the principles and concepts of Physiology which apply to animal systems. F, W.

350: *Zoological Problems.* 4¼-0-1-(6) Preq., junior standing and written permission of instructor. An introduction to the principles of research. S, W, F, Sp.

401: *General Parasitology.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. A comparative study of animal parasites and their relationship to the hosts. Su, F.

405: *Histology.* 8½-1-3. Preq., Zoology 111, 112, 115 or equivalent. Microscopic study of animal tissues with emphasis on functional and structural interrelationships. W.

409: *Animal Genetics Laboratory.* 4¼-0-1. Preq., Life Sciences 300, Zoology 410 or concurrent registration in either of these courses. The study of laboratory techniques in animal genetics demonstrating the laws of heredity using standard laboratory animals and microorganisms. Sp.

410: *Animal Genetics.* 0-3-3. Preq., Zoology 111, 112, 115, concurrent registration in Zoology 409. The fundamental laws of inheritance, their molecular and quantitative bases and the function of the gene in cell physiology, development and evolution. Sp.

411: *Vertebrate Embryology.* 8½-2-4. Preq., Zoology 202, or permission of instructor. The structure, maturation and fertilization of the germ cells, and early development of vertebrate animals. W.

414: *General and Economic Entomology.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. Study of insect structure, classification, life cycles and control practices, with emphasis on economic pests. F.

415: *Pestology.* 0-3-3. Preq., Zoology 111, 112, 414, or by written permission of instructor. Study of the anthropods that are vectors of disease organisms to man and animals and the economic losses resulting from these pest infestations. F.

420: *Mammalian Physiology.* 4¼-3-4. Preq., 12 hours of zoology including Zoology 320, and organic chemistry. Interrelation of the organs in the mammalian homeostatic system and modern experimental methods. Concentration on the circulatory, respiratory and nervous systems. F, even.

421: *General Pharmacology.* 0-3-3. Preq., 12 hours of zoology and 8 hours of chemistry or by permission of the instructor. A study of the physiological and biochemical effects produced by drugs with emphasis on theories of the mode of cellular level action. Sp.

423: *Endocrinology.* 0-3-3. Preq., Zoology 320 or equivalent. A study of the embryology, anatomy, biochemistry, and physiology of the endocrine glands in various animals. F, odd.

425: *Principles of Electron Microscopy.* 4½-1-2. Preq., graduate standing and written permission of the instructor. Essential methods for routine biological electron microscopy: instrument operations, photomicrography, tissue sectioning and knife preparation. W.

426: *Evolution.* 0-3-3. Preq., Zoology 111 or equivalent. A study of the concepts, problems and methods involved in the formulation of modern evolutionary theory. W.

429: *Ichthyology.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. Systematics, anatomy, and ecology of fishes with emphasis on local freshwater species. F.

430: *Herpetology.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. The taxonomy, distribution, life histories, and ecology of the Herptiles, with special emphasis on those species found in Louisiana. Sp.

432: *Mammalogy.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. The identification, taxonomy, characteristics and general biology of mammals with emphasis upon those of North America. W.

433: *Ornithology.* 4¼-2-3. Identification, taxonomy, characteristics, and general biology of birds, with emphasis upon those in North America. Sp.

434: *Limnology.* 4¼-2-3. Preq., Zoology 111, 112, 115 or equivalent. The study of the chemical, physical and biotic aspects of the freshwater environment. F.

436: *Field Zoology for Teachers.* 4¼-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of coldblooded vertebrates and aquatic ecology. Not open to majors in Zoology of Wildlife Curricula. Offered on demand.

437: *Field Zoology for Teachers.* 4¼-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of warm-blooded vertebrates and terrestrial ecology. Not open to majors in the Zoology or Wildlife curricula. Offered on demand.

440: *Cytology.* 4¼-2-3. Preq., Zoology 111, 112. The cell is studied as to the structural and functional organization of the protoplasm, and its relation to metabolism and heredity. Offered on demand.

480: *Undergraduate Seminar.* 0-1-1-(2). Preq., senior standing, Required of all senior zoology majors. Supervised study, reports, and discussion of current zoological literature. F, W, Sp.

510: *Biology of Water.* 4¼-2-2. Preq., mathematical competence at the algebraic level. Information theory (mathematical models) will be employed in order to show how changes in biological populations can give information on the effects of pollution along with emphasis on the recognition of plants and animals found in water and the basic environmental requirements of each group of organisms.

515: *History of Zoology.* 0-3-3. The historical development of the science of Zoology, the persons who contributed to this development, and the nature of the times which produced them.

516: *Contemporary Topics in Zoology.* 0-3-3. An opportunity to examine and discuss a variety of timely topics pertaining to the Zoological Sciences.

520: *Principles of Zoological Systematics.* 0-1-1. A detailed study of taxonomic principles and procedures based on the International Rules of Zoological Nomenclature.

NOTE: Courses listed for the summer will be offered only if qualified faculty are on staff.

COUNCILS, COMMITTEES AND COMMISSIONS

(The President and the appropriate Vice President are "ex-officio" members of all councils and committees.)

ADMINISTRATIVE COUNCIL: F. Jay Taylor, Chairman; Hal B. Barker, George Byrnside, Elenora A. Cawthon, B. J. Collinsworth, E. S. Foster, Jr., Elizabeth G. Haley, Patsy Lewis, S. X. Lewis, Virgil Orr, Bob R. Owens, Paul J. Pennington, Jack Thigpen, Chairman of the Faculty Senate, Student Government Association President.

ADMINISTRATIVE REVIEW BOARD: Vice President for Student Affairs, Chairman; Vice President for Academic Affairs, Dean of the College in which the student is registered.

ASTRONOMY ADVISORY COMMITTEE: Charles H. Edwards, Jr., Chairman; John D. Calhoun, Anthony J. Galli, Joe Hinton, Wallace Herbert, ex-officio, M. R. Johnson, Jr., G. Clint Miller, one junior student, one senior student.

ATHLETIC COUNCIL: H. J. Smolinski, Chairman; B. J. Collinsworth, James L. Hester, Wiley W. Hilburn, Jr., Maxie Lambright (non-voting), Virgil Orr, Paul J. Pennington, Robert C. Snyder, Milton Williams, James B. Akers, Student Representative.

CAMPUS PLANNING COMMISSION: Campus Engineer, Chairman; Deans of Academic Colleges, Dean of Student Life, Athletic Director, Physical Plant Director.

CATALOGS AND BULLETINS COMMITTEE: Robert Doyle Holstead, Chairman; John Edwin Carothers, John Murad, Jack Murphy, Donald R. Nelson, Student (Usually Editor of THE TECH TALK).

CIVIL DEFENSE COMMITTEE: Charles H. Smith, Chairman; John D. Calhoun, June W. Dyson, E. S. Foster, Jr., Ben J. Grafton, H. L. Henry, S. S. Kilgore, Albert Lazarus, P. B. Moseley, Jack A. Murphy, Ray Storms.

COUNCIL OF ACADEMIC DEANS: Virgil Orr, Chairman; Hal B. Barker, B. J. Collinsworth, Elizabeth Haley, Patsy Lewis, Bob R. Owens, Paul J. Pennington, Jack Thigpen.

COMMENCEMENT COMMITTEE: Bill J. Attebery, Marty Beasley, Marshall Bretz, Charles Edwards, Ann Futrell, Ray Janway, Calvin Lemke, James Maranto, Minnie Mize, Reba K. Neel, Albert Lazarus, James Spencer, Raymond Young, one student representative.

FACULTY SENATE: The membership includes elected representatives from the Faculty who are employed full time and professional personnel engaged in Specialized Academic Services. Members shall serve for a term of three years.

FEE COMMITTEE: Virgil Orr, Chairman; George Byrnside, Jerry Drewett, S. X. Lewis, President Student Government Association.

GRADUATE COUNCIL: John Trisler, Chairman, Nancy Tolman, Vice-Chairman, Buck Brown, Donald Edwards, John Goertz, Harold Hedrick, Mabel Hemphill, Houston Huckabay, Clint Miller, Jerry Miller, H. E. Moseley, Eleanor Rockett, Linda Sivils, Earl Williamson, graduate student representative.

GRIEVANCE COMMITTEE: The Executive Committee of the Faculty Senate shall select six members (one from each college); each division (including Student Affairs, Academic Affairs and Administrative Affairs) shall elect one member. Only non-classified staff personnel may be elected to represent the divisions. Members shall serve a three-year term of office.

INSTRUCTIONAL POLICIES COMMITTEE: Joe Hinton, Chairman, Randall Barron, Kenny Crump, H. L. Henry, Albert Lazarus, P. B. Moseley, Lynelle Orren, Homer Ponder, Shirley Reagan, William Rives, Jim Williams, Janet Wright, and John Wright, Student Government Association President, one student representative.

INSURANCE AND RELATED BENEFITS COMMITTEE: Tommy Allen, Chairman; George Byrnside, J. E. Edwards, Will Johnston, Jr., S. X. Lewis, Virgil Orr, Reggie Rives.

LIBRARY ADVISORY COMMITTEE: Norman Byers, Chairman; Hal B. Barker, B. J. Collinsworth, Elizabeth G. Haley, Denise LeBlanc, S. X. Lewis, P. B. Moseley, Donald Nelson, Bob R. Owens, Paul J. Pennington, J. Y. Terry, Jack Thigpen, Joe R. Wilson, Two junior or senior students.

PROGRAM COMMITTEE: J. Harold Gilbert, Chairman; Marshall Bretz, Charles Foxworth, Sallie Hollis, M. R. Johnson, Dallas Lutes, Shirley Reagan, Katherine Robinson, Charles H. Smith, James Townsend, four students.

RADIATION COMMITTEE: James Malone, Chairman; W. H. Brumage, Winston Hackbarth, Nancy Tolman, student representative.

RESEARCH COUNCIL: W. L. Bergeron, Randall Barron, Jerry Drewett, A. G. McKee, James R. Michael, P. B. Moseley, John Murad, Bobby Price, Richard Ringheim, Nancy Tolman, one senior or graduate student.

SAFETY COMMITTEE: Vice President for Student Affairs, Chairman; Representative from each of the academic colleges: Administration and Business, Arts and Sciences, Education, Engineering, Home Economics, Life Sciences and the Division of Admissions, Basic and Career Studies; Dean of Student Life; Director of Physical Plant; Campus Security Supervisor; President, Associated Women Students; President, Men's Residence Hall Council; Vice President, Student Government Association.

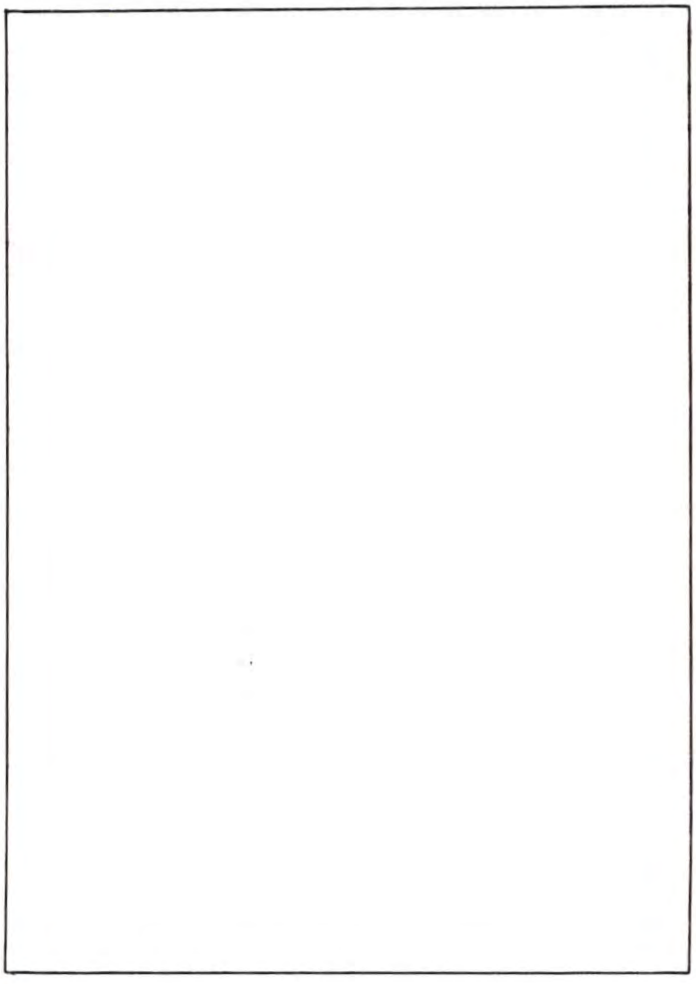
SCHOLASTIC STANDARDS COMMITTEE: Hal B. Barker, Chairman; Glynn Aycock, B. J. Collinsworth, Elizabeth G. Haley, Patsy Lewis, Bob R. Owens, Paul J. Pennington, Eleanor Rockett, J. C. Seaman, Jack Thigpen, two student representatives.

SOCIAL STANDARDS COMMITTEE: The Social Standards Committee shall be composed of twelve faculty members appointed by the Vice President for Academic Affairs, the president of Men's Dormitory Council, the second vice president of the Associated Women Students, four senior men and four senior women appointed by the President, a chairman and an alternate chairman appointed by the Vice President for Student Affairs.

STUDENT ORGANIZATIONS COMMITTEE: Dean of Student Life, Chairman; Vice Chairman of the Faculty Senate, Chairman of the Student Association Department of Internal Affairs and two members of that department, the Activities Director, a representative from the Division of Student Affairs, and advisor from: the Student Government Association, the Union Board, the Interfraternity Council, and the Panhellenic Council, a student representative from: the Interfraternity Council, the Panhellenic Council.

WATER RESOURCES ADVISORY COMMITTEE: Bobby E. Price, Chairman; Randall Barron, James R. Michael, P. B. Moseley, John Murad.

University Faculty



University Faculty

Department in which each faculty member is listed is by budget unit rather than by discipline. For teachers specific discipline see the college listings of faculty.

ADAMS, JOHN CLYDE; ASSISTANT PROFESSOR, SCHOOL OF FORESTRY--BSF, MS, PHD, LA STATE
ASSOCIATE GRADUATE FACULTY

AKERS, JAMES B; PROFESSOR, PHYSICAL EDUCATION--AB, DRURY COLLEGE; MS, KANSAS STATE UNIVERSITY. (1977) ASSOCIATE GRADUATE FACULTY

ALBERTI, DINO A; ASSISTANT PROFESSOR, LIBRARY--BA, MA, LA POLY INST; MS, LA STATE UNIV. (1967)

ALBRITTON, JAMES V; ASSISTANT PROFESSOR, AGRICULTURAL ENGINEERING--BS, MS, LA POLY INST. (1975) ASSOCIATE GRADUATE FACULTY

ALBRITTON, LOU ANN; ASSISTANT PROFESSOR, PHYSICAL EDUCATION--BS, MS, LA POLY INST. (1965)

ALLEN, PHOEBE; ASSOCIATE PROFESSOR, ART--BA, MA, LA POLY INST. (1965) ASSOCIATE GRADUATE FACULTY

ANDRULOT, EDWARD ROBERT; PROFESSOR, SCHOOL OF FORESTRY--BSF, UNIV OF MICH; MS, LA POLY INST; PHD, LA STATE UNIV. (1956) GRADUATE FACULTY

ARMSTRONG, LARRY BENNETT; ASSISTANT PROFESSOR, SCHOOL OF PROF ACCOUNTANCY--BS, LA POLY INST; MBA, LA STATE UNIV. (1966)

ATTEBERY, BILLY J; PROFESSOR, MATHEMATICS AND STATISTICS--BSE, UNIV OF CENTRAL ARK; MA, UNIV OF ARK; PHD, UNIV OF MISSOURI. (1966) GRADUATE FACULTY

ATTREP, ABRAHAM M; ASSOCIATE PROFESSOR, HISTORY--BA, LA COLLEGE; MA, TULANE UNIV; PHD, UNIV OF GA. (1962) GRADUATE FACULTY

BADEAUX, GILBERT R; ASSISTANT PROFESSOR, ELECTRICAL ENGINEERING--BS, UNIV OF SOUTHWESTERN LA; MS, UNIV OF ILL. (1966) GRADUATE FACULTY

BAKER, RILEY E; ASSOCIATE PROFESSOR, SOCIAL SCIENCES--BS, MS, NORTH TEX STATE UNIV. (1962) GRADUATE FACULTY

BARHAM, ROBERT EWING; ASSISTANT PROFESSOR, ENGLISH--BA, MA, LA POLY INST. (1965)

BARKER, HAL B; PROFESSOR, LIFE SCIENCES ADMINISTRATION--BS, TENN POLY INST; MS, IOWA STATE UNIV; PHD, AUBURN UNIV. (1949) GRADUATE FACULTY

BARKER, JON ALBERT; ASSISTANT PROFESSOR, MUSIC--BA, NORTHEAST LA STATE COLLEGE; MCM, SW BAPTIST THEOLOGICAL SEM; DMA, LSU. (1969) GRADUATE FACULTY

BARRIER, HAROLD G; ASSISTANT PROFESSOR, MUSIC--BME, EAST CAROLINA UNIVERSITY; MM, NORTHWESTERN UNIVERSITY. (1975)

BARRON, RANDALL F; PROFESSOR, MECHANICAL ENGINEERING--BS, LA POLY INST; MS, PHD, OHIO STATE UNIV. (1965) GRADUATE FACULTY

BATTAGLIA, THERESA L; ASSISTANT PROFESSOR, LIBRARY--BA, LA TECH UNIVERSITY; MED, NORTHEASTERN UNIVERSITY. (1977)

BEARD, JACK; PROFESSOR, ART--BA, LA POLY INST; MA, STEPHEN F AUSTIN UNIV. (1963) GRADUATE FACULTY

BEASLEY, MARY FOWLER; ASSOCIATE PROFESSOR, SPEECH--BA, MA, LA TECH UNIV; PHD, PURDUE UNIV. (1969) GRADUATE FACULTY

BERGERON, WILBUR LEE; PROFESSOR, EDUCATION RESEARCH--BA, LA COLLEGE; MA, GEORGE PEABODY COLLEGE; EDD, UNIV OF ARK. (1953) GRADUATE FACULTY

BERGUSON, ROBERT JENKINS; ASSOCIATE PROFESSOR, ART--BA, MA, MFA, UNIV OF IOWA; AA, CORNING COMMUNITY COLLEGE. (1970) GRADUATE FACULTY

BERNARD, WILLIAM H; PROFESSOR, PHYSICS--BS, PHD, TULANE UNIVERSITY. (1962) GRADUATE FACULTY

BEST, MARY ANN; INSTRUCTOR, NURSING--BS, BAYLOR UNIV. (1975)

BIBERMAN, GERALD; ASSISTANT PROFESSOR, BARKSDALE CENTER--BA, MA, PHD, TEMPLE UNIVERSITY. (1977) ASSOCIATE GRADUATE FACULTY

BLACKWELL, BEN F; ASSISTANT PROFESSOR, MECHANICAL ENGINEERING--BSM, UNIVERSITY OF ARK; MSM, UNIVERSITY OF NEW MEXICO; , STANFORD UNIVERSITY. (1977) ASSOCIATE GRADUATE FACULTY

BOURGEOIS, PATRICIA MCLIN; INSTRUCTOR, NURSING--BS, MCNEESE STATE UNIV. (1975)

BOWEN, EDWARD C; ASSISTANT PROFESSOR, AIR SCIENCE--BA, N Y STATE UNIV; MA, UNIV OF ARK. (1974)

BOYETTE, HOWELL WALLACE; ASSOCIATE PROFESSOR, MATHEMATICS AND STATISTICS--BS, SOUTHERN STATE COLLEGE; MS, MS, UNIV OF ARK. (1963)

BREWER, CHARLES FRED; ASSISTANT PROFESSOR, LIBRARY--AB, MARYVILLE COLLEGE; MS, UNIV OF TENN; MLS, IND UNIV. (1976)

BREWER, JOHN CLINTON; ASSOCIATE PROFESSOR, BARKSDALE CENTER--BA, CENTENARY COLLEGE; MA, PHD, UNIV OF TEXAS. (1970) GRADUATE FACULTY

BROOM, LOWELL S; INSTRUCTOR, SCHOOL OF PROF ACCOUNTANCY--BS, WILLIAM CAREY COLLEGE; MBA, MISSISSIPPI COLLEGE. (1976)

BROWN, BUCK F; PROFESSOR, ELECTRICAL ENGINEERING--SB, MASS INST OF TECH; MS, PHD, OKLA STATE UNIV. (1964) GRADUATE FACULTY

BROWN, JAMES RUSSELL; PROFESSOR, DIVISION OF ALLIED HEALTH--BS, UNIV OF NEW MEXICO; MD, LSU SCHOOL OF MEDICINE. (1974)

BRUCE, ARTHUR CHILTON; PROFESSOR, MECHANICAL ENGINEERING--BS, MS, VA POLY INST; PHD, GA TECH. (1967) GRADUATE FACULTY

BRUMAGE, WILLIAM HARRY; PROFESSOR, PHYSICS--BS, MS, OKLA STATE UNIV; PHD, UNIV OF OKLA. (1952) GRADUATE FACULTY

BUICE, S DAVID; ASSOCIATE PROFESSOR, HISTORY--BA, STETSON UNIV; MA, UNIV OF SOUTHERN MISS; PHD, UNIV OF OKLA. (1966) GRADUATE FACULTY

BURTON, EUGENE PAUL; ASSOCIATE PROFESSOR, MATHEMATICS AND STATISTICS--BS, HENDERSON ST; MA, UNIV OF ARK. (1955)

BUSCH, FRANK M; ASSOCIATE PROFESSOR, OFFICE ADMINISTRATION--BBA, NORTH TEX STATE UNIV; MBA, PHD, INDIANA UNIV. (1966) GRADUATE FACULTY

BUSH, JOHN M; ASSOCIATE PROFESSOR, HISTORY--BSE, ARK STATE TEACHERS COLLEGE; MA, PHD, MISS STATE UNIV. (1965) GRADUATE FACULTY

BUTLER, A Z; PROFESSOR, ENGLISH--BA, UNIV OF SC; MA, VANDERBILT UNIV. (1948) GRADUATE FACULTY

BUTLER, GEORGE M; ASSOCIATE PROFESSOR, MATHEMATICS AND STATISTICS--BS, MS, PHD, OKLA STATE UNIV. (1967) GRADUATE FACULTY

BYERS, NORMAN F; ASSISTANT PROFESSOR, ECONOMICS AND FINANCE--BS, MA, NORTHWESTERN UNIV; PHD, LA TECH UNIV. (1963) GRADUATE FACULTY

CALHOUN, J D; PROFESSOR, MECHANICAL ENGINEERING--BS, LA POLY INST; MS, LA STATE UNIV. (1948) GRADUATE FACULTY

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CAMPBELL, RICHARD H; ASSISTANT PROFESSOR, AIR SCIENCE--BA, THE CITADEL; MA, UNIV OF MISSISSIPPI. (1974)

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CAROTHERS, J EDWIN; PROFESSOR, SCHOOL OF FORESTRY--MF, UNIV OF MICH; MS, IOWA STATE UNIV; PHD, MICH STATE UNIV. (1966) GRADUATE FACULTY

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CARTER, WILLIAM SHANDS; ASSISTANT PROFESSOR, SPEECH--BA, MA, LA POLY INST. (1967)

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COLLINSWORTH, BENNIE J; PROFESSOR, EDUCATION ADMINISTRATION--BS, LA POLY INST; MS, EDD, UNIV OF ARK. (1962) GRADUATE FACULTY

COLVIN, SARA MCGEE; INSTRUCTOR, EDUCATION--BA, MA, LA POLY INSTITUTE. (1977)

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COWLING, DAVID HAMILTON; ASSISTANT PROFESSOR, ELECTRICAL ENGINEERING--BS, WASHINGTON UNIV; MSE, PHD, UNIV OF ILL. (1975) GRADUATE FACULTY

CRAIG, ARCHIE W; ASSOCIATE PROFESSOR, PHYSICAL EDUCATION--BS, LA POLY INST; MS, LA STATE UNIV. (1955) GRADUATE FACULTY

CROMBIE, VAUGHN C; ASSISTANT PROFESSOR, ART--BFA, LA COLLEGE; MFA, LA TECH UNIV; O. (1969)

CROSS, ALEXA R; INSTRUCTOR, DIVISION OF ALLIED HEALTH--BS, UNIV OF SOUTHWESTERN LA. (1975)

CROW, WILLIAM M; PROFESSOR, TEACHER EDUCATION--BS, LA POLY INST; MS, EDD, UNIV OF ARK. (1959) GRADUATE FACULTY

CRUMP, CLIFFO D; ASSISTANT PROFESSOR, OFFICE ADMINISTRATION--BBA, MBE, NORTH TEX STATE UNIV. (1952)

CRUMP, KENNY S; PROFESSOR, MATHEMATICS AND STATISTICS--BS, LA POLY INST; MA, UNIV OF DENVER; PHD, MONTANA STATE UNIV. (1966) GRADUATE FACULTY

DABLOW, DEAN C; ASSISTANT PROFESSOR, ART--BS, UNIV OF WISC; MA, MFA, UNIV OF IOWA. (1976) ASSOCIATE GRADUATE FACULTY

DAUZAT, SAMUEL VARNER; PROFESSOR, TEACHER EDUCATION--BA, MA, NORTHWESTERN STATE COLLEGE; EDD, UNIV OF MISS. (1968) GRADUATE FACULTY

DAVENPORT, RONALD EDMOND; ASSOCIATE PROFESSOR, GEOSCIENCES ENGINEERING--BS, ARIZ STATE UNIV; MS, UNIV OF ARIZ; PHD, OREGON STATE UNIV. (1970) GRADUATE FACULTY

DAVIS, BILLY J; PROFESSOR, ZOOLOGY--BS, MT, SOUTHWESTERN STATE COLLEGE; PHD, OKLA STATE UNIV. (1966) GRADUATE FACULTY

DAVIS, CARL A JR; ASSISTANT PROFESSOR, BOTANY AND BACTERIOLOGY--BS, MS, UNIV OF ALA. (1965) GRADUATE FACULTY

DAWSON, LYNDON ERKOLL JR; ASSOCIATE PROFESSOR, BUSINESS--BS, MBA, LA STATE UNIV; PHD, UNIV OF ALA. (1976) ASSOCIATE GRADUATE FACULTY

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DONAHUE, GEORGE P; ASSOCIATE PROFESSOR, ART-- , COLGATE. (1977)

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DOWNS, HOLLIS H; INSTRUCTOR, ECONOMICS AND FINANCE--BS, LA TECH UNIVERSITY; CLU, AMERICAN COLLEGE. (1977)

DRISKELL, HERMIONE M; ASSISTANT PROFESSOR, TEACHER EDUCATION--BA, LA POLY INST; MSL, LA STATE UNIV; MA, UNIV OF MICH. (1970)

DUNN, TUCSON; PROFESSOR, PHYSICS--BS, MS, LA POLY INST; PHD, UNIV OF FLA. (1968) GRADUATE FACULTY

DYER, JAMES M; ASSISTANT PROFESSOR, SCHOOL OF FORESTRY--BS, MS, OKLA ST UNIV; PHD, LA STATE UNIVERSITY. (1977) ASSOCIATE GRADUATE FACULTY

DYSON, JUNE W; ASSOCIATE PROFESSOR, HOME ECONOMICS--BS, NORTHWESTERN STATE COLLEGE; MA, TEXAS WOMEN'S UNIV. (1962) ASSOCIATE GRADUATE FACULTY

DYSON, SAMUEL A; ASSOCIATE PROFESSOR, LIBRARY--BS, NORTHWESTERN STATE COLLEGE; MS, LA STATE UNIV. (1960)

ECKSTEIN, DANIEL G; ASSISTANT PROFESSOR, BEHAVIORAL SCIENCES--BA, PRESBYTERIAN COLLEGE; MA, PHD, UNIVERSITY OF SOUTH CAROLINA. (1976) ASSOCIATE GRADUATE FACULTY

EDENS, FRANK N; PROFESSOR, BUSINESS--BBA, PHD, UNIV OF TEX; MBA, UNIV OF HOUSTON. (1970) GRADUATE FACULTY

EDWARDS, C H JR; PROFESSOR, CIVIL ENGINEERING--BS, LA POLY INST; MS, UNIV OF TEX. (1949) GRADUATE FACULTY

ELIOFF, ROBERT; PROFESSOR, PHYSICS--BS, LA POLY INST; MS, UNIV OF FLA. (1947) GRADUATE FACULTY

ELWINGER, ELYDA S; ASSISTANT PROFESSOR, BEHAVIORAL SCIENCES-- . (1977)

EVERIST, DIXIE; INSTRUCTOR, HOME ECONOMICS--BA, BS, MS, LA TECH UNIV.

EZELL, RICHARD L; ASSOCIATE PROFESSOR, FOREIGN LANGUAGES--BA, LA POLY INST; MA, PHD, OKLA UNIV. (1966) GRADUATE FACULTY

FERGUSON, MAGDALEN B; ASSISTANT PROFESSOR, FOREIGN LANGUAGES--BA, UNIV OF S FLA; MA, LA STATE UNIV. (1971)

FERRINGTON, ROBERT HARRIS; ASSOCIATE PROFESSOR, MUSIC--BME, NORTHWESTERN STATE COLLEGE; ME, UNIV OF ARK; PHD, UNIV OF SOUTHERN MISS. (1969) GRADUATE FACULTY

FINCHER, PHILLIP E; ASSISTANT PROFESSOR, ECONOMICS AND FINANCE--BS, LA POLY INST; MBA, MISS STATE UNIV. (1964) GRADUATE FACULTY

FISHER, TED L; ASSOCIATE PROFESSOR, SCHOOL OF PROF ACCOUNTANCY--BBA, UNIV OF OKLA; PHD, OKLA STATE UNIV. (1977)

FITZGERALD, ODIE LEROY; ASSOCIATE PROFESSOR, SCHOOL OF FORESTRY--BS, LA POLY INST; MF, DUKE UNIV. (1951)

FORD, JOHN PHILIP; ASSISTANT PROFESSOR, MUSIC--BM, GEORGE PEABODY COLLEGE; MM, UNIV OF ILLINOIS. (1966) GRADUATE FACULTY

FOSTER, ROBERT D; ASSOCIATE PROFESSOR, ECONOMICS AND FINANCE--BA, UNIV OF WICHITA; MA, PHD, UNIVERSITY OF OREGON. (1977)

FOWLER, JOHN ROBERT JR; ASSISTANT PROFESSOR, BUSINESS--BS, MBA, LA POLY INST. (1966)

FOXWORTH, CHARLES L; ASSOCIATE PROFESSOR, TEACHER EDUCATION--BA, EAST TEXAS BAPTIST COLLEGE; MA, UNIV OF HOUSTON; PHD, LA STATE UNIV. (1971) GRADUATE FACULTY

FRANCIS, NELLE TREW; ASSOCIATE PROFESSOR, ENGLISH--BA, HARDIN-SIMMONS UNIV; MA, PHD, UNIV OF TEXAS. (1967) GRADUATE FACULTY

FREASIER, BEN F; PROFESSOR, CHEMISTRY--BS, MS, TEX A&I UNIV; PHD, TEX TECH UNIV. (1962) GRADUATE FACULTY

FULLERTON, ROBERTA R; INSTRUCTOR, NURSING--BS, HUNTER COLLEGE. (1977)

FUTRELL, ANN MACE; ASSISTANT PROFESSOR, ENGLISH--BA, MA, LA POLY INST. (1967)

GALLAGHER, PETER W; ASSISTANT PROFESSOR, AGRONOMY AND HORTICULTURE--BS, MS, UNIV OF WISC. (1976)

GALLI, ANTHONY JOHN; PROFESSOR, PHYSICS--BS, LA STATE UNIV; PHD, GEORGETOWN UNIV. (1966) GRADUATE FACULTY

GARNER, JACKIE B; PROFESSOR, MATHEMATICS AND STATISTICS--BS, LA POLY INST; MS, PHD, AUBURN UNIV. (1957) GRADUATE FACULTY

GIBBS, RICHARD LYNN; PROFESSOR, PHYSICS--BA, UNIV OF THE SOUTH; MS, PHD, CLARKSON COLLEGE OF TECH. (1966) GRADUATE FACULTY

GIESSE, RICHARD J; ASSISTANT PROFESSOR, SPECIAL EDUCATION--BA, HOWARD PAYNE COLLEGE; MED, HARDIN SIMMONS; EDD, NORTHEAST LA UNIV. (1963) GRADUATE FACULTY

GILBERT, JIMMIE D; PROFESSOR, MATHEMATICS AND STATISTICS--BS, LA POLY INST; MS, PHD, AUBURN UNIV. (1958) GRADUATE FACULTY

GILBERT, LINDA P; INSTRUCTOR, MATHEMATICS AND STATISTICS--BS, MS, LA TECH UNIVERSITY. (1975)

GILLEY, BILLY HAWKINS; PROFESSOR, HISTORY--BS, TENN POLY INST; MA, UNIV OF TENN; PHD, UNIV OF GA. (1966) GRADUATE FACULTY

GILLEY, JEANNE M; PROFESSOR, HOME ECONOMICS--BA, LA POLY INST; MSE, NORTHWESTERN STATE UNIV; PHD, TEXAS WOMAN'S UNIV. (1973) GRADUATE FACULTY

GOERTZ, JOHN WILLIAM; PROFESSOR, ZOOLOGY--BS, MS, OREGON STATE UNIV; PHD, OKLA STATE UNIV. (1962) GRADUATE FACULTY

GOODEN, TOBE D; ASSISTANT PROFESSOR, AIR SCIENCE--BS, USAF ACADEMY; MS, UNIVERSITY OF ARKANSAS. (1974)

GOSS, SUSAN KIRKHAM; INSTRUCTOR, FOREIGN LANGUAGES--BA, LA POLY INST; MA, LA TECH UNIV. (1968)

GRAFTON, BENJAMIN F; ASSOCIATE PROFESSOR, AGRONOMY AND HORTICULTURE--BS, LA POLY INST; MS, LA STATE UNIV. (1952)

GREEN, JAMES D; ASSOCIATE PROFESSOR, BIOMEDICAL ENGINEERING--BS, LA POLY INST; MD, TULANE UNIV; 120, TULANE. (1974) ASSOCIATE GRADUATE FACULTY

GREGORY, GARLAND D; ASSOCIATE PROFESSOR, PHYSICAL EDUCATION--BS, MS, LA POLY INST. (1966)

GRIDER, DOUGLAS T; ASSOCIATE PROFESSOR, BUSINESS--BA, EMORY UNIV; MBA, PHD, GA STATE UNIV. (1973) ASSOCIATE GRADUATE FACULTY

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HACKBARTH, WINSTON P; PROFESSOR, BOTANY AND BACTERIOLOGY--BA, STATE UNIV OF IOWA; BS, IDAHO STATE UNIV; MS, DENVER UNIV; PHD, IOWA STATE UNIV. (1959) GRADUATE FACULTY

HADLEY, WILLIAM O; PROFESSOR, CIVIL ENGINEERING--BSC, UNIV OF TENN; MSC, PHD, UNIV OF TEX. (1971) GRADUATE FACULTY

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HANCOCK, CHARLES RAY; ASSISTANT PROFESSOR, MATHEMATICS AND STATISTICS--BSE, HENDERSON STATE; MED, UNIV OF ARK. (1965)

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HARRIS, MARK R JR; ASSOCIATE PROFESSOR, ART--BA, LA POLY INST; MA, COLUMBIA UNIV. (1953) GRADUATE FACULTY

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HERREN, TOMMIE D; ASSISTANT PROFESSOR, TEACHER EDUCATION--BA, MA, LA POLY INST; EDS, LA TECH UNIV. (1970) ASSOCIATE GRADUATE FACULTY

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HORACE MANN 1796-1859
GREAT AMERICAN EDUCATOR SERIES

Louisiana Tech is beginning a series of paintings for the university catalog covers, featuring great American educators. We thought it appropriate to begin with Horace Mann, who helped achieve some of America's greatest educational landmarks: creation of the Massachusetts State Board of Education, passage of compulsory education laws striking blows at child labor, establishment of public high schools, and acceptance of women as teachers. As secretary of the educational board — a position he obtained after relinquishing the presidency of the state Senate — his 12 annual reports urged propositions which today are central to American educational thought. He held that universal popular education is essential to democracy and that a republic cannot long remain both ignorant and free. Furthermore, he said, such education must be under public auspices and be available without regard to religious, cultural, or social background.

The Massachusetts native was born in 1796, and besides his career in education, he also served in the U.S. House of Representatives. Later in life he held the first presidency of Antioch College in Yellow Springs, Ohio.

In June of 1859 (the year he died), Mann summed up his view of life in an address to that school's graduating class: "Be ashamed to die until you have won some victory for humanity." Mann, in that respect, truly died without shame.

ILLUSTRATION BY ALBINO HINOJOSA