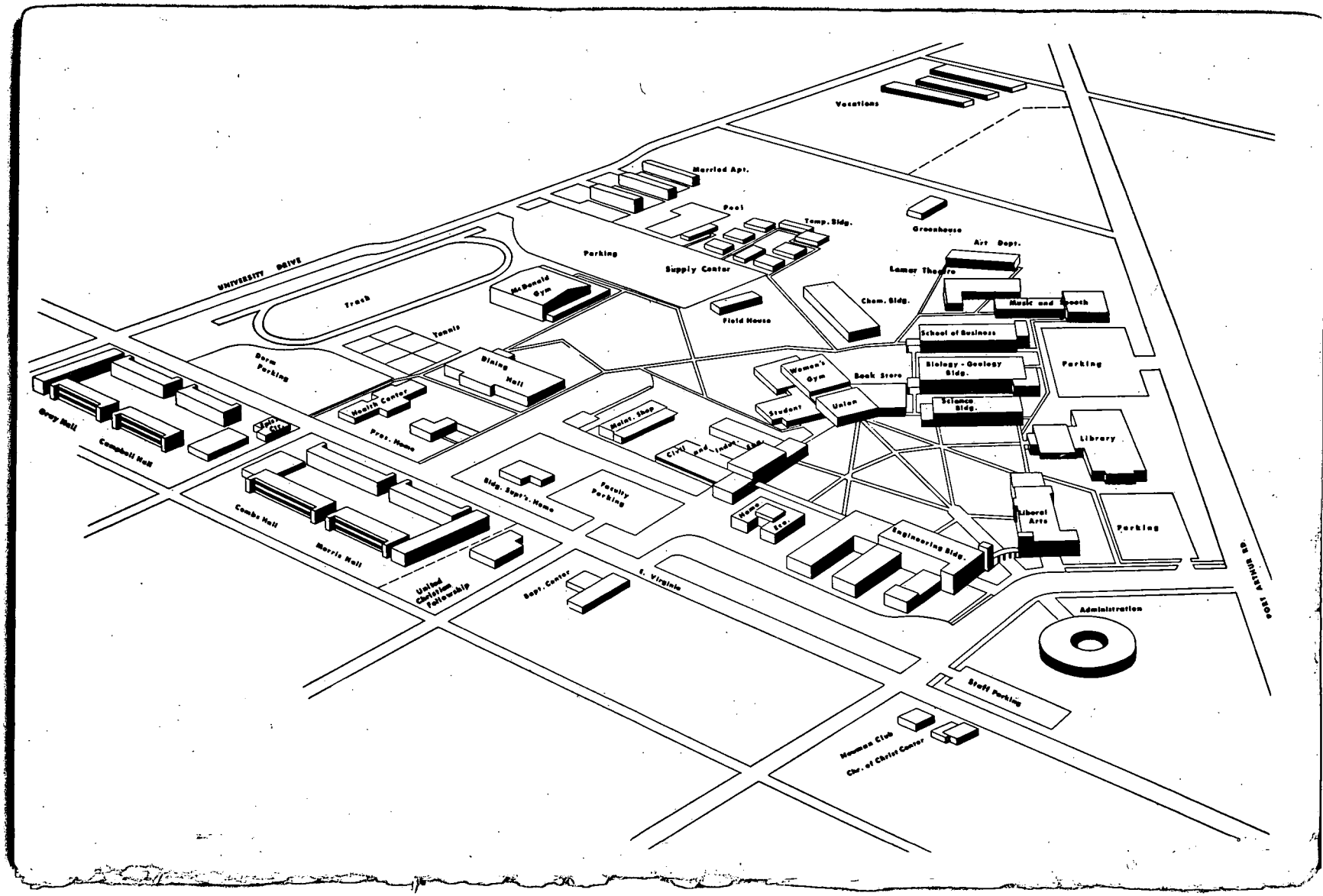
BULLETIN OF

LAMAR STATE COLLEGE OF TECHNOLOGY

BEAUMONT, TEXAS

WITH ANNOUNCEMENTS FOR 1963-1964


Vocations
Married Apt.
Pool
Temp. Bldg.
Greenhouse
Art Dept.
Parking
Supply Center
Lamar Theatre
UNIVERSITY DRIVE
Track
McDonald Gym
Chem. Bldg.
Music and Speech
Field House
Tennis
School of Business
Berm Parking
Dining Hall
Women's Gym
Biology - Geology Bldg.
Parking
Book Store
Health Center
Student Union
Science Bldg.
Grey Hall
Campbell Hall
Post Office
Pres. Home
Maint. Shop
Library
Faculty Parking
Bldg. Supt's. Home
Home Ec.
Liberal Arts
Parking
Combs Hall
Morris Hall
Engineering Bldg.
United Christian Fellowship
Dept. Center
E. Virginia
Administration
Staff Parking
Newman Club
Chr. of Christ Center

BULLETIN

of

LAMAR STATE COLLEGE OF TECHNOLOGY

Vol. XIII FEBRUARY, 1963 No. 8

Published monthly except May at 4400 Port Arthur Rd., Beaumont, Texas.
Second-class mail privileges authorized at Beaumont, Texas.

THIRTEENTH ANNUAL CATALOG ISSUE

With Announcements for 1963-64

Member:

Association of Texas Colleges and Universities
American Council on Education
National Commission on Accreditation
Southern Association of Colleges and Secondary Schools
Association of American Colleges
Texas Association of Music Schools
American Society for Engineering Education
Approved by the Texas Education Agency
Approved for the Training of Veterans under all classifications
Departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering accredited by Engineering Council for Professional Development

Established as a four-year coeducational state-supported college on September 1, 1951

The course, tuition and fees, and all other conditions and policies set forth in this 1963-64 catalog issue shall be and are hereby put into effect as of February 1, 1963, and shall remain in effect with such conditions and alterations as may be duly authorized by the Board of Regents, until a new catalog is issued. Bulletins published monthly except May.

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Cecil Beeson .....Orange, Texas

J. G. Bertman.....Liberty, Texas

Lee Eagleson .....Port Arthur, Texas

A. H. Montagne.....Orangefield, Texas

Pat Peyton, Jr.....Beaumont, Texas

Arthur A. Temple, Jr.....Diboll, Texas

ORGANIZATION OF THE COLLEGE

Schools and Departments

School of Arts and Sciences

(Bible)
Biology
Chemistry
English
Geology
Government
History
Modern Languages
Physics
Sociology

School of Business

Accounting
Business Administration
Economics
Secretarial Science

School of Engineering

Chemical
Civil
Electrical
Industrial
Mechanical
Mathematics

School of Education

Education and Psychology
Home Economics
Physical and Health Education

School of Fine and Applied Arts

Commercial Art
Music
Speech

Graduate School

Education
Engineering
English
History
Mathematics

Note: Lamar also operates Lamar School of Vocations. Its courses are described in a separate bulletin.

CONTENTS

DIRECTORY FOR CORRESPONDENCE

To obtain prompt attention, address inquiries to the following persons or agencies:

Academic Program.....Richard W. Setzer, Dean of the College

Academic Records and Transcripts.....Celeste Kitchen, Registrar

Admissions and Testing.....Norris H. Kelton, Dean of Admissions

Athletics.....J. B. Higgins, Athletic Director

Books and Supplies.....William G. Childs, Manager, Bookstore

Business Affairs.....H. C. Galloway, Comptroller

Employment for Students.....Joe B. Thrash, Placement Office

Evening School.....Jack Hill, Director

Graduate School.....Richard W. Setzer, Dean

School of Arts and Sciences.....Edwin S. Hayes, Dean

School of Business.....J. D. Landes, Dean

School of Education.....Ruth Olcott, Dean

School of Engineering.....Frank A. Thomas, Jr., Dean

School of Fine and Applied Arts.....Ted Skinner, Dean

School of Vocations.....E. E. Miller, Director

Housing, Dormitory Reservations.....Ronald Hulin, Director

Library.....Julia Plummer, Librarian

Publications and Information.....R. E. Oliver, Director

Research Center.....Lloyd Cherry, Director

Scholarships.....David Bost, Dean, Student Life

Student Activities.....George McLaughlin, Director

Student Health.....Mrs. Ola Saunders, Health Center

Student Loans.....David Bost, Dean, Student Life

Teacher Certification.....Certification Officer, School of Education

Tuition, Fees, Expenses.....Business Office

Veterans' Affairs .....Joe B. Thrash, Placement Officer

1963

JANUARY

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JANUARY

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LAMAR STATE COLLEGE OF TECHNOLOGY

College Calendar for 1963-64

Fall Semester, 1963

Sept. 16	Monday	8 a.m.	Orientation for new students.
		10 a.m.	Meeting of new faculty.
		1 p.m.	General faculty meeting.
		6 p.m.	Testing for new students in evening classes. Registration evening students.
17	Tuesday	8 a.m.	Registration of former students and others who have completed entrance procedures.
		6 p.m.	Testing for evening students. Registration of evening students.
18	Wednesday	8 a.m.	Continued registration.
		1 p.m.	Registration of late entering students.
		6:30 p.m.	Evening classes begin.
19	Thursday	8 a.m.	Classes begin.
			Late registration (penalty fee charged).
Registration after this date limited to available classes.			Payment of fees is a part of registration.
23	Monday	8 p.m.	Last date for registration or adding courses.
Oct. 4	Friday		Twelfth Class Day.
Oct. 21-Nov. 29			Period for application for January graduation.
Oct. 30	Wednesday	8 p.m.	Last date for dropping or withdrawing without penalty.
Nov. 11-14	Mon.-Fri.		Mid-term week.
Nov. 29-Feb. 26			Period for application for May graduation.
Nov. 27	Wednesday	10 p.m.	Thanksgiving holidays begin.
28	Thursday	10 a.m.	Dormitories close.
Dec. 1	Sunday	12 noon	Dormitories open.
2	Monday	7 a.m.	Dining Hall opens.
		8 a.m.	Classes resume.
6	Friday	5 p.m.	Last date for approval for January graduation.
20	Friday	5 p.m.	Christmas holidays begin.
		6 p.m.	Dining Hall closes.
		10 p.m.	Dormitories close.
Jan. 5	Sunday	12 noon	Dormitories open.
6	Monday	7 a.m.	Dining Hall opens.
		8 a.m.	Classes begin.

20-22	Mon.-Wed.		Restricted social activities.
23-30	Thurs.-Thurs.		Final exams—fall semester.
31	Friday	12 noon	Final date for submitting semester grades to the Registrar's office.

Spring Semester, 1964

Feb. 3	Monday	8 a.m.	Admission conferences for late transfers and new students.
		6 p.m.	Admission conferences for late transfers and new students in evening school.
4	Tuesday	8 a.m.	Registration of former students and others who have completed entrance procedures.
		6 p.m.	Registration of all evening students.
5	Wednesday	8 a.m.	Continued registration.
		1 p.m.	Registration for late entering students.
		6:30 p.m.	Evening classes begin.
6	Thursday	8 a.m.	Classes begin.

Registration after this date limited to available classes.

Late registration (penalty fee charged).

Payment of fees is a part of registration.

Feb. 10	Monday	8 p.m.	Last date for registration or adding courses.
21	Friday		Twelfth Class Day.
26	Wednesday	5 p.m.	Last date for approval for May graduation.
Mar. 18	Wednesday	7 p.m.	Last date for dropping courses or withdrawing without penalty.
23-26	Mon.-Thurs.		Mid-term week.
26	Thursday	10 p.m.	Easter holidays begin.
27	Friday	8 a.m.	Dining Hall closes.
		10 a.m.	Dormitories close.
30	Monday	12 noon	Dormitories open.
31	Tuesday	7 a.m.	Dining Hall opens.
		8 a.m.	Classes resume.
May 4-June 19			Period for application for August graduation.
May 18-20	Mon.-Wed.		Restricted social activities.
21-28	Thurs.-Thurs.		Final exams—spring semester.
29	Friday	12 noon	Final date for submitting semester grades to Registrar's office.
30	Saturday	10 a.m.	Dining Hall closes.
		8 p.m.	Commencement exercises.

Summer Session, 1964

First Term

June	7 Sunday		Limited operations of dormitories.
	8 Monday	7 a.m.	Dining Hall opens.
		8 a.m.	Registration.
		6 p.m.	Registration—evening classes.
	9 Tuesday	8 a.m.	Classes begin.
	Registration after this date limited to available classes.		Late registration (penalty fee charged). Payment of fees is a part of registration.
June	10 Wednesday	7 p.m.	Last date for registration or for adding courses.
	12 Friday		Fourth Class Day.
	19 Friday	5 p.m.	Last date for approval for August graduation.
	29 Monday	7 p.m.	Last date for dropping courses or withdrawing without penalty.
July	17 Friday		Final exams—first term.
	18 Saturday	12 noon	Last date for reporting term grades to Registrar's office.

Second Term

July	20 Monday	8 a.m.	Registration.
		6 p.m.	Registration—evening classes.
	21 Tuesday	8 a.m.	Classes begin.
	Registration after this date limited to available classes.		Late registration (penalty fee charged). Payment of fees is a part of registration.
	22 Wednesday	7 p.m.	Last date for registration or for adding courses.
	24 Friday		Fourth Class Day.
August	10 Monday	7 p.m.	Last date for dropping courses or withdrawing without penalty.
	28 Friday		Final exams—second term.
	29 Saturday	8 a.m.	Last date for reporting term grades to Registrar's Office.
		9 a.m.	Commencement.
		10 a.m.	Dining Hall and dormitories close.

FACULTY

LAMAR STATE COLLEGE OF TECHNOLOGY

DIRECTORY (1962-63)

OFFICERS OF ADMINISTRATION

GENERAL

F. L. McDONALD, A.B., M.A., M.S., Ph.D., President
Administration Building

RICHARD W. SETZER, A.B., M.A., Ph.D., Dean of the College
Administration Building

G. A. WIMBERLY, B.S., Assistant to the President
Administration Building

H. C. GALLOWAY, JR., B.S., M.Ed., Comptroller
Administration Building

NORRIS H. KELTON, B.A., M.A., Dean of Admissions
Administration Building

CELESTE KITCHEN, B.A., M.Ed., Registrar
Administration Building

DAVID BOST, B.A., M.J., Dean of Student Life
Room 201, Student Union Building

COL. WARD HOFFMAN, B.A., Dean of Men
Room 201, Student Union Building

MRS. BESS NEAL GENTRY, B.S., M.Ed., Dean of Women
Room 201, Student Union Building

JACK HILL, B.B.A., M.B.A., Director of Evening Classes
Room 100, Liberal Arts Building

JOE B. THRASH, B.S., M.A., Director, Testing and Placement Center
Room 102, Liberal Arts Building

SCHOOLS

EDWIN S. HAYES, B.S., Ph.D., Dean, School of Arts and Sciences
Room 103, Biology-Geology Building

J. D. LANDES, B.S., M.S., Ph.D., Dean, School of Business
Room 103, Business Building

MRS. RUTH OLCOTT, B.S., M.S., Ed.D., Dean, School of Education
Room 208, Business Building

TED SKINNER, B.A., M.A., Ph.D., Dean, School of Fine and Applied Arts
Room 206, Music-Speech Building

FRANK A. THOMAS, JR., B.S., M.S., Ph.D., Dean, School of Engineering
Room 113 E1, Engineering Building

E. E. MILLER, B.S., M.S., Director, Lamar School of Vocations
Room 105, Vocations Building

OTHER ADMINISTRATIVE OFFICERS AND STAFF

BILLY G. CROCKETT, B.B.A., Assistant to Auditor
Administration Building

W. R. HOLLIMAN, B.B.A., Purchasing Agent
Administration Building

RONALD E. HULIN, B.B.A., Director of Housing
Room 201, Student Union Building

C. H. HUNT, Auditor
Administration Building

FRED E. KAY, B.S., M.Ed., Property Clerk
Administration Building

GEORGE E. McLAUGHLIN, JR., B.S., Director of Student Activities
Student Union Building

MARY MALONE, Cashier
Administration Building

JANE ANN MAXWELL, B.J., B.A., Assistant to Director of College Information
Administration Building

LEE ROY MYERS, Superintendent, Building and Grounds
Maintenance Building

JOHN MORRIS NAUMANN, B.S., Supervisor of Computer Facilities
Engineering Building

RICHARD E. OLIVER, Director of College Information
Administration Building

VERNON PIKE, I.B.M. Operator
Administration Building

ELMER RODE, JR., B.B.A., Assistant Registrar
Administration Building

WILLIAM J. ROGERS, B.S., Horticulturist
Maintenance Building

GRIFFIN WARREN, B.S., Assistant Purchasing Agent
Administration Building

ROBERT WEEKLEY, Assistant to Director of College Information
Administration Building

EUGENE WHEAT, Property Manager
Administration Building

ADMINISTRATIVE ASSISTANTS

KATY CLAUNCH, Senior Secretary
Administration Building

MRS. FRANKIE PLETZER, Senior Secretary
Administration Building

MRS. WILLA V. NEWTON, Senior Secretary
Vocations Building

MRS. JO THERESA AUDILET, Senior Secretary
Administration Building

FACULTY SESSION 1962-63

FRANCIS E. ABERNETHY, Associate Professor of English, 1956, 1961
B.A., Stephen F. Austin State College
M.A., Ph.D., Louisiana State University

HOWARD W. ADAMS, Professor of Education, 1956, 1962
B.A., Wayne State Teachers College
M. A., Ed.D., University of Nebraska

ISABELLE ALLEN, Associate Professor of English, 1939, 1951
B.A., M.A., Texas Woman's University

JOEL L. ALLEN, Instructor of Economics, 1960
B.S., Arkansas A & M College
M.S., Baylor University

ARNOLD C. ANDERSON, Associate Professor of Speech, 1956, 1961
B.A., Northern State Teachers College
M.A., University of South Dakota

O. B. ARCHER, Professor of Mathematics, 1923, 1961
B.S., M.S., The University of Texas

SAUL ARONOW, Professor of Geology, 1955, 1962
B.A., Brooklyn College
M.S., State University of Iowa
Ph.D., University of Wisconsin

MRS. DIANNE MARTIN BAKER, Associate Professor of Physical and Health Education—Head, Department of Physical and Health Education for Women, 1952, 1959
B.S., M.A., Texas Woman's University

HAROLD THEODORE BAKER, Professor of Chemistry—Head, Department of Chemistry, 1962
B.S., University of Minnesota
Ph.D., State University of Iowa

ROY BRUCE BAKER, Instructor of English, 1961
B.A., East Texas State College
M.A., The University of Arkansas

EDWARD F. BALDWIN, Assistant Professor of Economics, 1959, 1962
B.B.A., M.B.A., The University of Texas

THOMAS HENRY BANKS, Instructor of Geology, 1962
B.A., Princeton University
M.A., The Rice University

H. A. BARLOW, Associate Professor of Accounting, 1951, 1958
B.S., Louisiana Polytechnic Institute
M.B.A., Louisiana State University
Certified Public Accountant

ROBERT J. BARNES, Professor of English, Director of Freshman English, 1960, 1961
B.A., M.A., The University of Kansas
Ph.D., The University of Texas

MARY FRENCH BARRETT, Assistant Professor of Music, 1959
B.M., M.M., Eastman School of Music
Performer's Certificate

MRS. ENA E. BEACHELL, Instructor of English, 1944
B.A., The University of Texas

LUTHER A. BEALE, Professor of Civil Engineering—Head, Department of Civil Engineering, 1955
B.S., M.S., Georgia Institute of Technology
Registered Professional Engineer

LAWRENCE D. BELL, Assistant Professor of Mathematics, 1956
B.E., C.E., North Carolina State College
LL.B., St. John's University
Registered Professional Engineer

MRS. MARY KATHERINE BELL, Assistant Professor of Mathematics, 1962
B.S., Florida State University
M.A., University of Cincinnati

RICHMOND O. BENNETT, Professor of Business Administration, 1957
B.S., M.S., A & M College of Texas
Ph.D., The University of Texas

CHARLSIE E. BERLY, Associate Professor of English, 1947, 1953
B.A., Randolph Macon
M.A., Southern Methodist University

PAULINE A. BIRD, Assistant Professor of English, 1946, 1949
B.S., Stephen F. Austin State College
M.A., The University of Texas

ROY H. BISER, Associate Professor of Physics, 1946, 1951
B.A., The Rice University
M.S., University of Michigan

E. B. BLACKBURN, JR., Assistant Professor of Education, 1962
B.S., North Texas State University
M.Ed., Hardin-Simmons University
Ed.D., University of Colorado

MRS. JEWEL D. BLANTON, Associate Professor of Speech, 1942, 1951
B.A., Texas Christian University
M.A., Northwestern University

GEORGE E. BOGUSCH, Assistant Professor of Speech, 1959, 1961
B.S., Texas A & I College
M.A., Colorado State College

LYLE E. BOHRER, Assistant Professor of Electrical Engineering, 1946, 1954
B.S. in E.E., The Rice University
M.S. in E.E., Colorado University
Registered Professional Engineer

CLAUDE B. BOREN, Professor of Sociology—Head, Department of Sociology, 1955, 1961
B.A., Texas Technological College
M.A., Washington State University
Ph.D., The University of Texas

WILLIAM H. BOUGHTON, Professor of Commercial Art—Head, Department of Commercial Art, 1954, 1957
B.A., University of Iowa
M.A., University of California

CLARINE E. BRANOM, Associate Professor of English, 1946, 1953
B.A., East Texas State College
M.A., The University of Texas

WILBER C. BREINING, JR., Assistant Professor of Education and Phychology, 1956, 1959
B.S., M.S., North Texas State University

JOAN E. BRENIZER, Assistant Professor of Mathematics, 1957, 1961
B.S., Lamar State College of Technology
M.A., The University of Texas

EDNA MARTHA BROOKS, Assistant Professor of Music, 1953
B.M., Louisiana State University
M.M., The University of Texas

OTTO GEORGE BROWN, Professor of Mechanical Engineering—Head, Department of Mechanical Engineering, 1962
B.S., University of Oklahoma
M.S., Ph.D., The University of Texas

JOHN A. BRUYERE, Associate Professor of Mechanical Engineering, 1957, 1961
B.S., M.S., The University of Texas
Registered Professional Engineer

HENRY P. BULLER, Assistant Professor of Education, 1961
B.A., Bethel College
M.Ed., University of Kansas

CLYDE BULLION, JR., Instructor of Sociology, 1962
B.S., Texas Wesleyan College
M.A., Texas Christian University

RICHARD E. BURKART, Assistant Professor of Music, 1955, 1958
B.M., B.M.E., M.M., Louisiana State University

CHARLES T. BUTLER, Instructor of Sociology, 1958, 1960
B.A., M.A., The University of Texas

MARGARET DAVIS CAMERON, Professor of Chemistry, 1956, 1958
B.A., Texas Woman's University
M.S., The University of Houston
Ph.D., Tulane University

CRYSTAL CANON, Associate Professor of Speech, 1950, 1955
B.A., Texas Woman's University
M.A., Northwestern University

DEWEY R. CARLIN, JR., Instructor of Electrical Engineering, 1958
B.S., Lamar State College of Technology

JOHN MICHAEL CARROLL, Instructor of English, 1962
B.A., M.A., Colorado State University

LLOYD B. CHERRY, Professor of Electrical Engineering—Head, Department of Electrical Engineering, Director of Lamar Research Center, 1946, 1961
B.A., M.A., The University of Texas
B.S. in E.E., E.E., Oklahoma State University
Registered Professional Engineer

MRS. RUTH S. COFFEY, Assistant Professor of Government, 1956, 1962
B.S., Lamar State College of Technology
M.A., The University of Texas

JAY N. COLLIER, Assistant Professor of Music, 1955, 1960
B.M., The University of Houston
M.M., Southern Methodist University

JAMES L. COOKE, Professor of Electrical Engineering, 1956, 1962
B.S. in E.E., Texas Technological College
M.S. in E.E., The University of Texas
Ph.D., Northwestern University
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JOHN D. WORRELL, Director, Canterbury House
B.A., University of the South
S.T.B., Berkeley Divinity School

JAMES A. WRAY, Director, Baptist Student Center
B.A., Baylor University
Th.M., Southwestern Baptist Theological Seminary

STUDENT HEALTH CENTER

JOHN TERRY SMITH, M.D., College Physician
MRS. OLA SAUNDERS, R.N., Director of Center
MRS. CLEO H. BAUMCRATZ, L.V.N., Resident Vocation Nurse
MRS. THELMA WATSON, L.V.N., Resident Vocation Nurse

BOOKSTORE

WILLIAM G. CHILDS, Bookstore and Snack-Bar Manager
O. J. WILKERSON, Storekeeper II
DONALD STAFFORD, Storekeeper II
MARGARET DRAGOO, Storekeeper I

DORMITORY SUPERVISORS

LOUISE CASH, Combs Hall
BESSIE STRICKLAND, Campbell Hall
ERWIN SCHMIDT, Morris Hall
IDA VANMETER, Gray Hall

FOOD SERVICES

MRS. JOANN BOURGEOIS, B.S., Dietician, Director of Food Service, Dining Hall
NETTYE MATHEWS, Assistant Director of Food Service, Dining Hall
RAYMOND YOUNGBLOOD, Assistant Director of Food Service, Snack Bar

PRINT SHOP

EDWIN PEARSON, Printer II
ALLEN LUCAS, Printer I

GENERAL INFORMATION

Location

Lamar State College of Technology is a state-supported institution located in the center of industrial Southeast Texas at Beaumont. Principal industries in the area are oil refining, shipping, shipbuilding, rubber manufacturing and chemical production. Surrounding the urban communities are ranches and rice farms.

The campus faces the Beaumont-Port Arthur Highway in southeastern Beaumont. With a population of approximately 120,000, Beaumont has modern schools, churches, and shopping districts to serve the thriving industrial community.

History

South Park Junior College was established in 1923. The college was organized and controlled by the South Park Independent School District, and classes were conducted in the South Park High School Building. Enrollment increased from about 125 in 1923 to 300 in 1931.

In 1932, the name of the institution was changed to Lamar College. At this time separate facilities were provided; additional equipment was purchased and new policies were instituted. By 1939, enrollment was approximately 640.

In 1940, Lamar Union Junior College District was created, and Lamar College was separated from the South Park Independent School District. Bonds were voted and new facilities were constructed on the site of the present main campus.

A movement to expand Lamar College into a four-year state-supported school culminated in the creation of Lamar State College of Technology on September 1, 1951. Since that time the curriculum has been expanded and liberalized to include many areas of study, and many additional facilities have been provided. Enrollment has increased until there are now over 7,000 students.

The College offered graduate work in specified fields beginning in the academic year of 1960-61.

Government

The government of the College is vested in a board of nine regents appointed by the Governor and approved by the Senate for terms of six years. The direction of academic affairs is delegated by the Board of Regents to the President, administrative officers, and faculty.

The general policies of the Graduate School are determined and administered by the Graduate Council.

Objectives

Lamar State College of Technology is a member of the Texas state system of higher education, offering a variety of liberal, pre-professional, and professional programs of study. The philosophy of the College is expressed in the following objectives.

1. Provide educational opportunities, within the available resources, for all qualified students seeking admission.

2. Assist students to find and prepare for the particular vocation for which they are best suited by interest, aptitude, and background.

3. Promote and maintain professional competency in all instruction and research involved in academic programs leading to the authorized undergraduate and graduate degrees.

4. Insure that students have the opportunity to realize their full potential as individuals, as responsible citizens, and as leaders in a democratic society through a proper integration of general and special education in all degree programs.

5. Maintain, in all areas of the College, a joint quest by faculty and students for truth through research and creative study.

6. Develop and sustain such student organizations and services as are needed to insure a healthy, cultural, and intellectual student campus life.

7. Contribute scholarly and scientific services to the community, state, and nation.

Accreditation

Lamar is accredited by the Association of Texas Colleges and Universities and the Southern Association of Colleges and Secondary Schools. It is also approved by the Texas Education Agency.

The departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering are accredited by the Engineering Council for Professional Development.

Degree Offerings

Bachelor of Arts in Biology, Chemistry, English, French, Economics, Geology, Government, History, Mathematics, and Sociology.

Bachelor of Science in Biology, Chemistry, Commercial Art, Education, Geology, Government, History, Home Economics, Mathematics, Music, Medical Technology, Physical and Health Education, Physics, Sociology, Speech, and the following **Engineering Fields:** Chemical, Civil, Electrical, Industrial and Mechanical.

Bachelor of Business Administration in Accounting, Economics, General Business, Management, Marketing, and Secretarial Science.

Master of Arts in English and History.
(Master teacher program is offered in both English and History.)

Master of Education in Elementary Education.

Master of Engineering Science in Engineering.

Master of Science in Mathematics.

Organization

The College is organized into five schools. Each school is administered by an academic dean.

Schools

Arts and Sciences	Engineering
Business	Fine and Applied Arts
Education	

Student academic matters requiring the attention or approval of the academic deans are:

1. Guidance and assignment of counsellor.
2. Study load.
3. Changes in schedule.
4. Dropping and adding courses.
5. Unsatisfactory academic progress.
6. Withdrawal from college.
7. Graduation requirements.

Entering Dates

Courses and schedules have been arranged so that students may enter Lamar four times each year. The approximate entering dates are June 1, July 17, September 15, and February 1. The current College Calendar contains information regarding registration periods and exact entering dates.

FACILITIES

Buildings and Grounds

Located on a campus of approximately one hundred acres and valued in excess of $10,000,000, the Lamar plant includes many new and functional buildings of modern design. These structures include: the Administration Building, Art Building, Biology-Geology Building, Bookstore, Business Building, Chemistry Building, Dining Hall, Engineering I, Engineering II, Health Center, Home Economics Building, Lamar Theatre, Liberal Arts Building, Library, McDonald Gymnasium, Music-Speech Building, Science Building, Student Union, Vocations I, Vocations II, Vocations III, and Women's Gymnasium. On-campus dormitories include Campbell Hall, Combs Hall, Gray Hall, Morris Hall, as well as three apartment buildings for married couples. A new air-conditioned dormitory for women will be ready for occupancy in the fall of 1963.

The President's Home, Superintendent of the Grounds' Home, athletic field house and practice fields, Olympic size swimming pool, tennis courts, and miscellaneous storage buildings are also located on the campus.

The Library

With the seating room for several hundred students, a reference room, a film supply room, a microfilm reader room, subscription to more than one thousand periodicals and over 60,000 volumes combined with a budget of sufficient size to increase volumes by several thousand per year, the library offers excellent service to both students and faculty.

Library hours are 7:45 a.m. to 10:00 p.m. Monday through Thursday, 7:45 a.m. to 5:00 p.m. Friday, 9:00 a.m. to 4:00 p.m. Saturday, and 2:00 p.m. to 5:00 p.m. Sunday. Closed holidays.

Health Center

The College maintains a Health Center for the use of students during the long term or summer session.

Two types of service are available: (1) out-patient service for those who have minor ailments but who do not require constant supervision, and (2) infirmary service for those who are in need of the continued attention of the College physician or a registered nurse.

It is not possible for the College to provide unlimited medical service. Special medicines, examinations, treatments, X-ray examinations, and laboratory tests are not furnished by the College. However, no charge is made for care in the Health Center up to ten days each semester. A small fee for drugs, supplies, and special services may be charged students required to remain in the Health Center for more than ten days.

The Health Center, located on East Virginia near Combs Hall, is adequately staffed and equipped for treating acute illnesses and minor injuries. It is not intended that the Center will provide care for students requiring surgery or the services of specialists. In these cases, every effort will be made by the College physician or nurse to notify the parents or guardians of the students' needs.

The College assumes no responsibility for continued medical care for students having chronic diseases. These students should arrange for the care of a private physician located in Beaumont or vicinity.

In the event the Health Center is filled to capacity, the College is not under obligation to provide hospital service elsewhere. However, the Health Center has a sufficient number of beds for all normal needs.

Students who are ill should report promptly to the Center for diagnosis and treatment. They will not be treated in the dormitory or in rooming houses. The College will take appropriate disciplinary action against students who refuse to report for medical advice when ill.

Bookstore

For the convenience of faculty and students, the College operates its own bookstore where supplies and books, new and used, may be purchased.

Used books which are currently approved may be sold to the bookstore at prices much better than such books would ordinarily bring. Books which must be discontinued are not purchased by the bookstore except at a salvage price.

The bookstore reserves the right to require the seller to prove his ownership.

Dining Hall

The College also owns and operates a dining hall located on the campus (see map, inside front cover).

Two snack bars are located in the Union Gymnasium Building where sandwiches, soft drinks, and light lunches are available.

Housing

A number of ultra-modern dormitories for women and men are located on the campus. The college also owns and operates three apartment buildings for married couples. For complete information regarding housing, see the Fees and Expenses section of this Bulletin.

Research Center

The Research Center was formally organized in 1956. It is administered by a director who serves as chairman of the faculty research committee. Many National Science Foundation grants as well as private foundation grants have been received through this research organization.

Proposed faculty research projects are submitted each year for approval and financing through the Research Center.

The East Texas area is one of the most heavily industrialized sites of the world, and many industrial research problems are referred by industries of the area to the Lamar Research Center. Faculty members and advanced students often cooperate in seeking the solutions to these industrial problems.

Computer Laboratory

The college operates a computer laboratory as a division of the Research Center. This laboratory houses three major computers of the digital and analog type, valued in excess of $300,000. Faculty members and advanced students make good use of these computers in various approaches to research problems.

SERVICES

Counselors

At registration each student is assigned a faculty counselor who is available for educational, vocational, and personal guidance. All students are expected to make appointments with counselors during each semester. Such arrangements are the responsibility of the student.

Counseling sessions will insure that a program of study is pursued in proper sequence and that adequate academic progress is maintained by the student.

Testing and Placement Service

The Testing and Placement Center is located in Room 102 of the Liberal Arts Building and is open 8:00 a.m. to 5:00 p.m. Monday through Friday.

This Center provides testing service for entering students and for others who want it. Non-students wishing to use this service pay a fee depending upon the testing program desired.

Placement service is also provided at this Center and is available to all students, faculty, and former students.

Student Part-time Work

The College, local businesses, and industries provide a number of part-time jobs which enable students to earn part or all of their expenses while attending college. Students employed by the College (with few exceptions) will be selected and assigned by the Student Employment Director. Applicants for off-campus, part-time employment should also register with his office (Room 102, Liberal Arts Building).

Student Insurance

All students enrolled for nine or more semester hours are eligible to purchase accident and sickness insurance. Coverage is effective in the United States and Canada for a full twelve months. A brochure explaining the coverage and benefits is available in the Office of the Director of Student Activities. The fee is approximately $12.00 per year and is payable upon enrollment.

Medical care insurance is required of all foreign students.

Teacher Certification

Lamar is an approved teacher-certifying agency. All teacher education programs of the college are approved by the Texas Education Agency. Students seeking teacher certification should consult with the Dean of the School of Education regarding requirements, etc.

Religious Centers

Several church groups have established centers adjacent to the Lamar campus and provide instructors for offering courses in Bible study.

The course offerings are subject to regulations established by the College and qualifications of the instructors are essentially the same as those of other faculty members.

Intramural Sports Program

Under the supervision of the directors of intramural sports, the Department of Physical and Health Education offers an intramural program with opportunities for participation in recreational physical activities. Participation is voluntary.

Scholarship Honors

The Lamar Honor Society was organized in 1953 for the purpose of recognizing seniors who have done outstanding academic work while in

Lamar. Since that time, a number of scholarship societies, including freshman honor groups for men and women, have been organized.

The Recognition Program each spring honors those students who have gained recognition for outstanding work in special fields or for scholastic excellence. Suitable certificates and awards are presented.

Ex-Student Association

An association of former students of Lamar, whether graduates or not, has been formed. The Executive Secretary of the Alumni Association has an office on the campus.

Evening Classes

For administrative purposes, classes offered after 6:00 p.m. are referred to as evening classes. With few exceptions the same faculty members teach in both day and evening classes, and all educational facilities are the same. A person employed during the day hours may attend classes in the evening and work toward a degree or expand his knowledge in a special field of interest.

Course offerings in the evening are such that by judicious choice of classes continual progress toward an objective may be maintained. It is advisable to follow the program of study outlined in the catalog, but in every case such program should be approved by the department head concerned with the training objective of the student.

The School of Vocations also offers a variety of courses and training programs in the evening hours. Details are given in the School of Vocations catalog.

Vocational Courses

The School of Vocations offers vocational training programs in the following fields: diesel engines, industrial electricity, machine shop practice, refrigeration maintenance and repair, vocational nursing, and welding. Vocational nursing is a one-year program while the others extend over a period of two years.

This School also offers supplementary training in the following fields: apprenticeship training, distributive education, industrial supervision and leadership, and trade extension.

For further details request catalog from: School of Vocations, Lamar State College of Technology, Beaumont, Texas.

Veterans Education

Lamar is approved for educating veterans under the Vocational Rehabilitation Law, known as Public Law Number 16, and Public Law Number 550.

Lamar is following the recommendation of the American Council on Education in granting academic credit for military experience. Under

these recommendations credit for college work is granted on the basis of measured educational attainment and achievement.

Veterans who are interested in continuing their education under federal laws providing such training are directed to secure information and aid in planning their college work by consulting the office for Veteran's Education, Room 102, Liberal Arts Building.

Veterans may lose payments for the first calendar month of the semester if application and enrollment forms are not completed by the end of registration week. It is not possible for the college to process late entries until the following month.

AWARDS

The following awards are available each year:

Sara Lou Aldrich Award. This award is presented annually to an instrumental music major, selected by the faculty of the Department of Music, who has been on the campus at least two years, who has demonstrated sound character and citizenship in addition to academic and vocational ability, and who has made significant contributions to the Department of Music. Cash value: $50.00.

American History Award. Established in 1949, this award is provided by the American National Bank of Beaumont and consists of a United States Government savings bond. The recipient is selected by the social sciences faculty.

C. W. Bingman Special Recognition Award. Established in 1957 by Mrs. C. W. Bingman in memory of her husband, a former president of Lamar, the award consists of a plaque and $50 in cash and serves to recognize a student for outstanding achievement for which no other award is offered. Recipients are chosen by the faculty.

Chemical Engineering Awards. Each year the American Institute of Chemical Engineers recognizes the student who has maintained the highest scholastic average in his first two years of study with appropriate prizes. The Sabine Area Section of AIChE annually presents a $250 award to a student who at the end of his junior year has demonstrated outstanding qualities academically, in leadership, in participation in activities and who has financial need.

Civil Engineering Award. The student chapter of the American Society of Civil Engineers each year presents a plaque to the outstanding student in the Department of Civil Engineering.

Delta Sigma Pi Award. The male graduate who earns the highest scholastic average in the School of Business Administration each year is presented with a gold key by the Delta Eta Chapter of the international fraternity of Delta Sigma Pi.

Eleanor Annual Poetry Award. This award, established in 1951, is a cash prize of $50 presented annually by Mrs. Eleanor Weinbaum to the

Lamar student writing the best original poem of twenty lines. Winners are selected by judges appointed by the head of the English Department; the award is announced on Poetry Day in Texas and is presented on Lamar Awards Day.

John E. Gray Award. This award is a trophy presented each year by Dr. John E. Gray, former president of Lamar, to the graduating letterman having the highest scholastic average.

Mechanical Engineering Award. This cash award of $100 memorializes the late Ernest H. Holdredge, head of the Department of Mechanical Engineering until his death. Recipients are chosen by a joint committee of the Lamar Society of Mechanical Engineers and the area chapter of the American Society of Mechanical Engineers from candidates proposed by the mechanical engineering faculty. Scholarship, leadership and need are considerations.

Ida Caldwell McFaddin Citizenship Award. Originated by Mrs. Caldwell McFaddin and perpetuated by her family, this award recognizes that student who has made the most outstanding contributions in campus citizenship. Recipients are selected by the faculty.

Nena Morris Memorial Awards. Three prizes, valued at $25, $15, and $10, are given students ranking highest in oral and written Spanish examinations held each spring by the Pan-American Round Table of Beaumont. Purpose of the contest, open to any undergraduate student of Lamar whose preparatory college work has been done in the United States, is to increase interest in reading, writing, and speaking Spanish. A minimum of ten entries is required to assure a contest.

L. R. Pietzsch Memorial Engineering Award. Established in 1954 by the Pietzsch family, this annual award has a cash value of $50. It is given in memory of L. R. Pietzsch, the first president of Lamar. The recipient is selected by the faculty of the School of Engineering on the basis of scholarship and citizenship.

Student Council Award. This award is presented annually to that member of the Student Council who in the opinion of his fellow Council members has made the most significant contributions to the Council. It carries a cash stipend.

Weed Award. Established by the Weed Family, these awards have a cash value of $50 divided into two awards of $15 each and two awards of $10 each. They are presented to the winners in a speech contest and in an essay contest on subjects bearing on American government and good citizenship.

LOAN FUNDS AND SCHOLARSHIPS

Financial assistance in the form of loans and scholarships is available for a limited number of students. Details may be obtained from the "Bulletin of Scholarships and Loans" which can be obtained on request to the Dean of Student Life, Lamar State College, Beaumont, Texas.

A number of service and professional organizations make loans available to Lamar students. In addition, many students finance their education through commercial loan organizations. Information on these outside loan sources, as well as funds administered by the College and described below, may be obtained from the Dean of Student Life.

The Lamar Tech Emergency Loan Fund provides short-term assistance to students who have attended Lamar one semester or more and who have a minimum of 1.0 grade point average. Loans must be repaid prior to graduation. Loans of over $50 require a co-signer. No student may borrow more than $150 at any one time, no more than $200 in any one semester, and no more than $500 during his enrollment at Lamar. A 50¢ service charge is made on all loans, or interest is charged at 4 per cent per annum (whichever is greatest.)

The Lula M. Long Loan Fund is provided to assist students to continue their work at the college when, without financial assistance, they would be compelled to withdraw. Any full-time student who has completed one semester of work with at least a "C" average is eligible to apply for a loan.

The Lamar Emergency Loan Funds for Girls has been established by the American Association of University Women, Beaumont Chapter. This fund is designed to aid women students of Lamar in the event of financial emergency.

The Eunice Merkel Loan Fund is available for full time students who have completed one semester at Lamar with a grade point average of at least 1.0. Graduates of Orangefield High School and students who plan to teach are given preference in the use of this fund. No interest is charged on short term emergency loans.

V. A. Kalichevsky Memorial Fund was established as a memorial to the late Dr. V. A. Kalichevsky from funds donated by the family and friends. Junior and senior engineering and chemistry students are eligible. Interest is charged at the rate of 4 per cent.

National Defense Student Loan Fund serves students whose academic background indicates superior capability or preparation in science, mathematics, engineering, modern foreign languages, or qualified students who desire to teach in the elementary or secondary schools. A student may borrow a sum not exceeding $1,000 in one year or during his entire course in higher education a sum not exceeding $5,000. A student may not borrow more than he actually needs.

The Ex-Students Loan Fund offers short-term loans for any purpose up to $20 from funds provided by the Lamar Tech Ex-Students Association.

The Tuition Loan Program permits students who have attended Lamar one semester or more to borrow funds with which to pay tuition only; repayments to be scheduled after the student ceases to be a full-time student at Lamar. Loans may be made for $75.00 for regular semesters and $35.00 for summer terms. Eligibility is the same as for the Emergency Loan Fund. A folder describing this program can be obtained from the Dean of Student Life.

The Beaumont Y.M.B.L. Loan Fund, established by a gift of $5,000.00 by the Young Men's Business League, offers assistance to students who can qualify under terms of the Emergency Fund described previously.

Scholarships

In addition to the scholarships and loans provided by individuals and groups to assist Lamar students, the following assistance for special groups is also available.

Valedictorians

Each valedictorian from an affiliated public high school of Texas is entitled to an exemption from payment of tuition for one year provided the student enters Lamar in the succeeding year after graduation. This scholarship is valued at $50.00 per semester or $100.00 for the year (2 semesters).

At registration each valedictorian should have in hand a signed statement from his principal or superintendent certifying to his academic rank at graduation.

Students with Physical Handicaps: (Vocational Rehabilitation)

The State Board for Vocational Education through the Vocational Rehabilitation Division, offers assistance on tuition to students who have certain physical disabilities, provided the vocational objective selected by the disabled person has been approved by a representative of the Division. Application for Vocational Rehabilitation assistance should be made to the nearest rehabilitation office or to the Director of Vocational Rehabilitation, 303 Walton Building, Austin, Texas. The Beaumont office is located at 564 First Federal Savings Building.

ACADEMIC REGULATIONS

Course Numbering

Semesters of a course are numbered separately, and each number contains three or more figures. The first digit indicates the rank of the course: 1 means that it is for freshmen; 2, for sophomores; 3, for juniors; 4, for seniors; and 5, for graduates. The second figure indicates the number of semester hours credit. The third figure (or figures) indicates the order in which the course is taken. The letter a, b, c, or d following course numbers indicates partial credit in each case; full credit for such numbered courses will be granted only when the series is complete.

Applied music courses are numbered so that the second number indicates both semester hour credit and number of private lessons each week.

Semester Hour

The unit of measure for credit purposes is the semester hour which means one hour of recitation (or equivalent in laboratory work) each week

for one semester. **For each classroom hour, two hours of study are expected.** Three hours of laboratory work are counted equivalent to one classroom hour. For laboratory work which requires reports to be written outside of class, two clock hours are usually counted as one semester hour.

Course

The unit of measure for instructional purposes is the course. Most courses meet three hours each week and have a credit value of 3 semester hours for one semester, or 6 semester hours for two semesters. Unless otherwise stated a course means 3 semester hours.

Registration Procedure

See "How to Enter" directions listed on the inside back cover of this catalog and "Admission Requirements" listed elsewhere.

Students who expect to attend under some veteran's benefit plan should secure a certificate of eligibility from the Veterans' Administration before registration. The local office of the Veterans' Administration or the Director of Veterans' Education at Lamar will assist in securing this certification.

Registration is not complete until all tuition and fees have been paid and all necessary transcripts are on file in the Admissions Office.

No one may register after the last date for registration for credit as shown on the official calendar.

Admission to Class

The only way to become a member of a class is to register for it through the regular registration procedure.

Grading System

A—Excellent	D—Poor (passing)	W—Withdrawn
B—Good	F—Failure	Drop—course was dropped
C—Fair	I—Incomplete	

The grade of **W** or **Drop** is given if the withdrawal or drop is made before the penalty date (see Dropping Course) or if the student is passing at the time of withdrawal or drop.

The grade of **I** is given when any requirement of the course, including the final examination, is not completed.

If a student is absent from the final examination and is not passing, the instructor may record the grade of F if he so desires.

Semester grades are filed with the Registrar. No grade may be recorded for a student not regularly enrolled in a course during the semester covered. No grade may be corrected or changed without the written authorization of the instructor concerned, except as indicated below. The written instruction for a grade change should be accompanied by a statement explaining the reason for the change.

Incomplete work must be made up the next succeeding semester after the grade of **I** is recorded. Unless a grade has been made up within the time limit indicated, or permission has been granted by the Dean of the College to postpone the make-up, the Registrar is authorized to change the I grade to a grade of **F** and the course must be repeated in its entirety if credit for the work is desired.

Grade Points

For the purpose of computing grade averages, grade points are assigned as follows: To the grade **A**, 3 points; to **B**, 2 points; to **C**, 1 point; to **D** and **F**, 0 points. A student's grade-point average is obtained by multiplying the number of semester hours credit of each grade by the grade points assigned to the grade and dividing the sum of these by the total number of semester hours of all work taken, whether passed or failed.

Reports

Reports on grades are mailed at the end of each semester or summer term. Mid-semester reports on students doing unsatisfactory work are sent just following the middle of the semester. Upon written request to the Registrar, students who are over 21, married, or veterans may have grades sent directly to them.

Honor List

At the end of each semester the Registrar prepares a list of all students who have no grades below **A** and a second list of students who have no grade below **B**. These lists are known as honor lists for the semester and are announced by the Dean of the College.

The "Distinguished Student" list is made up of the **"A"** honor list plus those on the **"B"** honor list who have at least 4 **A**'s on twelve or more semester hours of work and no grade lower than **B**.

Course Load

Entering students may carry a load of 15 semester hours or the amount regularly scheduled for the first semester of the program being followed. **Students entering on probation may not carry more than 13 semester hours.**

Overloads

The academic dean of the school concerned must approve all overloads. Overloads may be approved when: The regular degree program requires more than 15 semester hours of work or the student in the preceding semester has earned sufficient grade points to justify the overload. In general students who earn 18 grade points may enroll for 18 hours; 19 grade points, 19 hours; 36 grade points, 20 hours; 45 grade points, 21 semester hours.

What constitutes an overload for students working part or full time will depend upon the work schedule of the student requesting permission for an overload as well as his academic record of the preceding semester.

Maximum Course Loads

1. Full-time students—no student will be allowed to enroll for more than 21 semester hours regardless of the number of grade points earned the preceding semester.
2. Part-time students—for students employed less than 40 hours each week, the maximum study load that may be approved is 14 semester hours; for those employed 40 or more hours each week, the maximum is 9 semester hours.
3. Students on Probation—full-time students on probation may not enroll for more than 13 semester hours. For students who are working, the maximum is 9 semester hours if employed part time and 6 semester hours if employed for 40 hours or more each week.
4. Summer session—The maximum course load for the summer session is 14 semester hours or 8 semester hours for one term.

Postponed Examinations

Arrangements for taking postponed examinations and examinations for removing conditions are made with the department head concerned. Such arrangements should be made at least forty-eight hours ahead of time for the examinations.

Early Examinations

Final examinations may not be given to a student except as regularly scheduled. For good reason a final examination may be postponed. Apply to the dean of the school concerned for permission.

Absences

Regular and punctual attendance in classes and laboratories is required of all students. An absence is classified as approved or unapproved. A student having an approved absence may make up examinations, written assignments, reports, etc., without penalty. This privilege is not extended to those having unapproved absences.

For college-sponsored activities, the sponsor, coach, instructor, or supervisor submits to the Dean of the College a list of participating students, and an abstentee permit is published by his office. Such absences then become approved.

Students absent because of personal reasons, sickness, etc., are to report such absences to all instructors concerned. These instructors may accept the offered reason or may require the student to report to the Dean of Women or the Dean of Men for an official classification of the absence. If the absence is classified as approved, the student will receive an approved absence permit from the office of the Dean.

Students who are absent for three or more calendar days must report to the Dean of Women or Dean of Men for an approved absence permit.

Students accumulating excessive unapproved absences may be placed on disciplinary probation by the Dean of Women or the Dean of Men or be dropped from class and given the grade of F by the academic dean responsible for the course in question.

For each absence more than the number of weekly meetings of the class or laboratory (long semester) the instructor may lower the student's grade by 5 points.

Transfer from One Department to Another

Transfers must have the approval of the department heads concerned. The Registrar must be notified, and transfer should be arranged prior to the semester in which the transfer will take effect.

Transfer Students

See "Admission by Transfer from Another College" under "Admission Requirements."

Excess grade points transferred from another college cannot be used to make up a deficiency of grade points on work done at Lamar.

Changing Schedules

No course may be added, changed or dropped without the permission of the department head of the student's major field. Usually a course may not be added after the first week of the semester (first two days of summer session). Likewise, section changes may not be made after a like period unless the change involves one instructor only. See college calendar.

Dropping Course

A student may drop a course without penalty during the first six weeks (three weeks of the summer session) of the semester.

For drops after this penalty free period, grades are recorded as **Drop** or F indicating that the student was passing or failing at the time of the drop.

A student may not drop a course within three days of the beginning of the final examination week.

Withdrawals

A student wishing to withdraw for the remainder of a semester, or summer term, should fill out a Withdrawal Petition in triplicate in the office of his academic dean. He must clear all financial obligations, and return all uniforms, books, laboratory equipment and other materials to the point of original issue.

Three copies of the withdrawal form signed by the academic dean, the Librarian, and the Dean of Women or Dean of Men are presented to the Registrar by the student.

On application before the end of the semester or summer session the comptroller will return such fees as are returnable according to the schedule shown under the "Fees" section of the catalog bulletin. This refund is made only to the person withdrawing and if requested before the end of the current semester or summer session.

If a withdrawal is made before the end of the first six weeks (three weeks of summer term) or if the student is passing at the time of withdrawal, a grade of **W** is issued for each course so affected. A grade of **F** is issued for all courses not being passed at time of withdrawal after this penalty free period.

A student may not withdraw within three days of the beginning of final exam week.

A student who leaves without an official withdrawal will receive a grade of "F" in all courses and will forfeit all returnable fees.

Enforced Withdrawal Due to Illness

The Director of the Health Center and the Dean of Student Life on the advice of competent medical personnel may require withdrawal or deny admission of a student for health reasons (mental or physical).

English Requirement

A full-time student (one taking 12 or more semester hours) must be registered for English 131, 132, or 135, unless credit has been received. (Does not apply during summer terms.)

A student's use of English is subject to review prior to graduation. If found unsatisfactory, additional course work may be prescribed.

Physical Activity Course Requirement

All students are required to take four semesters of physical activity except as follows:

1. Those who are unable to participate in such a course because of physical handicaps.

2. Those who choose active participation in the band for four fall semesters.

Bible Courses

A student may take as much as three semester hours of Bible study each semester for a total of two semesters. This total may be raised to four semesters with the approval of the student's counsellor if the field of study warrants such elective choice.

Advanced Standing Examinations

Advanced standing examinations are intended only for those students who have had the equivalent, in formal or informal training, of the work being presented in the course in question. College credit may be granted for those who pass advanced standing examinations with a grade of **B** or better.

To secure permission for such examinations, a student must obtain the written permission of the Dean of the College, the department head responsible for the course, and the Comptroller of the College.

A fee of $5.00 must be paid to the Business Office.

A student having received a grade (passing or failing) in a course may not take an advanced standing examination in such course.

Advanced standing examinations will not be approved for skill courses.

DEGREE REQUIREMENTS

Bachelor Degree—General

1. Remove all admission conditions.
2. Have the following minimums:
   (1) 30 semester hours in residence at Lamar. Twenty-four semester hours of this minimum must be earned during the senior year, except for the special degree programs which apply to biology, law, and medical technology.
   (2) A grade-point average of at least 1.0 on all courses in the major field and on all courses used for graduation. See "Transfer Student." Each registration in a course so used, whether passed or failed, will be counted in the grade-point calculation.
   (3) A major of 24 semester hours, 12 of which must be in advanced courses.
   (4) 12 semester hours (4 semesters) in mathematics or laboratory science (two different sciences) or 6 semester hours (2 semesters) of each.
   (5) 6 semester hours in Government (231-232).
   (6) 6 semester hours in United Staes History (231-232).
   (7) 12 semester hours in English. See "English Requirements." Foreign students may choose English 233-234 or 331-332.
   (8) 4 semester hours of physical activity or marching band credit. (4 semesters.)
   (9) 30 semester hours in courses on the 300 and 400 level.

(10) 122 semester hours exclusive of required physical education, band, orchestra, and chorus.

(11) 60 semester hours selected from the following with no more than 12 semester hours (18 in English) in any one listed.

a. English, foreign language, music (not applied), speech, art (not applied).

b. Biology, chemistry, geology, physics, mathematics.

c. Economics, government, history, psychology, anthropology, sociology, philosophy, geography.

3. Complete the program of study as listed in the catalog.

4. No more than a total of 30 semester hours of correspondence and extension credit may be applied toward the baccalaureate degree.

5. Make final application for graduation as required and pay the designated fee.

6. Attend the official graduation exercises or receive prior approval from the Dean of the College for graduating in absentia.

If another baccalaureate degree is taken simultaneously or has been taken previously, here or elsewhere, the second baccalaureate degree may be granted upon the completion of all the required work of the second degree, and a total of 30 semester hours above the number required for the degree having the greater semester hour requirement.

Bachelor of Arts degree

1. Meet the basic requirements of all degree programs.
2. Have the following minimums:

(1) 12 semester hours in one foreign language including completion of the course numbered 232.

(2) 12 semester hours in social science.

(3) A minor of 18 semester hours, 6 of which must be in advanced courses.

Bachelor of Science degree

1. Meet the basic requirements of all degree programs.
2. 3 hours of speech may be substituted for 3 hours of English literature.
3. 124 semester hours, exclusive of required physical education, band, orchestra, and chorus.

The specific programs of study are listed in the departments concerned.

Bachelor of Business Administration degree

1. Meet the basic requirements of all degree programs.
2. Meet the specific requirements of the selected program of study as listed in the department concerned.
3. Complete 128 semester hours exclusive of required physical education, band, orchestra, chorus, and orientation.

Master Degree—General

1. Meet the requirements for admission to the Graduate School.
2. Meet the residence requirement of two semesters or equivalent in summer sessions.
3. Complete all work in six years.
4. Have all grades of "B" or better.
5. Work transferred may not exceed six semester hours.
6. No extension work may be applied toward a graduate degree.
7. Meet all general and specific degree requirements as listed in the Bulletin of the Graduate School.

Special Degree Programs

Law: In the preparation for the study of law, there are two plans. Under either plan the student completes three years of work at Lamar and one year at an accredited law school. Both plans have been approved by one or more recognized law schools of Texas.

Under Plan I a student may receive the Bachelor of Business Administration degree, while under Plan II the Bachelor of Arts or Bachelor of Science degree is granted.

Plan I:

Complete the program for the Bachelor of Business Administration degree as outlined in the program of study shown in the School of Business section of this catalog.

Plan II:

Complete 94 semester hours of the basic requirements for the Bachelor of Arts or Bachelor of Science degrees as shown under the Department of Government in this catalog.

Biology: A student may receive the degree of Bachelor of Science—biology major—after completion of one year in an approved college of dentistry or medicine.

The following minimums are required:

1. Complete 96 semester hours of the basic requirements for the

Bachelor of Science degree. This includes all the required minimums except the total of 124 semester hours.

2. Complete at least 30 semester hours in an approved college of dentistry or medicine.
3. Apply for the degree by February 15 preceding the June graduation program.

ACADEMIC PROGRESS

Students are expected to make acceptable scholastic progress. Students who fail to meet the minimum academic requirements or accumulate grade-point deficiencies may be placed on scholastic probation or suspension.

Minimum Academic Requirements

Student Classification	Minimum Standards Required	Status of Students Failing to Meet Minimum Standards Listed
I. Regular Students (not on probation)		
A. Full-Time (Enrolled for 12 or more semester hours)	6 sem. hrs. & 3 gr. pts.	Suspension
	9 sem. hrs. & 9 gr. pts.	Probation
B. Part-Time (Enrolled for 6 to 12 semester hours)	3 sem. hrs.	Suspension
	6 sem. hrs. & 3 gr. pts.	Probation
C. Part-Time (Enrolled for less than 6 semester hours)	Pass all hours taken, grade point for each hour	Probation
II. Students on Probation		
A. Full-Time (Enrolled for 12 or more semester hours)	9 sem. hrs. & 9 gr. pts.	Suspension
B. Part-Time (Enrolled for 6 to 12 semester hours)	6 sem. hrs. & 3 gr. pts.	Suspension
C. Part-Time (Enrolled for less than 6 semester hours)	Pass all hours taken, grade point for each hour	Suspension

Grade-Point Deficiency

A student who accumulates a deficiency of fifteen or more grade points is considered to be making unsatisfactory progress toward his training objective and is placed on probation.

If the grade-point deficiency is not reduced at the end of the semester of probation (but the student does meet the minimum standard of nine hours and nine grade points), the student will continue on probation for a second semester. If the grade-point deficiency has not been reduced below fifteen grade points at the end of the second semester of probation, the student will be suspended.

Other Regulations—Probation and Suspension

1. Suspension requirements do not apply to first semester freshmen.
2. Students on scholastic probation cannot:
   a. Be absent from classes except in cases of serious emergency approved by his dean.
   b. Represent the College in any extra-curricular activity. This includes intercollegiate athletics.
   c. Hold collegiate office.
   d. Participate in trips or tours except those which are required as class projects.
   e. Participate actively in any major extra-curricular activity.
   f. Participate in any major dramatic or musical production.
   g. Carry a study loan exceeding the amounts shown under "Course Load" elsewhere in the Catalog.
3. Students on probation or suspension may attend summer school. The summer session is a penalty-free period and all students are eligible to attend. A student cannot incur any scholastic penalty (probation or suspension) while attending the summer session.
4. Terms of suspension:
   a. First suspension—one long semester.
   b. Second suspension—two long semesters.
   c. Third suspension—four long semesters and re-admission only with special permission of Dean of the College.
5. **Warning**—Each student is responsible for knowing his academic status and the regulations which apply. A student who does not abide by the regulations governing his particular status may be required to reduce his academic load or withdraw from the College without special consideration.
6. A student who withdraws while on scholastic probation is considered to have failed to meet the minimum requirements for removal from probation and is thereby suspended.

Removal of Scholastic Probation or Suspension

A student may be removed from scholastic probation by meeting the minimum academic requirements listed or by reducing his grade-point deficiency below the minimum required. Students on suspension must remain out of college the required length of time or attend a summer session and remove the condition of suspension.

Transfer Students

The listed standards also apply to transfer students except that such students must have passed at least nine semester hours with nine grade points during the last semester of attendance at the other college or must have remained out of college at least one semester. See "Admission by Transfer from Another College."

GRADUATION

Application for Graduation

Applications for graduation must be on file with the Registrar not later than December 1, March 1, or June 15 for the following January, June, or August dates respectively.

Before final approval of these applications, the following supplementary materials must be submitted:

1. Statements showing reasonable expectation of completion of degree requirements by graduation time.

2. Transcript showing grade-point average of at least 1.0 on all courses taken and applied to meet degree requirements. A course is counted each time taken whether failed or passed.

3. Receipt showing payment of cap and gown and diploma fees.

4. Clearance of all financial and property matters to date.

5. Approval of the department sponsoring the student.

The application of a student lacking a grade-point average of 1.0, either overall or in his major field, will be removed from the graduation list at the beginning of the semester.

If a student under such conditions does complete all degree requirements, he may apply for a statement of such completion and appear for the next graduation date.

The student is responsible for making the application, for securing official advisement about study plans for the last two semesters, and for checking compliance with all degree requirements with the Registrar.

Graduation under a Particular Catalog

A student may complete his work for graduation according to the requirements of the catalog of the year in which he enters or of the year

at the end of which he graduates, or that of any intervening catalog. The catalog selected is subject to the approval of the department head concerned.

The catalog year shall be considered as beginning with the long session in September. Students entering for the first time in the summer session are subject to the catalog for the long session immediately following.

Failure to complete the requirements for graduation within seven years after the entering date will require the student to graduate under the regulations effective for the current graduating class.

The College reserves the right to make effective, during the course of a student's work toward graduation, any new ruling which may be necessary for the general good of the College and to substitute courses offered for those no longer offered.

Graduation Honors

Members of the graduating class who have a grade-point average of 2.5 or above are classified as "honor graduates" by schools.

The student having the highest grade-point average (must be above 2.7) in each of the schools will be graduated with "highest honors" in that particular school; the student having the next highest grade-point average (must be above 2.6) will be graduated with "high honors." Others qualifying will be graduated with "honors."

GENERAL REGULATIONS

Minimum Class Enrollment

The College reserves the right not to offer any courses listed in this catalog unless there are at least twelve students who register for the course.

Credit Through Advanced Placement

Entering freshmen who wish to receive credit for college-level work completed while in high school may do so by submitting scores on the College Entrance Examination Board's Advanced Placement Tests. For scores required and credit so given, see **Admissions** sections of this catalog.

Secondary school graduates who have participated in accelerated programs in high school are encouraged to take the College Entrance Examination Board's Achievement Test in the accelerated subject matter area. Acceptable scores will allow such students to enter advanced courses in the tested area; and they may, through successfully completing such advanced course work, receive credit for prequisite work as allowed by listed departments. For particulars of this program, see **Admissions** sections of this catalog.

Interested students may request information from the Dean of the College.

New Courses

In order to meet changing educational requirements, the College reserves the right to **add any needed courses at any time without regard to the listing of such courses in the catalog.** It is expected that listing of these courses will appear in the next catalog issue.

The right to change numbers in order to indicate changes in semester hours credit is also reserved for the reasons above. Elsewhere in this catalog under "Course Numbering" is a further explanation of this policy.

Classification of Students

Students are classified as freshmen, sophomores, juniors, seniors, and special. For the purpose of determining eligibility to hold certain offices and for other reasons, regularly enrolled students are classified as follows:

Freshman: Has met all entrance requirements but has completed fewer than thirty semester hours.

Sophomore: Has completed a minimum of thirty semester hours with thirty grade points.

Junior: Has completed a minimum of sixty semester hours with sixty grade points.

Senior: Has completed a minimum of ninety semester hours with ninety grade points.

Special Student: Must meet all entrance requirements.

Full-Time Student: A student taking twelve or more semester hours, four or more in a summer session, is classified as a full-time student.

Assembly

Attendance at assemblies is expected of all students.

Change of Address

Any student who moves during a semester or summer term must immediately register his change of address in the office of the Dean of Student Life and in the Office of the Registrar. Failure to register a change of address will result in a $5.00 fine, payable in the Office of the Dean of Student Life. **The student is responsible for all communications addressed to him at the address currently on file in these offices.**

Eligibility for Extra-Curricular Activities

An extra-curricular activity is understood to be any activity representing the student body, any student organization, any department or division organization or any activity representing the College.

Any full-time student not on disciplinary or scholastic probation who is regularly registered is eligible to become a candidate or to hold student

office or to represent the College in any extra-curricular activity provided such student has a grade-point average of at least 1.0 for both the whole of his college work completed at Lamar and that of the preceding semester.

For the purpose of establishing eligibility, two six-week summer terms may count as one semester.

Transfer students have the same eligibility as freshman students until completion of one semester at Lamar.

Eligibility for Intercollegiate Activities

A high school graduate who has been admitted as a regular student and who is registered for a minimum of twelve semester hours is eligible for intercollegiate athletics in the Lone Star Conference of which Lamar is a member.

Further competition in intercollegiate athletics depends upon the student's ability to carry a minimum of twelve semester hours and to pass at least nine semester hours with at least 18 eligibility points.

For additional details on eligibility for intercollegiate athletics, the student is directed to make inquiry of the director of athletics or of the Conference faculty representative.

Telephone Service

Public telephone pay stations have been installed in the Liberal Arts, Engineering, Home Economics, Library, Union, and Vocation Buildings. Students are expected to use these telephones for their personal calls. Office telephones are for the use of faculty and administrative personnel only. **Incoming telephone calls for students are transmitted to the students only in cases of emergency.**

Student Debts

The College is not responsible for debts contracted by individual students or student organizations and will not act as a collection agency for organizations, firms, or individuals to whom students may owe bills.

Students and student organizations are expected to honor contractual obligations promptly, but in case of flagrant disregard of such obligations the Dean of Men (Women) will take appropriate action depending on age or marital status of the student concerned.

Penalty for failure to clear up these obligations may be: a) No re-admission; b) Withholding of grades and transcript; c) Withholding of degree.

Hazing

Lamar State College of Technology is opposed to hazing in all of its various forms and will discipline all offenders in the spirit of statutes

governing this offense, as set forth in Chapter 4-A of Title 15 of **Vernon's Statutes in the State of Texas.**

Parking Regulations

At registration time each student who pays the necessary fee is issued a car sticker which permits parking on the campus. This sticker is numbered and is to be placed in a specific place on the back window of the car.

Penalty for False Statements

A student who makes a false statement on any official form submitted to the College is subject to immediate dismissal.

Official Summons

An official summons from any administrative office takes precedence over all other college activities of the student and should be answered promptly on the day and hour designated. Failure to heed this official summons may subject the student to serious disciplinary action.

Discipline

It is assumed that any student eligible for admission to the College is familiar enough with the ordinary rules of conduct for ladies and gentlemen to need no definite discipline regulations. The College reserves the right to place on disciplinary probation or to dismiss any student at any time for sufficient cause.

Any activity sponsored by any group of Lamar students recognized as such must conform to behavior requirements of the College. The officers of the particular group are held responsible for the behavior of the participants in the sponsored activity. Failure to maintain this standard of behavior may subject the group to suspension of all social activities for as much as one long session.

Possession or use of alcoholic liquors on the campus is forbidden by law and the guilty student is subject to immediate dismissal as well as criminal prosecution. Possession or use of such liquors at any college sponsored function is classified as unacceptable behavior.

Disciplinary Probation

A student may be placed on disciplinary probation for unacceptable behavior at any time or place. The Dean of Men or the Dean of Women may classify behavior as unacceptable and may set the period of probation. The student has the privilege of appealing the decision to the Disciplinary Committee of the College. This appeal is made through the office of the Dean of Student Life.

STUDENT ACTIVITIES

Student Government

All full time students are automatically members of the Student Association of Lamar State College of Technology. Officers of the association and representatives of the various schools and organizations are elected annually and make up the Association's executive body known as the Student Government. The Association affords the student an opportunity to promote and to participate in self government and to manage a well-rounded program of student activities.

Publications

The Redbird, the official college newspaper, is published regularly by a staff organized by the Director of College Information. The publication serves both as a medium of training and as a source of information. Any student is eligible to become a staff member.

The Cardinal is the official annual of Lamar State College. Any student is eligible to become a staff member. Those interested are urged to apply.

The Student Handbook is a handbook published primarily for the benefit of new students. Pertinent information concerning the college and student activities is given in this publication.

The Student Directory is published annually by the College. It contains a listing of the names, addresses, and telephone numbers of the student association, the faculty, and the administration.

Artist Series

The Artist Series Committee is made up of students and faculty. The committee annually arranges for the presentation of a number of programs by professional artists and entertainers. Outstanding personalities and companies which have been presented under the sponsorship of the committee include Bennet Cerf, William L. Laurence, Paul Draper, Albert Dekker, the General Platoff Don Cossack Chorus and Dancers, Sir John Gielgud, and Carlos Montoya.

The Student Union

The Student Union Building, completed in 1954 at a cost of $300,000, provides facilities for recreation and leisure and is the campus center of extra-curricular activities. The Student Life and Student Activities offices, lounges, two snack bars, the Student Government offices, and a large recreation center are located in this building. In 1961 an ultramodern bookstore was added to the Union Building at a cost of $150,000.

Student Organizations

The 68 student organizations currently active on the campus offer students membership in one or more service, professional, religious, social, and mutual interest clubs.

Professional

Acapella Choir
Accounting Association
American Chemical Society
American Institute of Chemical Engineers
American Institute of Electrical Engineers
American Institute of Industrial Engineers
Marketing Association
Association for Childhood Education
Chancery Club
Cardinal Theatre
Future Teachers of America
Geology Club
Home Economics Club
Lamar Society of Civil Engineers
Lamar Tech Mathematics Club
Lamar Tech Mechanical Engineers Club
Lamar Tech Physics Club
Lamar Tech Pre-Med Club
Lamar Tech Student Literary Association
Secretarial Science Club
Sociology Club
Society for the Advancement of Management
Student Education Association
Texas Society of Professional Engineers
Young Democrats of Lamar Tech
Young Republicans of Lamar Tech

Religious

Baptist Student Union
Canterbury House
Church of Christ Bible Chair
Gamma Delta (Lutheran-Synodical Conference)
Newman Club
United Christian Fellowship

Service

Alpha Phi Omega
Circle K
Lambda Tau

Social

Sororities

Alpha Chi Omega
Alpha Delta Pi
Delta Zeta
Kappa Delta
Zeta Tau Alpha

Fraternities

Alpha Tau Omega
Kappa Alpha Order
Pi Kappa Alpha
Sigma Chi
Sigma Nu
Sigma Phi Epsilon

Mutual Interest

Arab Student Organization
Chi Gamma Iota
Choir
International Club
Jewish Student Association of Lamar Tech
Lamar Tech Amateur Radio Club
Lamar Tech Shutterbugs
Women's Recreational Association

Honor Societies

Alpha Pi Epsilon—secretarial science
Alpha Pi Mu—industrial engineers
Alpha Psi Omega—fraternity for Curtain Club
Blue Key—senior and junior men's honor and service fraternity
Cap and Gown—senior women's honor society
Delta Omicron—women participants in music
Delta Psi Kappa—physical education sorority
Delta Sigma Pi—business and commerce fraternity
Eta Kappa Nu—electrical engineers
Freshman Honor Society—freshmen with 2.5 average
Honor Society—upperclassmen who meet requirements
Kappa Kappa Psi—fraternity for college bandsmen
Kappa Pi—art fraternity for both men and women
Phi Mu Alpha Sinfonia—fraternity for men in music
Tau Beta Sigma—sorority for bandswomen

ADMISSIONS

Graduate School requirements are listed in the Graduate Bulletin.

Qualifications for vocational training are outlined in the Lamar School of Vocations Bulletin.

Information related to admission to the undergraduate program of the college is listed in the following sections. Students seeking admission should study the requirements carefully. The procedure outlined for making application for admission should be followed. All required application forms are in the back of this bulletin. Requests for additional forms or admission information should be directed to the Dean of Admissions, Lamar State College of Technology, Beaumont, Texas.

General Requirements for Students Entering From High Schools

Graduates of accredited high schools offering the required entrance units are unconditionally admitted provided entrance examination scores and high school class standing meet the minimum standards set by the college. Standards are established to insure that the applicant has adequate preparation, aptitude, and purpose to successfully pursue his course of study at this college. In all cases where eligibility is not clearly established, the Committee on Admissions will review the applicant's credentials. If standards are not met, admission will be denied. In marginal cases, the committee may grant admission on scholastic probation. Details of the unit requirements and entrance examination are given in the following sections.

Conditional admission may be granted candidates who meet all other standards but have minor deficiencies in entrance units. The "condition" is removed upon the satisfactory completion of the first 30 hours of the curriculum in which he enrolls.

Unit Requirement

Units required for admission to the Schools of Arts and Sciences, Business, Education, Fine and Applied Arts:

English		4
Mathematics		2
Social Sciences Laboratory Sciences Foreign Language	2 units from each of 2 of these	4
*Electives		6
Total		16

*Cannot include more than 3 units in vocational courses with no allowance for drill subjects (physical education, military training, driver training, etc., and including band and chorus unless preceded by Music I.)

Units required for admission to the School of Engineering:

English	4
Mathematics	
Algebra	2
Plane geometry	1
Trigonometry	½
Natural Sciences	
Chemistry	1
Biological sciences or physics	1
Social Sciences	2
*Electives	4½
Total	16

Entrance Test Requirement

The Scholastic Aptitude Test (SAT)** of the College Entrance Examination Board is required of applicants entering from high school unless graduation was prior to 1957. Test scores are one of several factors considered in determining the candidate's qualifications for admission.

The Scholastic Aptitude Test is administered by CEEB at test centers throughout the United States and in many foreign countries in December, January, March, May, and August. Lamar State College is one of the testing centers. The location of all test centers, test dates, fees, application forms, and general information about the test is given in the CEEB booklet, **Bulletin of Information—Scholastic Aptitude Test.** The bulletin may be obtained without charge from high school counselors or by writing directly to the College Entrance Examination Board, Box 592, Princeton, New Jersey. A copy of the booklet should be secured EARLY so that a convenient test date and site can be selected. Application to take the test and test fees are sent to CEEB not to this College.

Failure to take entrance tests in advance may seriously delay admission and registration.

Health Data Requirement

All students entering day classes for the first time must file with the Dean of Admissions a Health Data Form properly executed by a physician.

How to Apply for Admission

1. Submit application for admission on the official form.
2. Submit a completed Health Data Form properly executed by a physician. This requirement applies only to students entering **day classes** for the first time.

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*Cannot include more than 3 units in vocational courses with no allowance for drill subjects (physical education, military training, driver training, etc., and including band and chorus unless preceded by Music I.)

**SAT is not required of students entering evening classes, but applicants will be required to take a test administered by the Lamar State College Testing Center at the time of registration.

3. As soon as all high school work is completed, have the high school send Lamar State College a copy of the complete transcript certifying graduation.
4. Take the prescribed entrance test and have the scores sent to Lamar State College.

When to Apply

Application should be made well in advance of the proposed enrollment date—five or six months in advance if possible.

The application form should be submitted BEFORE transcripts are sent. Transcripts should be sent AFTER all high school work has been completed. Partial transcripts prior to graduation are not required. Students entering in February and in June often find that the interval between the completion of high school work and the beginning of a college semester is too short for the transcript to reach the College. In such cases, temporary admission is granted which permits the student to register on a provisional basis pending the receipt of the transcript.

Advanced Placement

Two optional testing programs are offered to enable applicants to qualify for advanced standing and/or college credit.

1. Advanced Placement Examinations (Optional)
   Applicants who wish to receive college credit for **college-level work completed in high school** may do so by submitting scores on the College Entrance Examination Board's Advanced Placement Examinations. Examinations are given annually in May. Application is made directly to CEEB. Subject matter areas and the basis of granting credit is listed below.

Department	Required Score	Credit Granted
Chemistry	Score of 3 or above	Chemistry 141
English	Score of 5	Eng 131-132 (6 sem. hours)
	Score of 3 or 4	Eng 131 (Student receiving such credit must enroll in Eng 135 rather than Eng 132)
Foreign Language	Score of 4 or 5	Six semester hours of foreign language
	Score of 3	Three semester hours of foreign language
Mathematics	Score of 3 or above	Mth 138 (for engineering majors)
		Six semester hours of math (for non-engineering majors)
Physics	Score of 3 or above	Physics 141

2. Achievement Tests (Optional)

Students who have participated in accelerated programs in high school are encouraged to take the College Entrance Examination Board's Achievement Tests in the corresponding subject matter areas. The student may enter advanced courses provided the test results indicate he is qualified to do so. Minimum scores will be set by the College. Upon the completion of the advanced course with a grade of "C" or better, college credit is granted as indicated in the table on the following page.

Achievement Tests are given on the regularly scheduled test dates in December, January, March, May, and August.

Application is made directly to CEEB.

Subject Matter Area	CEEB Test Required	Credit Granted
English	English Composition and Writing Sample*	Eng. 131 if validated by completion of Eng. 135 with a grade of "C" or better.
Foreign Lang.	Spanish French German	Up to 6 semester hours if validated by completion of advanced course with grade of "C" or better.
Chemistry	Chemistry	Chm 141 if validated by completion of Chm 142 with a grade of "C" or better.
Mathematics	Advanced Mathematics**	Mth 133-134 if validated by completion of Mth 138 with a grade of "C" or better.
Mathematics	Intermediate Mathematics	No credit granted—used for advisory purposes only.
Physics	Physics	Physics 141 if validated by completion of Physics 142 with a grade of "C" or better.

*Required of all students who wish to meet the Freshman English requirement by taking **Eng 135—Rhetoric and Composition** instead of **Eng 131, 132—Rhetoric and Composition.**

Required of all students who wish to register for **Mth 138—Mth Analysis I without having previously received college credit for algebra and trigonometry.

Acceptance Notices

Letters of acceptance are normally issued shortly after the required admission credentials are received. May graduates who are seeking fall enrollment usually receive notices in June. Lamar State College has no student quota. All applicants who meet entrance requirements are accepted.

Due to the number of applicants, it is not practical for the admissions office to acknowledge the receipt of test scores, applications etc. Failure to receive communications prior to the time acceptances are normally issued should not be interpreted as meaning that admission will be denied. Candidates not meeting admission requirements will be notified immediately.

Requirements of Students Entering From Other Colleges

Transfer students are required to be eligible to re-enter the last college attended and to have passed a minimum of 9 hours with 9 grade points (3-2-1-0 basis) the last semester of attendance or to have remained out of college one regular semester. Applicants who are deficient more than 15 grade points on all work attempted will not be accepted.

Entrance examination scores must be submitted if less than 30 hours of college work has been completed. Scholastic Aptitude Test scores are preferred but the College will accept a satisfactory score on a standard test administered in the freshman testing program of any accredited college. The college reserves the right to require tests of any student if it appears that scores would be beneficial in determining admission or for counseling purposes.

Transfer of Credit

With the exception of "D" hours in freshman English, a student transferring from an accredited institution will be allowed as many hours as he has grade points (3-2-1-0 basis). Work accepted from an institution which is not accredited by its regional association is subject to validation by satisfactory work at Lamar State College.

Grades from other institutions are recorded as received. **No grade is changed.**

How to Apply for Admission

The following procedure should be followed in making application for admission.* All credentials should be sent to the Dean of Admissions, Lamar State College, Beaumont, Texas.

1. Submit application for admission on the official form.

*Students in attendance at another college who wish to do summer work only at Lamar State College may be admitted as transient students. A student applying for admission under this classification is required to: (1) submit the regular application for admission and (2) submit a Letter of Standing from his college. Transient students who later apply for regular admission must meet all entrance requirements and supply all required admission credentials.

2. Submit the Health Data Form properly executed by a physician. This requirement applies to students entering **day classes** for the first time.
3. Submit transcripts from **each** college previously attended. This requirement applies regardless of the length of time in attendance and regardless of whether credit was earned or is desired.
4. If entrance examination scores are required, take the prescribed entrance tests an/or have a record of test scores sent to the Admissions Office.

When to Apply

Application should be made well in advance of the proposed enrollment date—two or three months in advance if possible.

The application form should be submitted before transcripts are sent. Transcripts should normally be sent after all work to be transferred is completed. If the time interval between the end of a semester elsewhere and the beginning of a subsequent semester at this college is too short for the transcript to be submitted prior to registration, a temporary admission may be granted. Students on temporary admission who are subsequently found to be ineligible for admission will be withdrawn from the College.

In some cases, questions regarding transfer need to be clarified while work is still in progress at another institution and can only be resolved by the evaluation of a partial transcript. Under these circumstances, the partial transcript should be submitted and a supplementary transcript furnished at the end of the semester.

Admission by Individual Approval

A non-high school graduate who is 21 years of age or older may apply for admission as an individual approval student. Applicants must furnish evidence of preparation substantially equivalent to that required of other applicants, and of aptitude and seriousness of purpose to successfully pursue a college course of study. Personal interviews are required and applicants must submit CEEB scores on the Scholastic Aptitude Test. Arrangements for interviews should be made with the Dean of Admissions several months prior to the proposed date of registration.

Admission of Students From Other Countries

Physical facilities limit the number of students that can be accepted from other countries, but a small number of admissions are granted every year and applications are welcomed. Approximately 60 students from 20 different countries are currently enrolled.

Applicants are required to have completed secondary schools with above average marks and to have been issued appropriate college entrance certificates, to be proficient in written and spoken English, to have adequate financial resources and to be in good physical condition. Candidates for

admission are required to take the Scholastic Aptitude Test of the College Entrance Examination Board. If the applicant's native language is one other than English, the Department of State's English language examination must also be taken. The English Usage Test is given by American Consuls and The Scholastic Aptitude Test is given several times a year at test centers throughout the world. Details and special application forms may be secured by writing to the Dean of Admissions.

Readmission of Former Students

A former student who has attended another college is required to submit a complete record of all work done subsequent to the last date of attendance at Lamar State College and to meet the quality requirements outlined for other transfer students.

FEES AND EXPENSES

Payment of Fees

Lamar State College of Technology reserves the right to change fees in keeping with acts of th Texas Legislature.

A student is not registered until all his fees are paid in full. Payment may be made by check, money order, or currency. Checks and money orders, not in excess of total fees, should be made payable to Lamar State College of Technology and will be accepted subject to final payment.

Fees Summary

Resident Students (Texas)

Semester Hours	Tuition	S.S. Fee	Bldg. Use Fee	Total + Laboratory Fees
12 or more	50.00	20.00	8.00	$78.00 + Lab fee
11	47.00	20.00	8.00	75.00 " " "
10	43.00	20.00	8.00	71.00 " " "
9	39.00	20.00	8.00	67.00 " " "
8	35.00	20.00	8.00	63.00 " " "
7	31.00	7.00	4.00	42.00 " " "
6	27.00	7.00	4.00	38.00 " " "
5	23.00	7.00	4.00	34.00 " " "
4	19.00	7.00	4.00	30.00 " " "
3 or less	15.00	7.00	4.00	26.00 " " "

Non-Resident Student (out of Texas)

Semester Hours	Tuition	S.S. Fee	Bldg. Use Fee	Total + Laboratory Fees
12 or more	200.00	20.00	8.00	228.00 + Lab fee
11	183.00	20.00	8.00	211.00 " " "
10	167.00	20.00	8.00	195.00 " " "
9	150.00	20.00	8.00	178.00 " " "
8	133.00	20.00	8.00	161.00 " " "
7	117.00	7.00	4.00	128.00 " " "
6	100.00	7.00	4.00	111.00 " " "
5	83.00	7.00	4.00	94.00 " " "
4	66.00	7.00	4.00	77.00 " " "
3 or less	50.00	7.00	4.00	61.00 " " "

For summer session students the student service fee is $5.00 per term.

These fees have been approved by appropriate acts of the Legislature of the State of Texas.

Student Responsibility for Residence Classification

The responsibility of registering under the proper residence classification is that of the student, and if there is any possible question of his right to classification as a resident of Texas, it is his obligation, prior to or at the time of his registration, to raise the question with the Dean of Admissions and have his status officially determined.

Every student who is classified as a resident student but who becomes a non-resident at any time by virtue of a change of legal residence by his own action or by the person controlling his domicile is required to notify the Dean of Admissions.

Students failing to comply with the residency provisions of the state tuition bill (Art. 2645c V.C.S. as amended 1957) are subject to penalties as set forth in the law and/or appropriate disciplinary action.

Property Deposit

Any student taking one or more courses is required by law to put up a $7.00 property deposit. This deposit, less any charges, is returnable when the student leaves the College and must be maintained at this level. Students who have not attended classes for four years, and have not filed for a return of their deposit, forfeit this deposit.

Private Lessons in Voice and Instrumental Music

One half-hour lesson per week	$18.00
Two half-hour lessons per week	36.00

Laboratory Fees

For all courses in which the combined credit of lecture and laboratory is from 1 to 3 semester hours, a laboratory fee of $2.00 is charged for each semester. For such courses in which the credit is 4 semester hours or more, the laboratory fee is $4.00 per semester.

Parking Fee

Charges for campus parking for the entire school year will be made at the beginning of the semester in which you enroll.

Fall Semester 6.00	Spring Semester 4.00
1st Summer Term 2.00	2nd Summer Term 1.00

Only one registration required for one school year.

Returned Check Fees

If a check is returned unpaid, the student is automatically suspended from college, but may re-enter upon redemption of the check plus payment of the return check fee of $2.00.

Special Fees

Fees for courses for which special plans must be prepared and for which specialists must be secured as instructors will be set for each such course by the college administration subject to the approval of the president.

Miscellaneous Fees

Certificate of Completion	4.00
Bachelor's Diploma	6.50
Cap and Gown Rental	4.00
Late Registration	2.00
Returned Checks	2.00
Re-entry Fee	5.00
Transcript Fee	.50
Advanced Standing Examination	5.00 per course

Health and Accident Insurance

Additional health and accident coverage providing protection over and beyond that given by the health center is available at registration for students carrying 9 or more semester hours. The fee is $12.00 (estimated). For their protection and welfare this (or similar) insurance is **required** of all foreign students.

Exemption 1: Scholarships to High School Honor Graduates

The highest ranking student in the graduating class of a fully affiliated Texas high school will be entitled to a scholarship valued at $100.00. This scholarship must be utilized during the long session immediately following graduation.

Exemption 2: Ex-Service Men of World War I or World War II

Men and women who are citizens of Texas who served in the Armed Forces in World War I or World War II and were honorably discharged therefrom and who are not eligible for educational benefits provided for veterans of the United States Government, are **exempt** from tuition and laboratory fees, but not from other fees. To obtain this exemption, the service record, discharge papers, or other necessary papers must be presented at the time of registration.

The above exemption also extends to children of members of the Armed Forces who were killed in action or died while in the service in World War II.

Summary of Registration Expenses

Each student must study carefully his own budget. It is possible to attend Lamar on a very modest sum and yet participate in all important phases of the college program. To assist in planning registration expenses, the following estimate is furnished as a guide:

Full-time Student (12 or more semester hours):

Tuition, matriculation, building use, laboratory fees	$ 78.00
	+ lab fees
Property deposit	7.00
Books and incidentals (estimated)	35.00
Health Insurance (if desired)	12.00
Parking fee (if desired)	6.00
Total (estimated)	$138.00
	+ lab fees

Part-time Student (6 semester hours):

Tuition, matriculation, building use, and laboratory fees	$ 38.00
	+ lab fees
Property deposit	7.00
Books and incidentals (estimated)	12.00
Parking fee (if desired)	4.00
Total (estimated)	$ 61.00
	+ lab fees

The tuition fee varies with the semester hours carried so that the total is less or more than this estimate, according to the schedule show in the section, "Fees Summary."

Refund of Fees

Any student withdrawing officially will receive a refund on tuition, student service, laboratory and private lesson fees according to the following schedule.

Long Session

1. During the first two weeks of the semester, 80 per cent.
2. During the third week of the semester, 60 per cent.
3. During the fourth week of the semester, 40 per cent.
4. During the fifth week of the semester, 20 per cent.

Summer Session

1. During the first week of the semester, 60 per cent.
2. After first week no refund.

No refunds are made when dropping courses.

Application for refund must be made to the Comptroller after the student has officially withdrawn, but not later than the end of the current semester or summer session.

It takes about 60 days to process these refunds.

Fine and Breakage Loss

All library fines, breakage or loss of equipment charges, or other charges must be paid **before** a transcript of credit or a permit to re-enter college will be issued.

The College reserves the right to make a special assessment against any student guilty of inexcusable breakage or loss of instructional equipment or other college property.

HOUSING

Dormitories

The dormitory housing program is part of the overall educational plan of the college. The Board of Regents has committed the college to maintaining full occupancy of all rooms in the dormitories. For these reasons, students at Lamar State College of Technology are required to live in one of the college dormitories and take their meals in the college dining hall.

The only exceptions to this regulation are:

(1) Students who live with parents or relatives.

(2) Married students who live with their wives or husbands.

(3) Students whose health conditions demand special services.

(4) Students whose part-time employment conflicts with the college meal service hours.

(5) Students for whom no housing is available when all dormitories have been filled. In such cases, these students will be permitted to live in approved housing off campus until the beginning of a semester in which dormitory space becomes available.

The Dean of Men and the Dean of Women will review all requests for permission to live off campus. The college reserves the right to require campus residence of any student.

Dormitories for both men and women are ultra-modern residence halls, each three stories high. Each floor houses 36 students, organized into units for purposes of self-government, intramural athletics, and social life. Students live in suites for six. Each suite consists of two large bedrooms, two study rooms, and bath. Each room has a dial telephone for intercampus and Beaumont exchange calls.

The Dining Hall serves three meals per day except on Sundays when only breakfast and lunch are served.

Costs

Charges for board and room for the nine-month term are $629.* Charges for a full semester may be paid at the beginning of school, or for the convenience of those who desire a monthly plan, payments may be made as follows:

September	$71
October	$71
November	$71
December	$41
January	$71
First Semester	$325*

February	$76
March	$76
April	$76
May	$76
Second Semester	$304*

(*Currently subject to 2% tax on board of about $7.63 per year, or 87¢ per month.)

If the monthly payment plan is followed, payments must be made on the first day of each semester and between the first and fifth day of all other months.

When students move into a dormitory, they automatically enter into a contract for room and board for the fall and spring semester, unless they officially withdraw from college or obtain special permission from the Dean of Student Life to live elsewhere.

No refunds of September or February payments will be made to students who withdraw from the dormitory system. Students who are given official permission to withdraw during other months may obtain pro-rata refunds for meal tickets after presenting proper withdrawal documents to the Comptroller. No refunds will be made on room rent for a partial month.

Several window units are available for use in non-air conditioned dormitories from April 15 to October 15 each year. Air conditioned rooms are $20 per month in addition to regular room charges, regardless of the number of occupants per room. Occupants share this additional cost.

Summer Term

Charges for board and room for each six-week summer term are $121.50. This is payable at time of admission to the dormitory. Air conditioned rooms are $30 per six weeks in addition to the regular charge. Occupants share this additional cost.

Changes in Rates

The college reserves the right to change room and board rates with ten days notice.

Reservations

To reserve a room in the dormitories, direct a request to the Assistant to the Dean of Student Life, Lamar State College of Technology, Beaumont, Texas. A check for $20 must accompany the reservation request. Room reservations may be cancelled with full refund until three weeks prior to the first day of classes. No refund will be made on cancellations received after this date. Dormitory residents will be refunded deposits, less any breakage charges, at the end of the year. The $20 deposit will not be refunded if the student moves from the dormitory at any time other than at the end of the semester.

All unclaimed rooms will be declared vacant and the deposit forfeited at 6:00 p.m. on the last day of registration unless the student gives the Dean of Student Life Office written instructions to hold the room for a longer period.

Apartments

A limited number of accommodations for married couples are located on the campus and are operated by the college. Although ample for a couple, these apartments are not large enough to permit occupancy by children.

Three new modern fire proof, three-story buildings, each accommodating 35 couples, are now available. Each apartment consists of kitchenette, bath, two clothes closets, and combination living room-bed room. These apartments are completely furnished with fold-away beds, living room furniture, dinette set, kitchen stove, refrigerator, and window fan. There is also a central laundry with automatic washers and dryers.

These apartments rent for $585 for the nine months period. This rental includes all utilities except telephones. Renters may make direct arrangements with the telephone company if they desire telephone service.

A reserved parking space goes with each apartment and is leased to the renter at $6 for the nine months period.

For the convenience of students who wish to pay rentals by the month, the charges may be arranged in nine equal payments of $65 each.

For information regarding these apartments, write the Dean of Student Life Office. A $20 deposit is required to reserve an apartment. For those reserving apartments for the fall term the first payment of $65 is due by September 5. If this first payment is not received by September 5, the apartment will not be held and the deposit will be forfeited. Apartment residents will be refunded deposits when moving, less breakage or cleaning charges.

Some of these apartments can be air-conditioned from April 15 to October 15 upon request of the occupant. An additional $20 per month is charged for this service during the months of operation.

Rent refunds will not be made to students who move out during any month.

SCHOOL OF ARTS AND SCIENCES

Departments

- Biology
- Chemistry
- English
- Geology
- Government
- History
- Modern Languages
- Physics
- Sociology
- (Bible)

School of Arts and Sciences

Degree Offerings

Bachelor of Arts with majors in the following fields.

Biology	Geology
Chemistry	Government
English	History
French	Sociology

Bachelor of Science with majors in the following fields.

Biology	History
Chemistry	Medical Technology
Geology	Physics
Government	Sociology

Master of Arts with majors in the following fields.

English	History

Bachelor of Arts or Bachelor of Science—Pre-Law Program

The Bachelor of Arts or Science Degree for pre-law students may be obtained in one of two ways:

I. While in residence at Lamar completing the degree requirements prescribed in this bulletin.

II. By completing three years of work in the School of Arts and Sciences, totaling a minimum of 94 semester hours with a grade average of 1.3 in courses at Lamar, and completion of one year of law school with a 1.0 for a minimum of 30 semester hours of law courses. These 94 hours should be distributed as follows:

1. 12 semester hours in English including English 131, 132.
2. 6 semester hours in mathematics.
3. 12 semester hours in one foreign language. (Not required for the Bachelor of Science degree.)
4. 16 semester hours in laboratory science, including 8 semester hours in chemistry or physics, and 8 semester hours in biology or geology.
5. 36 semester hours in the social sciences, including Government 231, 232, History 231, 232 and at least 15 semester hours of advanced social science courses.
6. 4 semester hours of physical activity courses.
7. Sufficient electives in Arts and Sciences to include 6 semester hours of advanced courses and to total 94 semester hours. Accounting 231, 232 may be counted among these electives.

The Head of the Department of Government is the advisor for pre-law students. All pre-law students should consult him at each registration period.

School of Arts and Sciences

DEPARTMENT OF BIOLOGY

Professors Hayes, Long, Smith. Associate Professors Fitzgerald, Oliver Parker, Rawls. Assistant Professor Mitchell*. Instructor Sissom.

Programs of Study

Bachelor of Science—Biology Major

First Year

Eng 131, 132—Composition	6
Bio 141-142—General	8
Chm 141-142—General	8
Mth 133—Trigonometry	3
Mth 134—Algebra	3
Electives	6
HPE—Activity	2
	36

Second Year

Eng 231, 232—Literature	6
Bio 241, 242—Comp. Anatomy	8
Bio 243—Microbiology	4
Bio 244—Disease & Immunity	4
Chm 341, 342—Organic	8
Gov 231-232—State & Natl.	6
HPE—Activity	2
	38

Third Year

Bio 341—Histology	4
Bio 342—Embryology	4
Chm 241—Quantitative	4
Chm 443—Biological	4
Phy 141—Mechanics	4
Phy 142—Electricity, etc.	4
His 231, 232—United States	6
Electives	6
	36

Fourth Year

Bio 416-417—Bio Lit	2
Bio Electives (Approved)	8
Electives	20
	30

Bachelor of Science—Medical Technology

First Year

Same as for First Year of B.S. in Biology.

Second Year

Eng 231, 232—Literature	6
Bio 243—Microbiology	4
Bio 244—Disease & Immunity	4
Chm 243—Organic	4
Chm 244—Physiological	4
Phy 141—Mechanics	4
Phy 142—Electricity, etc.	4
Gov 231, 232—State & Natl.	6
HPE—Activity	2
	38

Third Year

Bio 341—Histology	4
Bio 343—Med. Technology	4
Chm 241—Quantitative	4
His 231, 232—United States	6
Electives (Approved)	12
	30

*On leave.

Fourth Year

Twelve consecutive months spent in training at a hospital laboratory approved for teaching by the Council on Medical Education and Hospitals of the American Medical Association. After completing this training, and passing the examination given by the Board of Registry, the student is awarded the degree of Bachelor of Science-Medical Technology. Full details of approved laboratories and registry examinations may be obtained by writing to the Registry of Medical Technologists; American Society of Clinical Pathologists; Muncie, Indiana.

The three years of study shown will fulfill the requirements of the Registry.

Professional Nurse Program

Three years of training in an approved hospital nursing school plus the courses shown in this program of study qualifies a student to take the examination for becoming a registered nurse.

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Bio 133—Anat. & Physiol.	4	Bio 134—Anat. & Physiol.	3
Chm 140—Fundamentals	4	Bio 245—Microbiology	4
Psy 231—General	3	Psy 232—Human Dev.	3
	13	Soc 131—Introduction	3
			16

Bachelor of Science in Nursing

The following first year program has been recommended for the student who plans to get a degree in nursing. For further study consult the catalog of the college where the degree is to be given and plan work at Lamar accordingly.

First Year		Summer Session	
Eng 131, 132—Composition	6	Eng 231, 232—Literature	6
Bio 141, 142—General	8	His 231, 232—United States	6
Chm 143, 144—Introductory	8		12
Electives (Approved)	12		
HPE—Activity	2		
	36		

Pre-Medical and Pre-Dental

Follow the same program shown for Bachelor of Science-Biology. Most medical and dental schools require three years or more of preprofessional training, and students may apply for entrance to the next class of such schools during their third or fourth year. Students who complete three years of the program may, after satisfactory completion of the first year in a

medical or dental school, apply for the degree of Bachelor of Science-Biology. Application for the degree under this plan must be made to the Registrar by June 15 of the year in which the degree is to be conferred.

Optometry.

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Mth 133—Trigonometry	3	Mth 138—Analytics	3
Mth 134—Algebra	3	Bio 142—General	4
Bio 141—General	4	Chm 142—General	4
Chm 141—General	4	HPE—Activity	1
HPE—Activity	1		
	18		15

Second Year

First Semester		Second Semester	
Eng 231—Literature	3	Gov 231—Constitutions	3
Mth 139—Calculus	3	Mth 231—Calculus	3
Phy 141—Mechanics	4	Phy 142—Electricity	4
Psy 231—General	3	Psy 431—Normal	3
His 231—United States	3	His 232—United States	3
HPE—Activity	1	HPE—Activity	1
	17		17

Consult catalog of chosen college of optometry for guidance in selecting courses.

Pharmacy

First Year		Second Year	
Bio 141, 142—General	8	Chm 341, 342—Organic	8
Chm 141, 142—General	8	Eco 231, 232—Principles	6
Eng 131, 132—Composition	6	Eng 231, 232—Literature	6
His 231, 232—United States	6	Gov 231, 232—State & Natl.	6
Mth 133, 134—Trig, Alg.	6	Phy 141, 142—General	8
HPE—Activity	2	HPE—Activity	2
	36		36

All colleges of pharmacy have a five year program, one preprofessional and four professional years. Students following the plan outlined above will be admitted to the second professional year of many colleges of pharmacy, including that of The University of Texas. Consult the catalog of chosen college for specific requirements.

Chiropody (Podiatry)

First Year		Second Year	
Bio 141, 142—General	8	Bio 340—Anat. and Kinesiology	4
Chm 141, 142—General	8	Bio 245—Microbiology	4
Eng 131, 132—Composition	6	Chm 243—Organic	4
Mth 133—Trigonometry	3	Chm 244—Physiological	4
Mth 134—Algebra	3	Eng 231, 232—Literature	6
HPE—Activity	2	Phy 141—Mechanics	4
Electives	6	Phy 142—Electricity, etc.	4
	36	HPE—Activity	2
			32

Consult catalog of school of choice for specific admission requirements.

Biology (Bio)

133-134—Human Anatomy and Physiology. Human anatomy and physiology with special emphasis on problems of nursing. Laboratory includes experiments in vertebrate physiology and the dissection of a mammal. Class: 2 hours. Laboratory: 2 hours. Credit: 3 semester hours for each semester.

141-142—General Biology. First semester devoted to the anatomy and physiology of man. Laboratory phase includes the dissection of the frog as a vertebrate type, and an elementary study of vertebrate tissues. Reproduction, development, and heredity of animals; disease, and immunity are studied during the first part of the second semester. The last part of the second semester is devoted to a survey of the animal and plant phyla, emphasizing the phylogenetic relationship of lower organisms, their natural history, and their bearing on human welfare. Either semester may be taken first, though the normal sequence is recommended. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours per semester.

241-242—Comparative Anatomy of the Vertebrates. Comparative anatomy presented from systemic viewpoint. Designed primarily for biology majors, pre-medical, and pre-dental students. Prerequisite: Bio 141-142. Class: 3 hours. Laboratory: 3 hours. Credit 4 semester hours per semester.

243—Microbiology. Micro-organisms with emphasis on bacteria in soil, water, milk, and sewage. Laboratory includes the isolation, cultivation, and identification of common bacteria. Recommended for biology majors, pre-medical, pre-dental, and medical technology students. Prerequisite: Bio 141-142. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

244—Disease and Immunity. Bacteria, rickettsiae and viruses in relation to disease. Theories of antigen-antibody responses are considered. Laboratory includes the isolation, cultivation, and identification of pathogenic bacteria, and the immunization of laboratory animals. Prerequisite: Bio 243. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

245—Microbiology for Nurses. Micro-organisms with emphasis on those of medical significance. Special consideration is given to problems of personal and community health. Laboratory includes the sterilization of culture media and glassware, cultivation and study of common bacteria. Recommended for students in nursing education. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

331—Genetics. General principles of heredity, including human inheritance. Prerequisite: Bio 141-142. Class: 3 hours. Credit: 3 semester hours.

340—Applied Anatomy and Kinesiology. Structural organization of the human body and the analysis of human motion. Includes skeletal system, attachments and actions of muscles. Emphasis is placed on the mechanics of support and of motion. Prerequisite: Bio 141-142. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

341—Histology and Histological Technique. The study of normal tissues of vertebrates. The technique phase of the course includes the fixation and

staining of tissues, paraffin and celloidin sections, conventional mounting. Designed for biology majors, pre-medical, pre-dental and medical technology students. Prerequisite: Bio 141-142 and 241-242 or 243-244. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

342—Embryology. A comparative study of the development of vertebrates, including maturation, fertilization, cleavage, and early embryology. Detailed organogeny of the chick. Recommended for biology majors, pre-medical and pre-dental students. Prerequisite: Bio 141-142. 241-242. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

343—Introduction to Medical Technology. Survey of procedures used in clinical laboratories, including practice in hematology, serology, and urinalysis. Designed for medical technology students. Prerequisite: Bio 141-142, 243-244. Class: 2 hours. Laboratory: 3 hours. Credit: 4 semester hours.

344—Advanced Physiology. Principles of general physiology, with special reference to cell metabolism, muscle-nerve relations, digestive, vascular, respiratory, excretory, nervous, and endocrine systems. Designed primarily for biology majors, pre-medical and pre-dental students. Prerequisite: Bio 141-142, 241-242 or 243-244 and Chm 243-244 or Chm 341-342. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

345—General Botany. An introduction to the general principles of plant life, including morphology, physiology, and classification of local flora. Designed to provide a foundation for advanced botany and agricultural applications. Recommended for biology majors. Prerequisite: Bio 141-142. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

346—Invertebrate Zoology. Detailed consideration of the invertebrate phyla, classification, natural history, phylogenetic relationships, and economic importance. Prerequisite: Bio 141-142. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

416-417—Current Biological Literature. Reports by advanced students and staff on research published in current professional periodicals. Required for biology majors. Recommended for pre-medical and pre-dental students. Prerequisite: Fifteen hours in biology. Class: 1 hour. Credit: 1 semester hour per semester.

430—Undergraduate Problems. Designed to afford opportunity for senior students to pursue individual interests in the investigation of problems in biology. Research to be directed by staff, and approval of department head required. Credit: 3 semester hours.

431—Seminar in Biological Sciences. Designed to enhance the biological science background of non-science majors. Relevant biological concepts, library research and synoptic reports, lectures by staff on special topics. Class: 3 hours. Credit: 3 semester hours.

440—Basic Biology for Teachers. Designed to strengthen the areas in which the biology teacher with a limited background in the biological sciences is most likely to wish additional training. The principles and methods of animal and plant collecting and identification, using standard taxonomic keys. The construction and maintenance of terraria, aquaria, and vivaria, with emphasis on the motivation of student participation in science fairs. Prerequisite: 3 years of teaching experience in science or mathematics. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

441—Parasitology. A study of animal parasites including morphology, life history, and host-parasite relationships, with special emphasis on helminthic parasites of man and other vertebrates. Prerequisite: Bio 141-2; Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

442—Entomology. The morphology, life history, and control of insects, with emphasis on the collection, identification, and classification of forms found in this area. Prerequisite: Bio 141-2; Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

443—Limnology. Fauna, flora, ecology and productivity of fresh water. Prerequisite: Bio 141-2; Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

444—Vertebrate Natural History. Amphibians, reptiles, birds, and mammals, with emphasis on collection, identification, and natural history of area forms. For the orientation of students entering professional biology as a career. Prerequisite: Bio 141-2; Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

DEPARTMENT OF CHEMISTRY

Professors Baker, Cameron, Cox, Eads, Mers. Associate Professors Edwards, Fields, Yerick. Assistant Professors Harmon, Mejia. Instructor Davis.

Program of Study

Bachelor of Science—Chemistry Major

American Chemical Society recommended program preparatory to graduate work in chemistry.

First Year

Chm 141, 142—General	8
Eng 131, 132—Composition	6
Mth 138—Analysis I	3
Mth 139—Analysis II	3
Ger 130, 131—Beginner's	6
Bio 141—General	4
Phy 140—Mechanics and Heat	4
HPE—Activity	2
	36

Second Year

Chm 241—Quantitative	4
Chm 333—Inorganic	3
Eng 231, 232—Literature	6
Mth 231—Analysis III	3
Ger 132, 233	6
Bio 142—General	4
Phy 241—Electricity and Mag.	4
Phy 232—Sound and Light	3
HPE—Activity	2
	35

Third Year

Chm 341, 342—Organic	8
Chm 343, 344—Physical	8
Gov 231, 232—State and Nat'l.	6
His 231, 232—State and Nat'l.	6
Electives	4
	32

Fourth Year

Chm 411, 412—Seminar	2
Chm 444—Organic Analysis	4
Chm 446—Instrumental Anal.	4
Chm 449—Intermediate Inorg.	4
Chm—Advanced	9
Electives	5
	33

Chemistry (Chm)

140—Fundamentals. For student nurses. An elementary survey of inorganic, organic, and biological chemistry. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

141—General. For students of science and engineering. General principles, problems, fundamental laws and theories. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

142—General. For students of science and engineering. A continuation of Chm 141. Elmentary qualitative analysis and theories of solutions and equilibrium. Properties of the elements. Prerequisite: Chm 141. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

143—Introductory. For non-science majors. A survey course in elementary chemistry. Lecture and laboratory work in inorganic chemistry. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

144—Introductory. For non-science majors. Continuation of Chm 143. A brief survey of qualitative analysis, elementary organic and physiological chemistry. Prerequisite: Chm 143 or 141. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

241—Quantitative Analysis. For science and engineering majors. Theory and practice of analytical chemistry, utilizing gravimetric and titrimetric techniques. Prerequisites: Chm 142, Mth 133, 134, with a grade of C or better in each. Class: 3 hours. Laboratory: 5 hours. Credit: 4 semester hours.

243—Organic. Fundamental principles of chemistry of aliphatic and aromatic compounds. Prerequisite: Chm 144 or 142. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

244—Physiological. An elementary course in physiological chemistry. Prerequisite: Chm 243 or 341. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

333—Inorganic. Generalizations involving atomic and nuclear theory. Relationships between extranuclear structures and general characteristics. Properties of the elements, with emphasis on similarities and differences within and between groups and transitional series. Non-aqueous solvents, acids, bases, oxidation-reduction, etc. Prerequisite: Chm 241, with grade of C or better. Class: 3 hours. Credit: 3 semester hours.

341—Organic. Current theories and chemical principles that relate to the field of organic chemistry. Hydro-carbons, alcohols, acids, ethers, anhydrides, esters, aldehydes, ketones, amines, amides, and halogen compounds. Prerequisite: Chm 142 with grade of C or better. Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

342—Organic. A continuation of Chm 341. Compounds containing unlike substituents, carbohydrates, the following groups of aromatic compounds: hydrocarbons, acids, derivatives of hydrocarbons, amines, diazo compounds, alcohols, phenols, ethers, aldehydes, ketones, quinones, dyes, cyclic compounds and proteins. Prerequisite: Chm 341. Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

343—Physical. Properties of substances in the gaseous, liquid, and solid states; physical properties and molecular structure; thermo-chemistry; solutions. Prerequisites: Chm 241, Phy 142 or 241, Mth 139-231. Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

344—Physical. Homogeneous and heterogenous equilibria; chemical kinetics; electro-chemistry; chemical therodynamics, colloids. Prerequisite: Chm 343. Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

411—Seminar. Reports and assigned reading. Pre-requisite: Senior standing in chemistry. Class: 1 hour. Credit: 1 semester hour.

412—Seminar. A continuation of Chm 411. Prerequisite: Senior standing in chemistry. Class: 1 hour. Credit: 1 semester hour.

431—Organic Preparations: A survey of organic chemistry from the standpoint of reaction types, their scope, and usefulness in organic synthesis. The laboratory preparation of organic materials with special attention to techniques and yields. Prerequisite: Chm 342. Class: 2 hours. Laboratory: 6 hours. Credit: 3 semester hours.

432—Advanced Analytical. Selected topics in contemporary analytical chemistry. Prerequisites: Chm 241, 341, 344 or parallel. Class: 3 hours. Credit: 3 semester hours.

433—Advanced Physical. Selected topics in physical chemistry. Prerequisites: Chm 241, 341, 344 (or parallel). Class: 3 hours. Credit: 3 semester hours.

434—Advanced Organic. Selected topics in modern organic chemistry. Prerequisites: Chm 342, 343 (or parallel). Class: 3 hours. Credit: 3 semester hours.

435—Advanced Organic. Selected topics in modern organic chemistry with particular emphasis on reaction mechanisms. Prerequisites: Chm 342, 343 (or parallel). Class: 3 hours. Credit: 3 semester hours.

436—Advanced Inorganic. Periodicity, valency, and the chemical bond. A consideration of complex-ions and coordination compounds. Prerequistes: Chm 241, 341, 343. Class: 3 hours. Credit: 3 semester hours.

439—Nuclear Chemistry. Theory of nuclear structure. Properties of nuclear radiations. Natural and artificial radioactivity and applications of radioactive tracers. Prerequisite: 24 semester hours of chemistry. Class: 3 hours. Credit: 3 semester hours.

440—Basic Chemistry for Teachers. To provide science teachers with a basic knowledge of modern chemistry. Lectures emphasize theoretical concepts and industrial applications of chemistry, and laboratory practice is given to help participants devise experiments and demonstrations suitable for use in high school chemistry. Prerequisite: 3 years of teaching experienc in science or mathematics. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

443—Biochemistry. Principles of biochemistry. Current theories of chemistry as applied to biological materials. Prerequisites: Chm 241, 342 (or parallel). Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

444—Qualitative Organic Analysis. A systematic study of methods for the identification of organic compounds and mixtures of organic compounds. Prerequisite: Grade of C or better in Chm 341 and 342. Class: 2 hours. Laboratory: 8 hours. Credit: 4 semester hours.

427, 437, 447—Introduction to Research. Senior chemistry students. Problems are on the under-graduate level and emphasize research techniques. Prerequisite: B average in all previous chemistry courses. Credit: 2, 3, or 4 semester hours.

446—Instrumental Methods of Analysis. Instrumental techniques in modern analytical chemistry. Theory and practice in optical, electrometric, and chromatographic methods. Prerequisites: Chm 241, 344 (or parallel), Mth 231, Phy 142 or 241. Class: 3 hours. Laboratory: 4 hours. Credit: 4 semester hours.

448—Radioactive Isotope Technique. Production of useful radioactive nuclei. Reaction of nuclear radiations with matter. Application of nuclear techniques to chemical problems with emphasis on safety precautions. Prerequisite: Chm 439. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

449—Intermediate Inorganic. Study of the quantized atom, periodicity, characteristics dependent on the extra nuclear structure. Valency and the chemical bond, complex ions and coordination compounds. Oxidation-reduction and oxidation potentials. Acids and bases and non-aqueous solvents. Laboratory will involve glass blowing used in vacuum research. Preparaiton of a dry box. Selected inorganic preparations and conductivity measurements in nonaqueous solvents. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

DEPARTMENT OF ENGLISH

Professors Hagelman, Barnes, Emmons, Stavrou. Associate Professors Abernethy, Allen, Berly, Branom, Frissell, Olson, Rule, Yeats. Assistant Professors Bird, Leitch, Renfrow, Thomas. Instructors Baker, Beachell, Carroll, DeGeorge, Fitch, Harvill, Merrill, Perry, Rodgers, Santucho, Scurlock, Wright.

Bachelor of Arts—English Major

An English major must complete thirty semester hours in English (including English 131-132, English 231-232, English 331-332, and twelve advanced hours) as indicated in the suggested plan of study listed below. The advanced semester hours in English should include one period course, one genre course, and one individual author course.

The plan shows the required forty-four semester hours of general education, eighteen semester hours for the minor, and thirty semester hours of electives. The minor consists of eighteen semester hours, six of which must be advanced. The major in English chooses his minor and many of his electives from economics, fine arts, foreign languages, government, history, mathematics, philosophy, sciences, sociology, and speech.

A minor in English consists of English 131-132, English 231-232, English 331-332, and six additional advanced hours.

English majors who plan to study for an advanced degree are advised to take a second foreign language as electives.

Program of Study

First Year		Second Year	
Eng 131-132 Composition	6	Eng 231-232 British Literature	6
His 131-132 World Civilization	6	His 231-232 United States	6
Foreign Language 131-132	6	Gov 231-232 State and National	6
*Mth	6	Foreign Languages 231-232	6
Electives	6	Electives	6
HPE (Activity)	2	HPE (Activity)	2
	32		32

Third Year		Fourth Year	
Eng 331-332 American Literature	6	Eng 430 History of the English Language	3
Eng	3	Eng	6
*Laboratory Science	8	Minor	9
Minor	9	Electives	12
Electives	6		
	32		30

*A second year of a different science may be substituted for the mathematics requirement, or a second year of mathematics may be substituted for the science requirement.

Teacher Certification—English

Students wishing to secure the Bachelor of Arts degree in English and at the same time to certify for a provisional certificate—secondary with a teaching field in English, must include in their degree program the following:

1. Six hours of mathematics and eight hours of science.
2. A 24-hour approved additional teaching field in the place of the minor (consult this catalog, School of Education).
3. English 334 in the place of English 430.
4. Eighteen hours of Education to include 331, 332, 338, 438, 462.
5. Approved electives sufficient to bring the total number of hours to 132.

Master of Arts—English Major

The Department of English offers two plans leading to the Master of Arts degree.

The **regular plan** requires the completion of thirty semester hours of graduate work: eighteen in English, six in thesis, and six in an approved minor or six additional hours in English. At least twelve semester hours, exclusive of the thesis, must be in English courses numbered 500 or above. The minor must be approved by the Head of the Department of English; such approval will be given on the basis of the support the minor can give to the major.

The **master teacher plan** requires the completion of thirty-six semester hours of graduate work: twelve in English, six in thesis, twelve in resource areas, and six in approved teacher education. With this combination plan, the student fulfills the requirements for the master's degree and is eligible to apply for the Professional Certificate—Secondary. At least nine semester hours, exclusive of the thesis course, must be in English courses numbered 500 or above.

The courses in the resource areas must be approved by the Head of the Department of English; such approval will be given on the basis of the support they can give to the major and on the specific needs of the graduate student.

The six semester hours of teacher education required in the master teacher plan must be taken in courses specifically approved for the master teacher plan in English.

English (Eng)

131—Rhetoric and Composition. Intelligent and critical reading of mature exposition; correct and effective expository writing. Collateral readings; frequent themes. Class: 3 hours. Credit: 3 semester hours.

132—Rhetoric and Composition. A continuation of English 131. The research paper. Introduction to literary genres. Prerequisite: English 131 with a grade of "C" or better. Class: 3 hours. Credit: 3 semester hours.

133—English for Foreign Students. (English 133 and 134 satisfy freshman English requirements for students whose first language is not English.) A course in composition, involving reading and writing as noted for English 131. Laboratory periods devoted to intensive individual reading, writing, and speaking English. Prerequisites: a score of 70 on the English Usage Test and a passing grade on the Oral Rating Form, both tests being those of the American Language Institute of Georgetown University. These tests should be taken before departure from native country. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

134—English for Foreign Students. A continuation of English 133. Continued emphasis upon the reading, writing, and speaking of English. Introduction to literary genres. The research paper. Prerequisite: English 133 with a grade of "C" or better. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

135—Rhetoric and Composition. An accelerated program for those exceptionally well prepared at time of enrollment. Extensive writing; finding, collecting, interpreting, and organizing source materials; introduction to literary genres. Offered first semester each year only. Satisfactory completion of the course meets requirements for freshman English. Class: 3 hours. Credit: 3 semester hours.

137—Grammar, Rhetoric, and Composition. Review for upperclassmen of the fundamentals of grammar, rhetoric, and composition with emphasis on the ability to write clearly, concisely, and correctly. Frequent themes; collateral reading. Prerequisite: freshman English. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

230—Masters of American Literature. A critical study of the major American writers from Franklin to Faulkner. May not be counted for English major credit. Prerequisite: English 132, 134, or 135 with a grade of "C" or better. Class: 3 hours. Credit: 3 semester hours.

231, 232—Survey of British Literature. A critical study of the literature of Great Britain from the Middle Ages to the present. Prerequisite. English 132, 134, or 135 with a grade of "C" or better. Class: 3 hours. Credit: 3 semester hours.

233, 234—Survey of World Literature. A critical and comparative study of the major works from classical, continental, and oriental literatures. Prerequisite: English 132, 134, or 135 with a grade of "C" or better. Class 3 hours. Credit: 3 semester hours.

(Note: Any combination of English 230, 231, 232, 233, or 234 will satisfy the general requirement for second year literature unless otherwise stated by a specific department.)

235—Survey of Journalism. History of journalism. Introduction to the make-up, organization, and major problems of the modern newspaper.

Gathering and reporting news. Students will gain experience from working with the college weekly newspaper. May not be counted for English major credit. Prerequisite: English 132, 134, or 135 with a grade of "C" or better and 24 semester hours of college work. Proficiency in typewriting is desirable. Class: 3 hours. Laboratory as needed. Credit: 3 semester hours.

236—Survey of Journalism. Preparation of copy for publication. Problems in editing, headline writing. May not be counted for English major credit. Prerequisite: Same as for English 235. Class: 3 hours. Laboratory as needed. Credit: 3 semester hours.

237—Expository Writing. Techniques of mature exposition. Prerequisite: English 132, 134, or 135 with a grade of "C" or better. Class: 3 hours. Credit: 3 semester hours.

331, 332—Survey of American Literature. A critical study of the literature of the United States from the colonial period to the present. Class: 3 hours. Credit: 3 semester hours.

333—Shakespeare. Rapid reading of the early histories, comedies, and tragedies. The development of Shakespeare as a dramatist; his relationship to the Elizabethan theater; his social, political, and literary background in the Tudor-Stuart era. Class: 3 hours. Credit: 3 semester hours.

334—Advanced Grammar. Intensive analysis of sentences; the concept of structural meaning. Prerequisite: Foreign language through 132. Class: 3 hours. Credit: 3 semester hours.

335—Creative Writing: A workshop approach to the writing of articles and brief fictional forms. Prerequisite: recommendation by the department head. Class: 3 hours. Credit: 3 semester hours.

336—The Short Story. The technique of the short story; its historical development; study and analysis of great short stories. Class: 3 hours. Credit: 3 semester hours.

337—The Drama. The historical development of the drama from Aeschylus to the present. Intensive study of selected plays. Class: 3 hours. Credit: 3 semester hours.

338—British Novel. The historical development of prose fiction in Great Britain. The novel as an art form. Intensive study of selected novels from Defoe to the present. Class: 3 hours. Credit: 3 semester hours.

339—American Novel. A study of the history, growth, and technique of the American novel, with emphasis on the novels of the twentieth century. Class: 3 hours. Credit: 3 semester hours.

3310—Introduction to Folklore. Development of the folk tale and the folk song from primitive to modern times. Emphasis on motifs, formulae, and theories of origin. Class: 3 hours. Credit: 3 semester hours.

3311—Technical Report Writing. Supervised preparation of technical and scientific reports according to standard usage recommended by scientific and engineering societies. May not be counted for English major credit.

Prerequisite: English 132, 134, or 135 with a grade of "C" or better. Class: 3 hours. Credit: 3 semester hours.

430—History of the English Language. Theory and nature of language. Studies in the growth of British and American forms. Prerequisite: Foreign language through 232. Class: 3 hours. Credit: 3 semester hours.

431—Chaucer. A study of the poetry and language of Chaucer with emphasis on the **Canterbury Tales.** Class: 3 hours. Credit: 3 semester hours.

432—The Age of Elizabeth. The non-dramatic literature of England from Skelton to Donne. Class: 3 hours. Credit: 3 semester hours.

433—The Age of Elizabeth. The dramatic literature of England, exclusive of Shakespeare, from Heywood to Ford. Class: 3 hours. Credit: 3 semester hours.

434—Shakespeare. Intensive study of selected major plays. Class: 3 hours. Credit: 3 semester hours.

435—The Seventeenth Century. The non-dramatic literature of England from the Metaphysical poets to Dryden. Class: 3 hours. Credit: 3 semester hours.

436—Milton. A study of Milton's poetry and prose against the social, political, and literary background of his time. Class: 3 hours. Credit: 3 semester hours.

437—Restoration and Eighteenth Century Drama. A study of the plays of the period: 1660-1800. Class: 3 hours. Credit: 3 semester hours.

438—The Eighteenth Century. The poetry and prose in England from the Restoration to the rise of Romanticism. Class: 3 hours. Credit: 3 semester hours.

439—The Romantic Period. An intensive study of the major authors of the period from Burns to Keats. Class: 3 hours. Credit: 3 semester hours.

4310—The Victorian Period. An intensive study of the major authors of the period from Carlyle to Swinburne. Class: 3 hours. Credit: 3 semester hours.

4313—The American Literary Renaissance: 1820-1860. An intensive study of the major authors of the period from Poe to Melville. Class: 3 hours. Credit: 3 semester hours.

4314—The Development of American Realism: 1860-1900. An intensive study of the major authors of the period from Whitman to Norris. Class: 3 hours. Credit: 3 semester hours.

4316—Literary Criticism. Chronological study of the great critics. An introduction to aesthetics. Prerequisite: senior standing. Class: 3 hours. Credit: 3 semester hours.

4317—Contemporary Drama. A study of dramatic trends and representative plays from Ibsen to the present. Class: 3 hours. Credit: 3 semester hours.

4318—Contemporary Poetry. A study of poetic developments in England and America with emphasis on representative poets from Hardy to the present. Class 3 hours. Credit: 3 semester hours.

4319—Contemporary Fiction. A study of prose fiction representative of modern ideas and trends, with emphasis on English and Continental authors. Class: 3 hours. 3 semester hours.

4320—Selected Problems in Comparative Literature. Intensive study of an author or authors, literary genre, or period selected from the range of world literature. Emphasis upon analysis and literary method. Class: 3 hours. Credit: 3 semester hours.

4325—Language: Sound and Meaning. Theory of language for non-English majors. A study of meaning as related to words and to grammatical features. English phonology as applied to orthography. May not be counted for English major credit. Class: 3 hours. Credit: 3 semester hours.

4329—Honors Reading Program for Seniors. A tutorial program for qualified seniors. Prerequisite: senior standing and recommendation of the department head. May not be counted for graduate credit. Credit: 3 semester hours.

530—Bibliography and Research Methods. An introduction to graduate research methods and sources. Basic course for all beginning graduate students. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

531—Old English. A study of the grammar and the reading of short selections from the poetry and prose written before 1200. Emphasis will be placed on vocabulary and the historical development of the language. Prerequisite: graduate standing and English 430 (History of the Language) or the equivalent. Class: 3 hours. Credit: 3 semester hours.

532—Middle English. A study of the grammar and the reading of short selections from literature of the period, 1200-1450. Emphasis will be placed on the development of the language into Modern English. Prerequisite: graduate standing and English 431 (Chaucer) or the equivalent. Class: 3 hours. Credit: 3 semester hours.

534—Studies in Medieval English Literature. An intensive study of an author or related authors selected from the Old English and Middle English periods. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

535—Studies in Renaissance and Seventeenth Century English Literature. An intensive study of an author or related authors selected from the

period. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

536—Studies in Restoration and Eighteenth Century English Literature. An intensive study of an author or related authors selected from the period. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: a graduate standing. Class: 3 hours. Credit: 3 semester hours.

537—Studies in Nineteenth Century English Literature. An intensive study of an author or related authors selected from the period. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

538—Studies in Twentieth Century Literature. An intensive study of an author or related authors selected from the period. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

539—Studies in American Literature. An intensive study of an author or related authors selected from the period. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

669—Thesis. Credit: 6 semester hours.

DEPARTMENT OF GEOLOGY

Professors Eveland, Aronow, Matthews
Assistant Professors Davis, Foss

Program of Study

Bachelor of Science—Geology Major.

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Bio 141—General	4	Bio 142—General	4
Chm 141—General	4	Chm 142—General	4
Geo 141—Physical	4	Geo 142—Historical	4
HPE—Activity	1	HPE—Activity	1
	16		16

Second Year

First Semester		Second Semester	
Gov 231—Constitutions	3	Gov 232—State & Natl.	3
Eng 231—Literature	3	Spc 131 or 331	3
Mth 133—Trigonometry	3	Mth 134—Algebra	3
Geo 241—Mineralogy	4	Geo 242—Petrology	4
Geo 233—Paleontology	3	Geo 234—Paleontology	3
HPE—Activity	1	HPE—Activity	1
	17		17

Third Year

First Semester		Second Semester	
Phy 141—Mech & Heat	4	Phy 142—Electricity	4
Mth 138—Anal Geom	3	Mth 139—Calculus	3
Geo 334—Geomorphology	3	Egr 223—Geol Drawing	2
Geo 341—Stratigraphy	4	Geo 342—Structure	4
Elective	3	Elective	3
	17		16

Summer

Geo 360-Field Camp—6

Fourth Year

First Semester		Second Semester	
His 231—United States	3	His 232—United States	3
Geo 431—Sedimentation	3	Geo 432—Petroleum	3
Geo 446—Optical Min	4	Geo 434—Geology of U.S.	3
Electives	6	Geo 419—Seminar	1
	16	Electives	6
			16

Students who wish to specialize in geophysics should elect the following courses: Geo 433, Mth 231 and 331, E. E. 345.

Bachelor of Arts—Geology Major.

First Year

(Same as for Bachelor of Science)

Second Year

First Semester		Second Semester	
Eng 231—Literature	3	Eng 232—Literature	3
Mth 134—Algebra	3	Mth 133—Trigonometry	3
Foreign Language	3	Foreign Language	3
Geo 241—Mineralogy	4	Geo 242—Petrology	4
Geo 233—Paleontology	3	Geo 234—Paleontology	3
	16		16

Third Year

First Semester		Second Semester	
Gov 231—Constitutions	3	Gov 232—State & National	3
Foreign Language	3	Foreign Language	3
Geo 341—Stratigraphy	4	Geo 342—Structure	4
Geo 334—Geomorphology	3	Electives	6
Elective	3		16
	16		

Fourth Year

First Semester		Second Semester	
Social Science	3	Social Science	3
His 231—United States	3	His 232—United States	3
1 Senior Geo Course	3	1 Senior Geo Course	3
Electives	6	Electives	6
	15		15

Geology courses above the 100 level must have grades of "C" or better if used to meet degree requirements for the geology major.

Geology (Geo)

141—Physical Geology. Earth materials, structure, land forms, mineral resources, and the process which have formed them. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

142—Historical Geology. History of the earth and its life. Prerequisite: Geo 141. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

230—Geology for Engineers. A survey of physical geology with emphasis on geologic problems in engineering practice. Primarily for engineering students. A student may not receive credit for both Geo 230 and Geo 141. Class: 2 hours. Laboratory: 2 hours. Credit: 3 semester hours.

233, 234—Paleontology. The classification, morphology and identification of invertebrate fossils. Field trip required. Prerequisite: Geo. 142.

Class: 2 hours. Laboratory: 2 hours. Credit: 3 semester hours each semester.

237—Physical Geography. The fundamental concepts of local, regional, and global geography. Prerequisite: sophomore standing. Class: 3 hours. Credit: 3 semester hours.

239—History of Life. History of the earth and its inhabitants, with emphasis on the life forms and their development. Includes the study of rocks, geologic time, fossils, and prehistoric man. Only for students having no geology credit. Class: 3 hours. Credit: 3 semester hours.

241—Mineralogy. The classification, properties, occurrence, and identification of minerals. Field trip required. Prerequisites: Geo 141 and Chm 141. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

242—Petrology. The classification, properties, occurrence, and identification of igneous, sedimentary, and metamorphic rocks. Field trip required. Prerequisite: Geo 241. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

326—Maps and Field Methods. The interpretation and preparation of geologic maps and reports. Use of air photos. Field methods. Prerequisite: Geo 242. Laboratory: 4 hours. Credit: 2 semester hours.

334—Geomorphology. The development and classifications of land forms. Field trip required. Prerequisite: Geo 142. Class: 3 hours. Credit: 3 semester hours.

341—Stratigraphy. The history, distribution, and correlation of sedimentary strata. Field trip required. Prerequisite: Geo 233. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

342—Structural Geology. Rock deformation and the resulting structures. Field trip required. Prerequisite: Geo 142 and Mth 133. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

360—Summer Field Course. Description of stratigraphic sections, preparation of geologic maps and field reports. Duration: 6 weeks. Total cost: $200-$300. Prerequisites: Geo 342 and E.Dr. 223. Credit: 6 semester hours.

419—Seminar. Reports on current literature. Prerequisite: senior standing. Class: 1 hour. Credit: 1 semester hour.

427, 428—Special Project. An individual library, laboratory, or field project. To receive credit, an acceptable typewritten report is required. Credit: maximum of 4 semester hours.

430—Earth Science Seminar. A survey of earth materials and processes, earth history, astronomy, and meteorology. Identification of mineral, rock, and fossil specimens, and cloud formations. Demonstrations of topographic, geologic, and weather maps. Designed for non-science majors. Prerequisite: senior or graduate standing. Class: 3 hours. Credit: 3 semester hours.

431—Sedimentation. The derivation, transportation, and deposition of sediments, with emphasis on environmental factors. Laboratory techniques for the study of sediments. Field trip required. Prerequisite: Geo 242. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

432—Petroleum Geology. The origin, accumulation, and geologic distribution of petroleum. Subsurface methods: electric and lithologic logs, structure contour maps, sample analysis. Field trips required. Prerequisites: Geo 342 and 431. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

433—Geophysics. Application of the principles of physics to geologic problems. Use of geophysical techniques in petroleum exploration. Prerequisite: Geo 342. Class: 3 hours. Credit: 3 semester hours.

434—Geology of the United States. A regional study of the topography, physiography, and geologic history of the United States. Prerequisites: Geo 342 and 334. Class: 3 hours. Credit: 3 semester hours.

435—Water-Supply Geology. The hydrologic cycle pertaining to recharge, movement and discharge of surface and ground-waters. Exploration, development and quality of water supplies. Prerequisite: Geo 342. Class: 3 hours. Credit: 3 semester hours.

437—Economic Geology. Occurrence and origin of commercially valuable metallic and non-metallic minerals and rocks. Exploration and development of deposits. Field trip required. Prerequisite: Geo 242 and 342. Class: 3 hours. Credit: 3 semester hours.

438, 439—Micropaleontology. The classification, morphology, and identification of microfossils, with emphasis on the Order Foraminifera. Prerequisite: Geo 234. Class: 1 hour. Laboratory: 4 hours. Credit: 3 semester hours each semester.

446—Optical Mineralogy. Optical properties of minerals. Use of the polarizing microscope in the identification of minerals and rocks. Prerequisite: Geo 242. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

DEPARTMENT OF GOVERNMENT

Professors Dawson, Fornell. Associate Professor Tucker.
Assistant Professors Coffey, Mahood, Stevens. Instructor Stanga.

Courses in the Department of Government are designed to prepare the student to become (1) a functioning citizen, (2) a teacher of government or social science, (3) a government employee on the national, state, or local levels, (4) a foreign service employee, (5) an analyst in public affairs for private industrial and commercial firms, labor unions, or endowed research institutes, (6) an active participant in the political processes.

The Department of Government serves in an advisory capacity for pre-law students. Each student having such interest is guided toward fulfilling the entrance requirement for law school and is given the preparatory background for his future work.

The major in government is based on the principle of a liberal education, with attention to the social sciences, and emphasis on the theory and practice of governments. Students in government should take certain basic courses in all fields of government but a minimum of three hours of constitutional law and political thought is mandatory. Courses in advanced government are offered in the following fields: American government and politics, Comparative government (British, European, Far Eastern), International relations (organization, politics, and law), Public administration, Political thought, Public law,

In general 231 and 232 are prerequisites to all advanced courses in government. A student with a major in government is required to complete a minimum of twenty-four hours in government and eighteen hours in a minor from the fields of history, English, sociology, economics, business or foreign language. Listed below is a suggested program of study leading to the degree of Bachelor of Arts or Bachelor of Science in government. The student of government is strongly urged to work toward the Bachelor of Arts degree.

Bachelor of Arts—Government

First Year		Second Year	
Eng 131, 132—Composition	6	Eng 231, 232—British Lit	6
Science or Math*	6-8	Science or Math	6-8
Language**	6	Gov 231, 232—St and Nat	6
Electives***	12	His 231, 232—United States	6
HPE—Activity	2	Language	6
	32	HPE—Activity	2
			32

***Selected from His 131, 132, Phl 231, 232, Soc 131, 132, Spc 131.

Third Year		Fourth Year	
Gov	9	Gov	9
Minor	9	Minor	9
Electives	12	Electives	12
	30		30

*This requirement may be met by taking 16 semester hours in laboratory science (two different sciences) or 12 semester hours in mathematics or 6 hours of mathematics and 8 semester hours of science.

**The foreign language is the completion of the 232 course in any foreign language. If a student has no high school credit in any language, he begins with the 130; if he has two years of a foreign language in high school, he begins with 132. The order of courses is: 130, 131, 132, 231 and 232.

Teacher Certification—Government

Students wishing to secure the Bachelor of Arts degree in government and at the same time to certify for a provisional certificate—secondary with a teaching field in government, must include in their degree program the following:

1. Six hours of mathematics and eight hours of science.
2. The minor must be expanded to include a 24 hour (approved) additional teaching field—consult this catalog, School of Education.
3. Advanced government courses must include the following: 331, 332, 334, 436 or 437, six hours from 431, 432, 433.
4. Eighteen hours of Education to include 331, 332, 338, 438, 462.
5. Approved electives sufficient to bring the total number of hours to 132.

Bachelor of Science—Government

The Bachelor of Science degree differs from the Bachelor of Arts in that approved electives may be substituted for the foreign language requirement, and that the minimum number of hours for graduation is 128.

First Year		Second Year	
Eng 131, 132—Composition	6	Eng 231, 232—British Lit	6
Science or Math	6-8	Science or Math	6-8
Electives*	18	Gov 231, 232—St and Nat	6
HPE—Activity	2	His 231, 232—United States	6
	32	Electives	6
		HPE—Activity	2
			32

*Selected from His 131, 132, Phl 231, 232, Soc 131, 132, Spc 131

Third Year		Fourth Year	
Gov	9	Gov	10
Minor	9	Minor	9
Electives	15	Electives	12
	33		31

Government (Gov)

231—The American Constitutional System, Federal and State. A study of the background and composition of the national and state constitution; local government; the federal and state judiciaries; civil liberties. Prerequisite: sophomore standing. Class: 3 hours. Credit: 3 semester hours.

232—American and State Government Organization and Functions. A study of political parties; the legislative and executive branches; functions of both national and state government; foreign policy. Prerequisite: sophomore standing. Class: 3 hours. Credit: 3 semester hours.

331—The Governments of Great Britain, France, and Germany. A comparative study of the democratic governments of Western Europe. Class: 3 hours. Credit: 3 semester hours.

332—International Politics. A study of the concepts underlying the Western State system; nationalism and imperialism; the techniques and instruments of power politics; and the foreign policies of selected states. Class: 3 hours. Credit: 3 semester hours.

333—The Governments of the Soviet Union and Eastern Europe. A comparative study of the governments of the Soviet Union and Eastern Europe. Class: 3 hours. Credit: 3 semester hours.

334—American Political Parties. A study of political parties in terms of their theory, their history, and their practical function in contemporary American politics. Class: 3 hours. Credit: 3 semester hours.

335—The American Presidency and the Congress. The role of the office in political and diplomatic, social and economic terms, as well as in its policy making aspects, and particularly in its relation to the Congress. Class: 3 hours. Credit: 3 semester hours.

336—International Law and Organizations. Elements of international law and principles and practices of international organizations. Class: 3 hours. Credit: 3 semester hours.

337—American Diplomacy. Historical development and selected problems of American diplomacy. (Government 337 and History 337 may not both be counted.) Class: 3 hours. Credit: 3 semester hours.

338—Governments of Latin America. The development of governments and politics in principle countries of South America with emphasis on factors that have conditioned political organization and contemporary political movements. Class: 3 hours. Credit: 3 semester hours.

339—Municipal Government and Administration. The organization, development, functions, and problems of city government in the United States. Designed generally for those interested in a career in City or County government. Class: 3 hours. Credit: 3 semester hours.

419—Seminar. Current issues, problems, and literature in the various specialized areas of government. Credit: 1 semester hour.

430—Public Personnel Administration. The civil service movement; staffing, the human problem, position and pay classification, employment relations, and the machinery which has been developed for handling personnel matters. Class: 3 hours. Credit: 3 semester hours.

431—History of Political Thought I. The chief concepts of outstanding political thinkers from the Greeks through the Reformation. Class: 3 hours. Credit: 3 semester hours.

432—History of Political Thought II. A continuation of Government 431 from the Reformation through Karl Marx. Class: 3 hours. Credit: 3 semester hours.

433—History of Political Thought III. A continuation of Government 432 from Karl Marx to the present with attention given to modern American thought. Class: 3 hours. Credit: 3 semester hours.

434—Government Regulation of Economic Enterprise. Relationship of government to the economic system; causes, scope, and methods of administrative regulation; problems in government operations. Class: 3 hours. Credit: 3 semester hours.

435—Introduction to Public Administration. A survey of American public administration, with emphasis upon modern problems and trends. Class: 3 hours. Credit: 3 semester hours.

436—American Constitutional Law and Development. Development of the American Constitution through judicial interpretation with particular emphasis on cases dealing with federalism, Congress, and the executive. Class: 3 hours. Credit: 3 semester hours.

437—American Constitutional Law and Development. A continuation of Government 436 with particular emphasis upon cases dealing with commerce, due process, and civil rights. Class: 3 hours. Credit: 3 semester hours.

438—Far Eastern Governments and Politics. A comparative study of the constitutions, governmental organization, and political developments in Japan, China, and India since World War II, considered against the social and economic background. Class: 3 hours. Credit: 3 semester hours.

439—Reading Program for Seniors. A specially arranged reading program for qualified seniors. Credit: 3 semester hours.

DEPARTMENT OF HISTORY

Professors Williams, Wooster. Associate Professors Evans, Isaac, Josserand, Norton. Assistant Professors Johnson, Parsons, Ware, Woodland. Instructors Gwin, Lambert.

Bachelor of Arts—History Major

The degree of Bachelor of Arts in History will be awarded upon the completion of the following requirements:

A. General Requirements

English 131-132—Composition
Literature—six semester hours
Mathematics—six semester hours
Science—laboratory—eight semester hours (in same science)
Completion of the 232 course in a foreign language
Government 231-232—State and National
Physical Education or Band—four semester hours

B. Major

History 131-132—World History
History 231-232—United States History
Advanced United States history—six semester hours
Advanced World (non-United States) history—six semester hours

C. Minor

An approved minor of eighteen semester hours, including at least six advanced semester hours.

D. Electives

Sufficient approved electives to complete a total of 126 semester hours

Teacher Certification—History

Students wishing to secure the Bachelor of Arts degree in history and at the same time certify for a provisional certificate—secondary with a teaching field in history, must include in their degree program the following:

1. An approved twenty-four hour additional teaching field (See Department of Education section of this catalog for a list of approved teaching fields.)
2. Education 331, 332, 338, 438, and 462
3. Sufficient approved electives to complete a total of 132 semester hours

Suggested Program of Study

First Year		Second Year	
His 131-132—World History	6	His 231-232—United States	6
Eng 131-132—Composition	6	Eng 231-232—British Lit	6
Foreign Language	6	Foreign Language	6
Science or Mathematics	6-8	Science or Mathematics	6-8
Electives	6	Gov 231-232—St. and Nat.	6
HPE (Activity)	2	HPE (activity)	2
	32-34		32-34

Third Year		Fourth Year	
His (adv.)	6	His (adv.)	6
Edu 331, 332, 338 or Electives	9	Edu 438 and 462 or Electives	9
Minor (or other Teaching Field) and Electives	15-18	Minor (or other Teaching Field) and Electives	15-18
	30-33		30-33

Bachelor of Science—History Major

The degree of Bachelor of Science in History will be awarded upon the completion of the requirements for the Bachelor of Arts in History with the following modifications:

1. Approved advanced electives substituted for the foreign language requirement
2. Sufficient approved electives to complete a total of 128 semester hours

The provisional certificate—secondary with a teaching field in history is not granted in conjunction with the Bachelor of Science in History.

Suggested Program of Study

First Year		Second Year	
His 131-132—World History	6	His 231-232—United States	6
Eng 131-132—Composition	6	Eng 231-232—British Lit	6
Science or Mathematics	6-8	Science or Mathematics	6-8
Electives	12	Gov 231-232—St. and Nat.	6
HPE (Activity)	2	Electives	6
	32-34	HPE (activity)	2
			32-34

Third Year		Fourth Year	
His (adv.)	6	His (adv.)	6
Electives (adv.)	6	Electives (adv.)	6
Minor and Electives	20	Minor and Electives	18
	32		30

Master of Arts—History Major

The Department of History offers two plans of work leading to the Master of Arts degree.

The **regular plan** requires the completion of thirty semester hours of graduate work: eighteen in history, six in thesis, and six in an approved minor or six additional hours in history. At least twelve semester hours, exclusive of the thesis, must be in history courses numbered 500 or above. The minor must be approved by the Head of the Department of History; such approval will be given on the basis of the support the minor can give to the major.

The **master teacher plan** requires the completion of thirty-six semester hours of graduate work: twelve in history, six in thesis, twelve in resource areas, and six in approved teacher education. With this combination plan, the student fulfills the requirements for both the master's degree and the Professional Certificate—Secondary. At least nine semester hours, exclusive of the thesis, must be in history courses numbered 500 or above.

The courses in the resource areas must be approved by the Head of the Department of History; such approval will be given on the basis of the support they can give to the major, and on the specific needs of the graduate student.

The six semester hours of teacher education required in the master teacher plan must be taken in courses specifically approved for the master teacher plan in history.

History (His)

131—History of World Civilization I. Survey of world history to 1715. Class: 3 hours. Credit: 3 semester huors.

132—History of World Civilization II. Survey of world history from 1715 to the present. Prerequisite: History 131. Class: 3 hours. Credit: 3 semester hours.

231—History of the United States I. Survey of United States history to 1865. Prerequisite: sophomore standing. Class: 3 hours. Credit: 3 semester hours.

232—History of the United States II. Survey of United States history from 1865 to the present. Prerequisite: History 231. Class: 3 hours. Credit: 3 semester hours.

234—History of Texas. Survey of Texas history from the beginning to the present time. Prerequisite: sophomore standing. Class: 3 hours: Credit: 3 semester hours.

331—Social and Intellectual History of the United States to 1865. Life and thought in the United States prior to 1865. Class: 3 hours. Credit: 3 semester hours.

332—Social and Intellectual History of the United States Since 1865. Life and thought in the United States since 1865. Class: 3 hours. Credit: 3 semester hours.

333—Economic History of the United States. Origin and development of American economic institutions. Class: 3 hours. Credit: 3 semester hours.

334—Military History of the United States. History of American warfare and the development of American military institutions and practices. Class: 3 hours. Credit: 3 semester hours.

335—Classical Civilization. Greece and Rome from earliest times to the fall of the Roman Empire in the West. Class: 3 hours. Credit: 3 semester hours.

336—Medieval Civilization. Western Europe and the Mediterranean area from the late Roman period to 1453. Class: 3 hours. Credit: 3 semester hours.

337—Diplomatic History of the United States. Historical development and selected problems of American diplomacy. (History 337 and Government 337 may not both be counted). Class: 3 hours. Credit: 3 semester hours.

338—Tudor and Early Stuart England. England from 1485 to 1660. Class: 3 hours. Credit: 3 semester hours.

339—Late Stuart and Hanoverian England. England (Great Britain) from 1660 to 1832. Class: 3 hours. Credit: 3 semester hours.

419—Senior Seminar. Contemporary interpretations of the major periods and movements of history. Class: 1 hour. Credit: 1 semester hour.

430—Era of the Renaissance and Reformation. Western Europe from 1453 to 1660. Class: 3 hours. Credit: 3 semester hours.

431—The Old Regime. Western Europe from 1660 to 1783. Class: 3 hours. Credit: 3 semester hours.

432—The French Revolution and Napoleon. Western Europe from 1783 to 1815. Class: 3 hours. Credit: 3 semester hours.

433—Russia and Eastern Europe to 1815. Russia, Poland, and the Balkans from the period of the Byzantine Empire to 1815. Class: 3 hours. Credit: 3 semester hours.

434—Nineteenth Century Europe. Europe from 1815 to 1914. Class: 3 hours. Credit: 3 semester hours.

435—Twentieth Century Europe. Europe since 1914. Class: 3 hours. Credit: 3 semester hours.

436—The American West. The American West from the Louisiana Purchase to the present. Class: 3 hours. Credit: 3 semester hours.

437—The American South. The American South from colonial times to the present. Class: 3 hours. Credit: 3 semester hours.

438—Victorian England. Great Britain from 1832 to 1914. Class: 3 hours. Credit: 3 semester hours.

439—Reading Program for Seniors. A specially arranged reading program for qualified seniors. Credit: 3 semester hours.

4310—Problems in World History: Ancient and Medieval. Class: 3 hours. Credit: 3 semester hours.

4311—Problems in World History: Modern. Class: 3 hours. Credit: 3 semester hours.

4312—The Colonial and Revolutionary Period: The United States to 1789. Class: 3 hours. Credit: 3 semester hours.

4313—The Early National Period: The United States from 1789 to 1848. Class: 3 hours. Credit: 3 semester hours.

4314—The Civil War: The United States from 1848 to 1865: Class: 3 hours. Credit: 3 semester hours.

4315—Reconstruction and Industrialization: The United States from 1865 to 1898. Class: 3 hours. Credit: 3 semester hours.

4316—World Power and Reform: The United States from 1898 to 1929. Class: 3 hours. Credit: 3 semester hours.

4317—New Deal and World Leadership: The United States Since 1929. Class: 3 hours. Credit: 3 semester hours.

530—History of Historical Writing. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

531—Sources and Literature of Early United States History. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

532—Sources and Literature of Recent United States History. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

533—Sources and Literature of Modern European History. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

534—Sources and Literature of Modern British History. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

535—Seminar in Texas History. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing: Class: 3 hours. Credit: 3 semester hours.

536—Seminar in Southern History. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

537—Seminar in Early United States History. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

538—Seminar in Recent United States History. Course may be repeated for a maximum of six semester hours credit when the topic varies. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

669—Thesis. Prerequisite: admission to candidacy for the master's degree. Credit: 6 semester hours.

DEPARTMENT OF MODERN LANGUAGES

Professor Zellner. Associate Professor Lockhart. Assistant Professor Perret. Instructors Francis, Harvey, Smith.

The language requirement for a Bachelor of Arts degree is the completion of the 232 course.

Students who plan to do graduate work are advised to study two foreign languages while earning the Bachelor of Arts degree.

Advanced Status. If a student has achieved one year of high school language he may register for course 131 in the language studied in high school. He may register for course 132 if he has passed two years of high school study in the language elected for college.

Prerequisite requirements may be waived according to the student's proficiency in the language—the proficiency being objectively determined by language placement examinations.

A student who desires a more advanced status may take an achievement test. If the student successfully completes the course in which he is placed with a grade of "C" or better, he will receive credit for the prerequisite courses beginning with the 131 course. A student may receive no more than six semester hours credit in this manner.

A student will be required to take course 130 if he has no high school credits in his elected language. If his placement test score is low he must take course 130 even if he has earned high school credits in a language.

Advanced Credit. A student who wishes advanced credit must take the College Board Advanced Placement Examination in his elected language. He will receive credit based on test scores achieved and determined by the language department.

Bachelor of Arts—French Major

A French major must complete twenty-four semester hours in French beyond the 131-132 course. The courses required are French 231-232 and eighteen advanced hours which include French 333, 334 (Introduction to French Literature), French 335, 336 (Advanced Composition and Conversation) plus six additional advanced hours.

An approved minor consists of eighteen semester hours, six of which must be advanced. A French major usually selects his minor in a second language (German or Spanish) or in the fields of English, history, government, or sociology.

A minor in French, German, or Spanish consists of 18 semester hours of one language including at least six semester hours of advanced courses in the minor language elected. Only six of these hours may be earned by a student's proficiency score on a placement examination.

Program of Study

First Year

Fre 131-132 Beginners	6
Eng 131-132 Composition	6
Sci	8
Spc 131 Fund	3
Phl 231, Soc 131, or Ant 231	3
HPE Activity	2
Elec	6
	34

Second Year

Fre 231-232 Intermediate	6
Eng 231-232 Brit Lit	6
His 231-232 United States	6
Mth	6
HPE Activity	2
Elec	6
	32

Third Year

Fre 333-334 Literature	6
Fre 335 Adv Composition	3
Gov 231-232 St and Nat	6
Elec. (incl. minor)	18
	33

Fourth Year

Fre 336 Adv. Composition	3
Fre (Adv. hrs.)	6
Elec. (incl. minor)	21
	30
Total degree hours	129

Teacher Certification.

Students who wish to be certified to teach foreign language in the public schools may choose one or both teaching fields in foreign language.

The above program must be expanded to 132 hours to include 18 hours of education courses (331, 332, 338, 438, 462) as well as an additional teaching field of 24 required hours in the field selected.

A teaching field in foreign language (French, German, Spanish) must include the 231, 232, 333, 334, 335, 336 courses in the language chosen.

French (Fre)

130—Conversation and Fundamentals. Pronunciation, conversation, dictation, introduction to fundamentals of language. Use of recordings. Class: 3 hours. Credit: 3 semester hours.

131, 132—Beginner's French. Reading, grammar, conversation, and exercises in composition. Use of recordings. Prerequisite for 131: French 130 with a grade of "C" or better or 1 year of high school French. Prerequisite for 132: French 131 or 2 years of high school French. Class: 3 hours. Credit: 3 semester hours per course.

231, 232—Intermediate French. Composition, reading, conversation, review grammar. Prerequisite: French 132. Class: 3 hours. Credit: 3 semester hours per course.

233—Technical Translation. Translation of technical articles and books. Science and math majors may substitute French 233 for French 232 to

meet the Bachelor degree requirement. Prerequisite: French 132. Class: 3 hours. Credit: 3 semester hours.

333—Introduction to French Literature. Survey of French literature through the eighteenth century. Readings from significant works. Lectures, readings, oral and written reports. Prerequisite: French 232. Class: 3 hours. Credit: 3 semester hours.

334—Introduction to French Literature. Survey of French literature since the eighteenth century. Readings from significant works. Lectures, readings, oral and written reports. Prerequisite: French 232. Class: 3 hours. Credit: 3 semester hours.

335—Advanced Composition. Prerequisite: French 232. Class: 3 hours. Credit: 3 semester hours.

336—Advanced Composition and Conversation. Prerequisite: French 335. Class: 3 hours. Credit: 3 semester hours. Required for French major.

431—The Nineteenth Century French Novel. Prerequisite: 6 hours of advanced courses in French. Class: 3 hours. Credit: 3 semester hours.

432—French Drama After 1800. Prerequisite: 6 hours of advanced courses in French. Class: 3 hours. Credit: 3 semester hours.

German (Ger)

130—Conversation and Fundamentals. Pronunciation, conversation, dictation, introduction to fundamentals of language. Use of recordings. Class: 3 hours. Credit: 3 semester hours.

131, 132—Beginners' German. Reading, grammar, conversation, and exercises in composition. Use of recordings. Prerequisite for 131: German 130 with a grade of "C" or better or 1 year of high school German. Prerequisite for 132: German 131 or 2 years of high school German. Class: 3 hours. Credit: 3 semester hours per course.

231, 232—Intermediate German. Composition, reading, conversation, review of grammar. Prerequisite: German 132. Class: 3 hours. Credit: 3 semester hours per course.

233—Technical Translation. Translation of technical articles and books. Science majors may substitute German 233 for German 232 course to meet the Bachelor of Arts degree requirement. Prerequisite: German 132. Class: 3 hours. Credit: 3 semester hours.

333, 334—Survey of German Literature. Reading of significant works. Lectures, reading, oral and written reports. Prerequisite: German 232. Class: 3 hours per semester. Credit: 3 hours per semester.

335—Advanced Composition. Prerequisite: German 232. Class: 3 hours. Credit: 3 semester hours.

336—Advanced Composition and Conversation. Prerequisite: German 335. Class: 3 hours. Credit: 3 semester hours.

Spanish (Spa)

130—Conversation and Fundamentals. Pronunciation, conversation, dictation, introduction to fundamentals of language. Use of recordings. Class: 3 hours. Credit: 3 semester hours.

131, 132—Beginners' Spanish. Reading, grammar, conversation, and exercises in composition. Use of recordings. Prerequisite for 131: Spanish 130 with a grade of "C" or better or 1 year of high school Spanish. Prerequisite for 132: Spanish 131 or 2 years of high school Spanish. Class: 3 hours. Credit: 3 semester hours per course.

231, 232—Intermediate Spanish. Composition, reading, conversation, review of grammar. Prerequisite: Spanish 132. Class: 3 hours. Credit: 3 semester hours per course.

333—Introduction to Spanish Literature. Survey of Spanish history and literature. Reading from significant works in Spanish literature. Lectures, readings, oral and written reports. Prerequisite: Spanish 232. Class: 3 hours. Credit: 3 semester hours.

334—Introduction to Spanish-American Literature. Survey of Spanish-American literature and civilization. Study of outstanding writers and their works. Lectures, readings, oral and written reports. Prerequisite: Spanish 232. Class: 3 hours. Credit: 3 semester hours.

335—Advanced Composition. Prerequisite: Spanish 232. Class: 3 hours. Credit: 3 semester hours.

336—Advanced Composition and Conversation. Prerequisite: Spanish 335. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF PHYSICS

Professor Rigney. Associate Professors Biser, Landegren.
Assistant Professors Goines, Shepherd.

High school preparation for the physics major must include 2 units of algebra and ½ unit of trigonometry. Those having inadequate high school mathematics must take Math. 133 and/or Math. 134 to make up the deficiency, preferably in the summer session preceding the freshman year of college.

Program of Study

Bachelor of Science—Physics Major

First Year

First Semester		Second Semester	
Chm 141—General	3-3-4	Chm 142—General	3-3-4
Eng 131—Composition	3-0-3	Eng 132—Composition	3-0-3
Ger 130—Convers. and Fund.	3-0-3	Ger 131—Beginner's	3-0-3
Mth 138—Analysis I	3-0-3	Mth 139—Analysis II	3-0-3
HPE—Activity	0-3-1	Phy 140—Heat and Mech.	3-3-4
Elective	3	HPE—Activity	0-3-1
	17		18

Second Year

First Semester		Second Semester	
Eng—Literature	3-0-3	Eng—Literature	3-0-3
Ger 132—Beginner's	3-0-3	Ger 233—Technical Trans.	3-0-3
Mth 231—Analysis III	3-0-3	Mth 232—Analysis IV	3-0-3
Phy 241—Elec. and Mag.	3-3-4	Mth 331—Diff. Eq.	3-0-3
HPE—Activity	0-3-1	Phy 232—Light and Sound	2-3-3
Elective	3	HPE—Activity	0-3-1
	17		16

Third Year

First Semester		Second Semester	
Gov 231—Constitutions	3-0-3	Gov 232—State and Natl.	3-0-3
His 231—United States	3-0-3	His 232—United States	3-0-3
Mth 4301—Adv. Calc. for Engr.	3-0-3	Mth—Elective	3-0-3
Phy 335—Atomic	3-0-3	Phy 333—Anal. Mech.	3-0-3
Phy 346—Elec. Meas.	2-4-4	Phy 338—Adv. El. and Mag.	3-0-3
	16		15

Fourth Year

Mth—Electives	6
Phy 314, 315, 436—Modern Lab., Nuclear	5
Phy 448—Optics	4
Phy—Electives	4

Science or Engr. Electives	6 to 8
Electives	6 to 8
	33

Physics (Phy)

137—Descriptive Astronomy. A survey of facts and an introduction to important astronomical theories. The solar system, stars, nebulae, and star systems. Class: 2 hours. Demonstration and discussion: 1 hour. Credit: 3 semester hours.

138—Descriptive Astronomy. A continuation of Physics 137. Double stars, variable stars, star clusters and nebulae. Stellar theories. Class: 3 hours. Credit: 3 semester hours.

140—Engineering Physics—Mechanics and Heat. Emphasis is placed on derivations, units, and problem-solving. Prerequisites: Credit for or registration in Math. 139. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

141—General Physics—Mechanics, Sound, and Heat. Designed for majors in the physical or natural sciences. Emphasis placed upon understanding and application of basic physical laws. Prerequisites: Credit for or registration in Math. 133 and 134. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

142—General Physics—Electricity, Magnetism, Light and Modern Physics. A continuation of Phys. 141. Prerequisite: Phys. 141. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

143, 144—Physical Science. A survey course in the physical science fields. Topics are selected from physics, chemistry, geology, astronomy, and meteorology to illustrate the philosophy and methods of science. Designed for non-science majors. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours per semester.

232—Engineering Physics—Sound and Light. Emphasis is placed on derivations, units, and problem-solving. Prerequisite: Physics 140 and credit for or registration in Math. 231. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

241—Engineering Physics—Electricity, Magnetism and Modern Physics. Emphasis is placed on derivations, units, and problem-solving. Prerequisites: Physics 140 and credit for or registration in Math. 231. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

314, 315—Modern Physics Laboratory. Selected experiments such as determination of the electronic charge and mass, and of Planck's constant; blackbody radiation; gamma ray spectroscopy; specific heats of crystalline solids, mobility of electrons in semiconductors. Prerequisite: Registration in or credit for Physics 335. Laboratory: 3 hours. Credit: 1 semester hour.

333—Analytical Mechanics. Use of vector notation in formulating and applying Newton's laws and the principles of momentum and energy. Dynamics of particles and rigid bodies emphasized. Statics treated briefly. Prerequisites: Physics 140 or 141-142 and credit or registration in Math. 331. Class: 3 hours. Credit: 3 semester hours.

335—Atomic Physics. Conservation laws; special relativity; quantum effects; atomic structure; X-rays; nuclear and solid state physics. Prerequisites: Phys. 241-232 or Phys. 141-142, and Math. 231. Class: 3 hours. Credit: 3 semester hours.

338—Advanced Electricity and Magnetism. Electrostatic field; magnetic field; potential; capacitance; dielectrics; electromagnetic waves. Maxwell's equations; conduction in gases; thermoelectricity. Prerequisites: Phys. 141-142 or 241-232 and credit for or registration in Math. 331. Class: 3 hours. Credit: 3 semester hours.

339—Heat, Thermodynamics and Statistical Mechanics. Temperature and thermometry; internal energy, enthalpy, and entropy; introduction to the kinetic theory of gases and the Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics. Prerequisites: Phy 141-142 or Phy 241-232 and Mth 232. Class: 3 hours. Credit: 3 semester hours.

346—Electrical Measurements. Ammeter and voltmeter methods; ballistic galvanometer and capacitor methods; the current galvanometer; various bridge methods; potentiometer and standard cell methods. The precise measurement of current, power, magnetic flux, capacitance, and inductance. Prerequisite: Phys. 241 or 141-142 and Math. 231. Class: 2 hours. Laboratory: 4 hours. Credit: 4 semester hours.

414, 415—Experimental Projects. Building of experimental apparatus under the supervision of a faculty member. Prerequisite: 6 hours of physics numbered above 300. Laboratory: 3 hours. Credit: 1 semester hour.

416, 417—Seminar. Reports on current publications and on topics not treated in other physics courses. Prerequisite: 6 semester hours of advanced physics (Numbered above 300). Class: 1 hour. Credit: 1 semester hour per semester.

430—Seminar in Physical Science. Designed for non-science majors. Measurements, light, the solar system, and stars; force and motion, work and energy, heat, weather; lightning, electric charge and current, magnetism; voltage, batteries, atoms and molecules. Class: 3 hours. Credit: 3 semester hours.

431—Classical Mechanics. Generalized coordinates. Lagrange's equations of motion. Methods of solving Lagrange's equations. Hamilton's equations and the principle of least action. Hamilton-Jacobi partial differential equations. Prerequisite: Physics 333 or M. E. 234, and Math. 331. Class: 3 hours. Credit: 3 semester hours.

432—Introductory Theoretical Physics. Basic concepts of quantum mechanics. Schrodinger's equation; wave functions. Prerequisite: Physics 333 or 431, Phys. 335, and Math 331. Class: 3 hours. Credit: 3 semester hours.

433—Solid State Physics. Crystal structure; binding forces; mechanical and thermal properties; electrical conductivity; semiconductors; dielectric properties; magnetic properties; surface effects; phosphors and photoconductivity. Prerequisites: Physics 241-232 or Physics 141-142 and Math. 231. Class: 3 hours. Credit: 3 semester hours.

436—Nuclear Physics. Natural radioactivity; the positron; the neutron; artificial disintegration; central forces; nuclear scattering of alpha particles; charged particle accelerators; nuclear fission; isotope separation; cosmic rays; the meson; particles and waves. Prerequisite: Phys. 335. Class: 3 hours. Credit: 3 semester hours.

437—Astrophysics. Analysis of light; solar spectroscopy; solar and planetary temperatures; atomic theory as applied to stars; stellar photometry and spectroscopy; proper motions of stars, double stars; luminosities; temperatures and diameters of stars; variable stars; star clusters; the galaxy; the nebulae; stellar atmosphere and interiors; evolution of stars; the "expanding universe"; radio astronomy. Prerequisite: Phys. 141-142 or Phys. 241-232. Class: 3 hours. Credit: 3 semester hours.

440—Basic Physics for Teachers. Fundamental principles and concepts; force and work; energy and momentum; conservation laws; electric charge and current; magnetism; optics. Laboratory periods will be devoted to the individual's use of inexpensive materials to devise experiments and demonstrations suitable for high school laboratories. Prerequisite: 3 years of teaching experience in science or mathematics. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

448—Optics. Geometric and physical optics. Thick lens; lens systems; aberrations; lens design; spectroscope; interference; diffraction and resolving power; polarized light. Prerequisite: Phys. 141-142 and Math. 139 or Phys. 241-232. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

DEPARTMENT OF SOCIOLOGY

Professors Boren, Davis. Associate Professor Gibson. Assistant Professors Drenan, Zaner. Instructors Bullion, Butler, Snyder.

Bachelor of Arts—Sociology Major

Program of Study

First Year

Eng 131, 132-Composition	6
His 131, 132-World History	6
Language	6
Science or Mth	6-8
Soc 131-Introduction	3
Soc 132-Social Problems	3
HPE-Activity	2
	32-34

Second Year

Eng-Literature	6
His 231, 232-United States	6
Language	6
Science or Mth	6-8
Soc	3
Elective or minor field	3
HPE-Activity	2
	32-34

Third Year

Gov 231, 232-State & Natl	6
Soc	6-9
Minor field	6-9
Electives	6-9
	30

Fourth Year

Soc	6- 9
Minor Field	6-12
Electives	6-12
	30

Bachelor of Science—Sociology Major

The program of study follows that outlined above for the Bachelor of Arts Degree with approved elective courses substituted for the indicated courses in language.

Anthropology (Ant)

231—Introduction. The nature, development, and differentiation of man as a biological organism, and of culture as his distinctive creation and possession. Class: 3 hours. Credit: 3 semester hours.

232—Cultural Anthropology. The nature of culture, its development, transmission, and change. Class: 3 hours. Credit: 3 semester hours.

233—Primitive Society. Analysis and comparison of the culture and the conditions of life in selected non-industrial societies. Class: 3 hours. Credit: 3 semester hours.

Geography (Geg)

230—World Geography. Characteristics of major geographic regions; relationship of geographic environment to human society and culture. Class: 3 hours. Credit: 3 semester hours.

Philosophy (Phl)

231—Introduction. General characteristics of philosophy as a field of knowledge and as a method of inquiry. Class: 3 hours. Credit: 3 semester hours.

232—Logic. Nature and methods of correct reasoning; deductive and inductive proof; logical fallacies. Class: 3 hours. Credit: 3 semester hours.

233—History of Philosophy, I, Ancient and Medieval Philosophy. The development of Western philosophic thought from its inception in Greece to the end of the Medieval period. Class: 3 hours. Credit: 3 semester hours.

234.—History of Philosophy, II, Modern Philosophy. The development of philosophic thought from the Renaissance through the nineteenth century; emphasis upon philosophers of the seventeenth and eighteenth centuries. Class: 3 hours. Credit: 3 semester hours.

Sociology (Soc)

131—Introduction. Sociology as a field of knowledge. Basic terms, concepts, and theories of sociology applied to an explanation of human behavior, personality, groups, and society. Class: 3 hours. Credit: 3 semester hours.

132—Social Problems. Attributes of society and of persons which are subject to disapproval; the causes, extent, and consequences of these problems; programs and prospects of their resolution. Class: 3 hours. Credit: 3 semester hours.

233—Marriage and the Family. Characteristics of and problems within courtship, marriage, and family in American society. Class: 3 hours. Credit: 3 semester hours.

330—American Society. Description and analysis of structural and functional characteristics of American society and culture. Class: 3 hours. Credit: 3 semester hours.

331—The Field of Social Welfare. Historical development and current theory and practice of social welfare and social work. Class: 3 hours. Credit: 3 semester hours.

332—Social Psychology. Social and cultural influences upon individual behavior and personality; inter-personal and inter-group relations and collective behavior. Class: 3 hours. Credit: 3 semester hours.

333—Urban Sociology. Social and ecological processes in the urbanization movement; characteristics of urban society and culture. Class: 3 hours. Credit: 3 semester hours.

334—Industrial Sociology. The social structure of industry and of the trade union; inter-relationships of industry, union, and society; personal, social, and cultural factors in industrial organization and operation. Class: 3 hours. Credit: 3 semester hours.

335—Social Work Techniques. Theory and method of social case work and social group work practice. Class: 3 hours. Credit: 3 semester hours.

336—Race Relations. Racial and cultural minority groups within society; causes and consequences of prejudice and discrimination and of changes in the relationships between minority and dominant groups. Class: 3 hours. Credit: 3 semester hours.

337—Rural Sociology. Characteristics of and changes in rural population and rural social institutions; problems of the rural community and neighborhood. Class: 3 hours. Credit: 3 semester hours.

338—Criminology. Extent of and explanations for crime in American society; agencies dealing with crime and criminals; programs for control and prevention of crime and delinquency. Class: 3 hours. Credit: 3 semester hours.

339—Sociology of Education. Sociological analysis of the educational system and process; education and the school as related to community, society, and culture. Class: 3 hours. Credit: 3 semester hours.

419—Sources and Materials. Determination of available published materials dealing with topics or problems of sociological interest. Class: Individual conferences. Credit: 1 semester hour.

430—Seminar in Principles of Sociology. Basic concepts and general principles of sociology as applied to the study of the individual, the group, and society. Class: 3 hours. Credit: 3 semester hours.

431—Population Problems. The growth and composition of population with emphasis on social, economic, and political problems. Class: 3 hours. Credit: 3 semester hours.

433—Social Control. The social processes which maintain social order; controls of society upon individual behavior; socialization as the process of development of conforming personality; the problems of order and authority in society. Class: 3 hours. Credit: 3 semester hours.

434—Social Change. Theories of social and cultural change. Science and technology as stimulators of change; social problems and disorganization as consequences of change; social planning for the control of social change. Class: 3 hours. Credit: 3 semester hours.

435—Sociology of Religion. Religion as a social institution; cultural foundations, social and individual functions, and principles of development of religious systems. Class: 3 hours. Credit: 3 semester hours.

436—Social Movements. Historical, structural, and tactical considerations in the development of major systems of belief and practice within society; political movements in American society. Class: 3 hours. Credit: 3 semester hours.

437—Public Opinion. Factors and processes in formation and change of public opinion; influence of the mass media of communication; analysis and evaluation of propaganda. Class: 3 hours. Credit: 3 semester hours.

439—Reading Program. Directed reading, conferences, and formal report on an assigned topic of sociological significance. Class: individual conferences. Credit: 3 semester hours.

COURSES IN BIBLE AND RELIGIOUS EDUCATION

Offered by the Association of Teachers of Religion

The courses described below are offered just off campus. If credit is desired, the fees are the same as for any college course.

A student may take as much as three semester hours of Bible study each semester for a total of two semesters. If the field of study warrants it, the student's academic dean may approve a total of twelve semester hours taken over a period of four semesters.

The instructors and locations of the chairs are as follows:

The Reverend James A. Wray
Baptist Bible Chair
912 East Virginia

The Reverend John D. Worrell
Canterbury Bible Chair (Episcopal)
796 East Virginia

Mr. Arthur E. Garner
Church of Christ Bible Chair
1018 East Virginia

The Reverend Arthur M. Pry
United Christian Fellowship
896 East Virginia

The Reverend Donald O. Robertson
United Christian Fellowship
896 East Virginia

Bible (Bib)

131—The Old Testament. A critical study of the Old Testament and its relevance to Western culture. Class: 3 hours. Credit: 3 semester hours.

132—The New Testament. A critical study of the New Testament, its historical context, and the beginnings of the Christian Church. Class: 3 hours. Credit: 3 semester hours.

133—The Life and Teachings of Jesus. A critical study of the Gospels, the person and work of Jesus of Nazareth. Class: 3 hours. Credit: 3 semester hours.

134—The Life and Letters of St. Paul A study of the life and ministry of St. Paul and the major portion of the Pauline letters. Class: 3 hours. Credit: 3 semester hours.

221—The Bible, Its Origin and Browth. A study of how the Bible came to be as it is today, with particular emphasis on date, authorship purpose, and canonization of the books contained within it. Class: 2 hours. Credit: 2 semester hours.

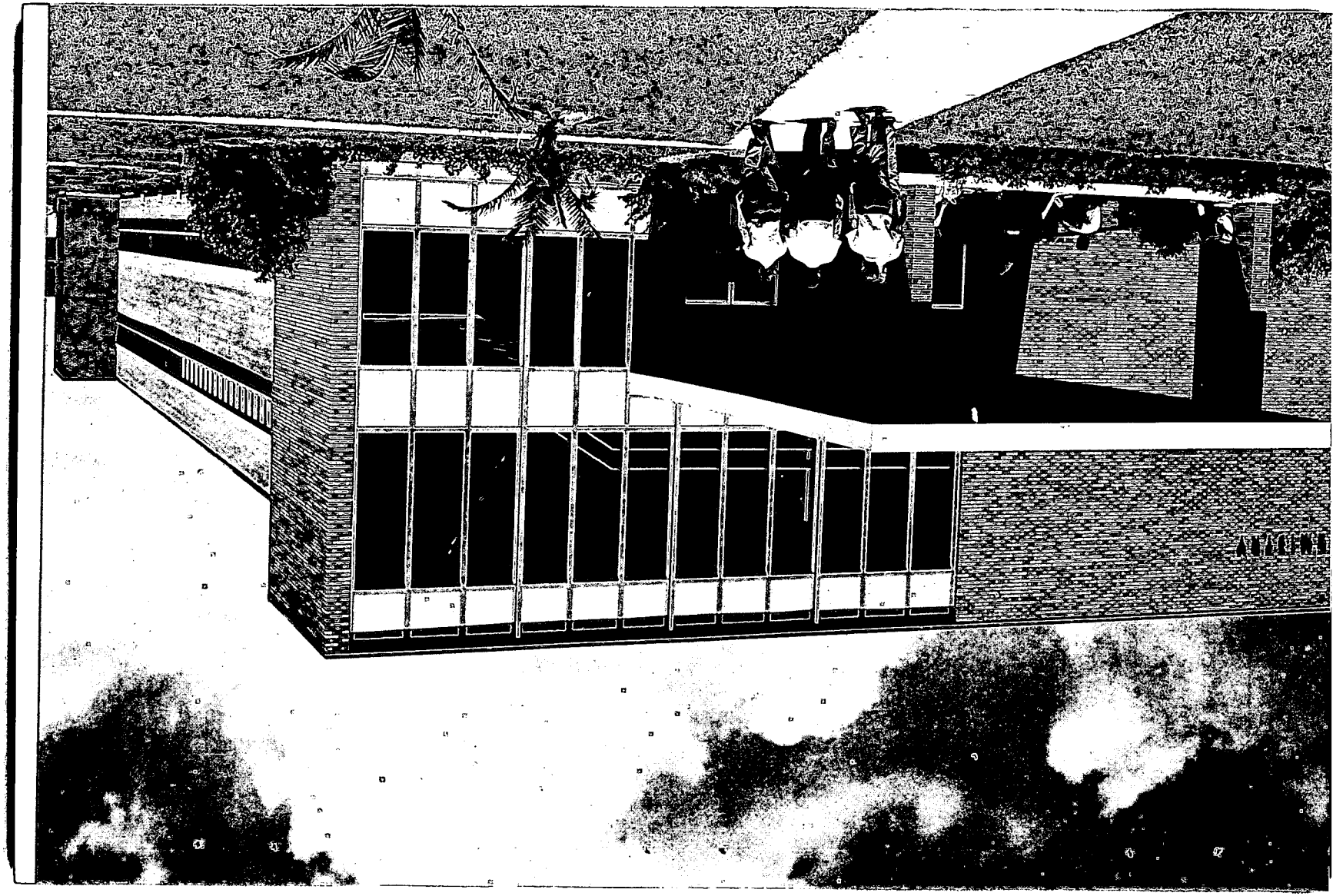
231—Church History. The history of the Christian Church, including the General Councils, the missionary movements, the Reformation, and the transition to the modern scene. Class: 3 hours. Credit: 3 semester hours.

232—Christian Ethics. The relation of the Christian Faith to daily living, with particular emphasis on vocation, courtship and marriage, the person, and society. Class: 3 hours. Credit: 3 semester hours.

233—The Prophets of the Old Testament. A study of the major and minor prophets and the role they played in the development of the religion of Israel. Class: 3 hours. Credit: 3 semester hours.

331—Philosophy of Religion. Planned to describe the points of view in religious philosophy which are of vigorous contemporary influence, and to analyze the basic issues between them, including a study of religion as such, its historical development, with some emphasis on major contemporary religions. Class: 3 hours. Credit: 3 semester hours.

332—Great Ideas of the Bible. Planned to present to Biblical concepts of God, man, history, covenant, prophecy, vocation, and related ideas. Class: 3 hours. Credit: 3 semester hours.



SCHOOL OF BUSINESS

Departments

Accounting
Business Administration
Economics
Secretarial Science

School of Business

Professors Landes, Bennett, Hall, Kirksey.
Associate Professors Barlow, McMichael, D. Taylor,
L. Taylor, Thornhill, Williams.
Assistant Professors Baldwin, Darsey, Davis,
Galliher, Jones, Pearson, Parigi, Sladczyk,
Stelley, P. Taylor,* Vaughn.
Instructors Allen, Stead.

The School of Business was established by the College in 1954. Prior to this time degrees in business and economics were granted by the Division of Business which began in 1951.

The School of Business is divided into four departments: Accounting, Business Administration, Secretarial Science, and Economics. The Bachelor of Business Administration degree is granted in all areas. A three-year program especially designed for Pre-Law students is offered in the area of General Business.

OBJECTIVES

The faculty of the School of Business believes that the education of the modern businessman should include a well-rounded general education as well as professional study to provide a thorough understanding of environment and heritage. Such an understanding is necessary if American industries are to meet their responsibilities in a changing social and industrial order.

Of equal importance is the business graduate's understanding the social, legal, governmental, and economic framework within which the American industrial organizations exist and operate. The general educational requirements are patterned to develop such understandings.

The professional education offered reflects the belief that theory and not techniques should be the proper concern of the undergraduate student. A selected body of fundamental business theory is presented in the core pattern of business subjects. This theory is developed along with certain basic quantitative tools of analysis and communication as preparation for the specialized professional courses.

Regardless of the position a graduate may fill in the business world, he will need to understand the consistent relativity of all areas and functions of business operations. The development of such basic business understandings is the objective of the core courses in business and economics required of all business graduates.

The specialized professional preparation of the student provides opportunities for a study in a particular field of interest. It prepares a graduate to assume a position of responsibility in business, public service, or education.

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*On Leave of Absence

The attainment of these objectives requires not only a given pattern of courses but also successful teaching and research. In classroom presentation, the School utilizes many approaches including lecture, discussion, case method, individual research projects, etc. Lower level courses are presented primarily from a historic and descriptive point of view, while the upper level courses are designed to develop the student's ability to analyze and utilize research findings in problem-solving situations.

DEGREES

The **Bachelor of Business Administration** curriculum consists of three distinct phases: Non-professional Education, Professional Specialization, and electives.

The degree will be awarded upon the completion of the following:

I. Curriculum Requirements

Plan I

A. Non-professional Education Courses (63 semester hours)
- Eco 231, 232—Principles of Economics
- Eng 131, 132—Composition
- Gov 231, 232—State and National
- His 231, 232—United States
- Literature—six semester hours
- Spc 131—Fundamentals of Speech
- Soc, Phl, or Ant—three semester hours
- Mth 131, 132—Algebra and Descriptive Geometry, Finite
- Physical Education or Band—four semester hours
- Science—eight semester hours (in same science)
- Non-professional Education Electives (nine semester hours)
  Nine semester hours selected from the following fields: (must include six semester hours of 300 or 400 level courses—exceptions may be made in areas of foreign languge and math)—Anthropology, English, Speech, Math, Foreign Language, Government, History, Philosophy, and Sociology, and psychology.

B. Pre-professional Courses (five semester hours)
- BA 134—Introduction to Business
- Sec 127—Office Machines

C. Professional Core Courses (34 semester hours)*
- Acc 231, 232—Principles of Accounting
- BA 331—Business Law
- BA 332—Principles of Finance
- BA 334—Principles of Marketing
- BA 335—Industrial Management
- BA 431, 432—Business Statistics
- Eco 339—Economics of the Firm
- Eco 438—Macro Economics
- Sec 344—Business Communications

*Slightly different program of courses required by the Department of Secretarial Science for students planning to secure teacher certification. See Department of Secretarial Science in this catalog.

D. Professional Specialization (21-22 semester hours)

Acc. Major (22 sem. hours)

Acc 331, 332—Inter. Acc.
Acc 334—Cost Acc.
Acc 346—Tax Acc.
Acc 430—Auditing
Acc 431, 432—Adv. Acc.

Economics Major (21 sem. hours)

See Department of Economics in this catalog for specific requirements in this area of specialization.

Gen. Bus. Major (21 sem. hours)

BA 333—Insurance
BA 336—Per. Management
BA 4314—Admin. Policies
Eco 433—Hist. of Eco. Tht.
Eco 437—Inter. Theory
6 semester hours of advanced courses in Acc., BA, or Eco.

Management Major (21 sem. hours)

Acc 334—Cost Acc.
BA 330—Elem. of Super.
BA 435—Human Relations
BA 436—Production Control
BA 4313—Job Evaluation
BA 4314—Admin. Policies
Eco 336—Labor Eco.

Marketing Major (21 sem. hours)

BA 336—Per. Management
BA 337—Prin. of Selling
BA 338—Retailing
BA 433—Advertising
BA 4311—Sales Management
BA 4312—Marketing Problems
Eco 437—Inter. Theory or
Acc 334—Cost Acc.

Sec. Sci. Major (21 sem. hours)

BA 336—Per. Management
BA 437—Investments
Sec 132—Inter. Typing
Sec 331—Sec. Off. Procedures
Sec 332—Dict. & Trans.
Sec. 363—Adv. Shorthand

E. Approved Electives (8-9 semester hours—300 or 400 level courses) To complete a total of 132 semester hours.

BBA—General Business

Plan II

The Plan II program is designed for distinguished students with superior ability. The pattern of courses required will develop a particularly strong background for graduate work. All students enrolling in the Plan II program must have the approval of the Dean of the School of Business. In general, such approval will be given only if the student's high school record and college entrance test scores give evidence of scholastic excellence.

A. Non-professional Education Courses (75 semester hours)

Eco 233—Prin. and Policies
Eng 131, 132—Composition
*Foreign Language—twelve semester hours
Gov 231, 232—State and National
His 231, 232—United States
Literature—six semester hours

Mth—twelve semester hours (including 6 sem. hours of Calculus)
Phl 231—Introduction or Phl 232—Logic
Psy 231—General
Science—eight semester hours (in same science)
Soc 330—American Society
Spc 331—Professional Speech
Physical Education or Band—four semester hours

*One year of science may be substituted for the second year of foreign language when a student has completed two years of the same language on the high school level.

B. Professional Core Courses (28 semester hours)
Acc 231, 232—Prin. of Acc.
BA 331—Bus. Law
BA 332—Prin. of Finance
BA 334—Prin. of Marketing
BA 431, 432—Business Statistics
BA 436—Prod. Control
Sec 344—Business Communications

C. Professional Specialization (18 semester hours)
Acc 331, 332—Inter. Acc.
BA 435—Human Relations
BA 4314—Admin. Policy
Eco 433—Hist. of Eco. Thought
Eco 437—Inter. Theory

D. Approved Electives (12 semester hours—upper level courses including six hours of economics)
To complete a total of 133 semester hours.

II. A minimum grade-point average of 1.00 in all business and economics subjects.

III. A minimum grade-point average of 1.00 in all work required for degree.

IV. Application for the degree must be made through the office of the Dean of Business at least one year in advance of the proposed graduation date.

The **Bachelor of Arts** degree in Economics will be awarded upon completion of the following requirements:

I. The specific course requirements as set forth in the department of economics for the degree. (See department of economics in this catalog.)

II. A minimum grade-point average of 1.00 in all economics courses.

III. A minimum grade-point average of 1.00 in all work required for the degree.

IV. A minimum of 126 semester hours exclusive of physical education and band.

V. A minimum of 24 semester hours in the field of economics

VI. A minor of 18 semester hours, six of which must be of 300 or 400 level courses.

SELECTION OF A MAJOR

Every candidate for a degree must choose a major field in the School of Business. This choice must be made before the beginning of the junior year and is subject to the approval of the head of the department of the major field.

DEPARTMENT OF ACCOUNTING

Business and industry are controlled largely through the findings of adequate accounting systems. Accounting is concerned with the analytical recording of transactions related to a large variety of businesses, institutions, and industries, including interpretations of resulting data. Decisions and policies of significance are based on information obtained through the medium of accounting procedures.

The program in Accounting is designed for those students seeking careers in either private or public accounting.

Program of Study

Bachelor of Business Administration—Accounting Major

First Year		Second Year	
BA 134—Int. to Bus	3	*Acc 231, 232—Prin.	6
Eng 131, 132—Comp	6	Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach.	2	Gov 231—Cont. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	Elective	3
HPE—Activity	2		32
	33		

Third Year		Fourth Year	
Acc 331, 332—Interm.	6	Acc 346—Taxation	4
Acc 334—Elem. Cost	3	Acc 430—Auditing	3
BA 331—Bus Law	3	Acc 431, 432—Advanced	6
BA 332—Prin. of Finance	3	BA 334—Marketing	3
BA 431, 432—Bus Ststcs.	6	BA 335—Indus. Mgmt.	3
Eco 339—Eco. of Firm	3	Eco 438—Macro Eco.	3
Gov 232—National	3	Sec 344—Bus. Commun.	4
Electives	6	Electives	8
	33		34

*Grade of "C" or better must be attained in Acc 231-232 by all accounting majors.

Accounting (Acc)

231—Principles of Accounting. Procedures and techniques used in recording business transactions and preparing financial statements. Journalization; posting; statement preparation; controlling accounts and subsidiary ledgers; adjusting and closing entries; voucher system. Class: 3 hours. Credit: 3 semester hours.

232—Principles of Accounting. Continuation of Acc. 231 with special attention given the financial statements; cash and receivables; fixed assets; prepaid expenses; liabilities; capital stock and related owners' equity; manufacturing accounting; installment sales; branch accounts. Class: 3 hours. Credit: 3 semester hours.

331—Intermediate Accounting. Analysis of special problems and theories of current assets and corporation accounting. Capital stock; surplus and dividends; treasury stock; cash; receivables; inventories; net income concepts; corrections of prior year's earnings. Prerequisite: Acc 232. Class: 3 hours. Credit: 3 semester hours.

332—Intermediate Accounting. Continuation of Acc 331 with stress on the interpretation of data relative to managerial decisions. Investments; fixed assets; liabilities and reserves; analysis of operations; ratios; statement of application of funds. Class: 3 hours. Credit: 3 semester hours.

334—Cost Accounting. Job order and process cost approach to the control of manufacturing operation. Material; labor; overhead allocation; departmentalization; budgeting: data presentation. Prerequisite: Acc 232. Class: 3 hours. Credit: 3 semester hours.

335—Accounting Systems. Analysis of theoretical models illustrating the structure, design, and installation of specific types of systems. Insurance companies; public utilities; banks; retail stores; etc. Prerequisite: Acc 232. Class: 3 hours. Credit: 3 semester hours.

346—Taxation Accounting. Provisions of the internal revenue income tax code as applied to individuals and business firms. Taxable income; deductions; gains and losses; capital gains; withholding taxes; partnerships; corporations. Prerequisite: Acc 232. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

337—Municipal and Governmental Accounting. Special procedures for enterprises operating under appropriated budgets with attention given to federal, state, municipal governmental units. Bond funds; special assessment funds; general funds; budgets; financial statements. Class: 3 hours. Credit: 3 semester hours.

430—Auditing. Principles and procedures applied by public accountants and auditors in the examination of financial statements and accounts. Verification of data; audit working papers; reports: types of audits; procedures. Prerequisite: Acc 332. Class: 3 hours. Credit: 3 semester hours.

431—Advanced Accounting. Selected theories relative to business enterprises. Partnership operations; venture accounts; consignments; installment

sales; insurance; receivership; interest; annuities. Prerequisite: Acc 332. Class: 3 hours. Credit: 3 semester hours.

432—Advanced Accounting. Continuation of Acc. 431 including the preparation and interpretation of consolidated statements for related corporations. Estates and trusts; home office and branch records; parent and subsidiary relationships; consolidated statements. Class: 3 hours. Credit: 3 semester hours.

433—C. P. A. Review. Preparation for candidates for the Certified Public Accountants' examination through review and study of problems and questions relative to the examinations. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF BUSINESS ADMINISTRATION

The Department of Business Administration offers the following fields of concentration: General Business, Management, and Marketing.

The General Business curriculum requires the basic core fundamentals of business but does not require any major field of concentration. Students who do not have a specific objective in mind will find that this degree plan gives them ample opportunity to explore a number of professional fields and prepares them for initial employment in a multitude of business careers.

The purpose of the Management curriculum is to give the student an understanding of the fundamentals of management and the relationship between all functional areas of business control. This program will equip the student to advance more rapidly to an executive position in industry. A student may specialize in personnel management or in production management by exercising given options in the pattern of course work required.

The Marketing curriculum provides information concerning buying, transporting, selling of goods as now performed by the service organizations in our economy. Over one-fourth of all the employed workers in America are engaged in some phase of marketing. This field has countless opportunities for specialists.

Pre-Law

The Department of Business Administration offers a three-year program especially designed for pre-law students. Students completing the program may enter directly into the law school of their choice.

Upon completion of the first year in an approved school of law and upon proper application, a student may receive the Bachelor of Business Administration degree from Lamar State College of Technology.

A second plan for pre-law students is offered in the School of Arts and Sciences.

Programs of Study

Bachelor of Business Administration—General Business Major (Plan I)

First Year		Second Year	
BA 134—Int. to Bus.	3	Acc 231, 232—Prin.	6
Eng 131, 132—Comp.	6	Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach.	2	Gov 231—Const. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	*Electives	3
HPE—Activity	2		32
	33		

Third Year		Fourth Year	
BA 331—Bus. Law	3	BA 333—Insurance	3
BA 332—Prin. of Finance	3	BA 335—Indust. Mgmt.	3
BA 334—Marketing	3	BA 336—Per. Mgmt.	3
BA 431, 432—Bus. Ststcs	6	BA 4314—Admin. Policy	3
Eco 339—Eco. of Firm	3	Eco 433—His. of Eco. Tht.	3
Gov 232—National	3	Eco 437—Interm. Theory	3
Sec 344—Bus. Commun.	4	Eco 438—Macro Eco	3
*Electives	8	*Electives	13
	33		34

*Approved Electives—Must include non-professional electives and six semester hours of upper level courses in Business Administration and Economics.

Bachelor of Business Administration—General Business Major (Plan II)**

First Year		Second Year	
Eng 131, 132—Comp.	6	Acc 231, 232—Prin.	6
Foreign Language	6	Eco 233—Prin.	3
Mth	6	Foreign Language or Science	6
Phl 231 or 232	3	His 231, 232—United States	6
Psy 231	3	Mth (Calculus)	6
Science	8	Soc 330	3
HPE—Activity	2	HPE—Activity	2
	34		32

**Admission to this program only by approval of the Dean of the School of Business.

Third Year		Fourth Year	
Acc 331, 332—Inter.	6	BA 332—Prin. of Finance	3
BA 331—Bus. Law	3	BA 431, 432—Bus. Ststcs.	6
BA 334—Marketing	3	BA 435—Human Relations	3
Eco 437—Interm. Theory	3	BA 436—Prod. Control	3

Eng—Literature	6	BA 4314—Adm. Policy	3
Gov 231, 232—State & Natl.	6	Eco 433—Hist. Eco. Tht.	3
Spc 331—Professional	3	Sec 344—Bus. Commun.	4
*Electives	3	*Electives	9
	33		34

*Approved Electives—Must be upper level courses and include six hours of Economics.

Bachelor of Business Administration—Management Major

First Year		Second Year	
BA 134—Int. to Bus.	3	Acc 231, 232—Prin.	6
Eng 131, 132—Comp.	6	Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach.	2	Gov 231—Const. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	Elective	3
HPE—Activity	2		32
	33		

Third Year		Fourth Year	
Acc 334—Elem. Cost	3	BA 334—Marketing	3
BA 330—Elem. of Supvn.	3	BA 435—Humar. Relations	3
BA 331—Bus. Law	3	BA 436—Prod. Control	3
BA 332—Prin. of Finance	3	BA 4313—Job Eval.	3
BA 335—Indus. Mgmt.	3	BA 4314—Admin. Policy	3
BA 431, 432—Bus. Ststcs.	6	Eco 336—Labor Eco.	3
Eco 339—Eco. of Firm	3	Eco 438—Macro Eco.	3
Gov 232—Natl.	3	Sec 344—Bus. Commun.	4
Electives	6	Electives	9
	33		34

Bachelor of Business Administration—Marketing Major

First Year		Second Year	
BA 134—Int. to Bus.	3	Acc 231, 232—Prin.	6
Eng 131, 132—Comp.	6	Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach.	2	Gov 231—Const. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	Elective	3
HPE—Activity	2		32
	33		

Third Year

Acc 334—Elem. Cost or Eco. 437—Int. Theory	3
BA 331—Bus. Law	3
BA 332—Prin. of Finance	3
BA 334—Marketing	3
BA 337—Prin. of Selling	3
BA 431, 432—Bus. Ststcs	6
Eco 339—Eco. of Firm	3
Gov 232—Natl.	2
Electives	6
	33

Fourth Year

BA 335—Indus. Mgmt.	3
BA 336—Pers. Mgmt.	3
BA 338—Prin. of Retail	3
BA 433—Advertising	3
BA 4311—Sales Mgmt.	3
BA 4312—Mkt. Problems	3
Eco 438—Macro Eco.	3
Sec 344—Bus. Commun.	4
Electives	9
	34

Pre-Law—Upon completion of the first year in an approved school of law, the B. B. A. degree may be conferred by Lamar State College of Technology.

Requirements:

1. Complete 106 hours exclusive of HPE and band.
2. Grade-point average of 1.5 on all college work taken.
3. Application for degree at end of first year of law school.

First Year

BA 134—Int. to Bus.	3
Bio 141, 142—General	8
Eng 131, 132—Comp.	6
Mth 133—Trigonometry	3
Mth 134—Algebra	3
Phl	3
Soc 131	3
Spc 131—Fundamentals	3
HPE—Activity	2
	34

Second Year

Acc 231, 232—Prin.	6
Eco 231, 232—Prin.	6
Eng—Literature	6
Gov 231, 232—State & Natl.	6
His 231, 232—United States	6
HPE—Activity	2
Elective	3
	35

Third Year

Acc 331, 332—Interm.	6
BA 332—Prin. of Finance	3
BA 334—Marketing	3
BA 335—Indus. Mgmt.	3
BA 431, 432—Bus. Ststcs.	6
Eco 339—Eco. of Firm	3
Eco 438—Macro Eco.	3
Sec 344—Bus. Commun.	4
*Electives	6
	37

*Advanced courses in Business Administration with the exclusion of Business Law.

Business Administration (BA)

134—Introduction to Business. Descriptive survey of the functional areas of business and their interrelationships. Economics of industry; ownership and organization; marketing; production; personnel; finance; business controls. Class: 3 hours. Credit: 3 semester hours.

330—Elements of Supervision. Industrial problems in leadership and intra-group relationships. Motivation; Job satisfaction; work environment; counseling; training; communications. Class: 3 hours. Credit: 3 semester hours.

331—Business Law. Principles of law which form the legal framework for business activity. Applicable statutes; contracts; agency. Class: 3 hours. Credit: 3 semester hours.

332—Principles of Finance. A survey of the field of business finance. Financial planning; administration and control of financial activities; short-term and long-term financing; advantages and disadvantges of the various business organizations; security markets; commercial banking system; Federal Reserve system; financial reorganization. Class: 3 hours. Credit: 3 semester hours.

333—Insurance. Application of fundamental principles to life, property, and casualty insurance. Contracts; premiums; legal statutes; risk; programming. Class: 3 hours.

334—Marketing. The social and economic aspects of distribution as found in business organizations. Structures; functions; institutions; problems. Class: 3 hours. Credit: 3 semester hours.

335—Industrial Management. Scientific management as applied to productive processes in industry. Plant location and layout; organization; lighting, heating, and power; personnel; efficiency; motivation; purchasing; controls. Class: 3 hours. Credit: 3 semester hours.

336—Personnel Management. Problems of personnel relations in business and industry. Recruitment; job description and analysis; testing and training; morale; records. Class: 3 hours. Credit: 3 semester hours.

337—Principles of Selling. Precepts of effective selling in the American economy. Sales process; prospecting; presentation; objections; close. Class: 3 hours. Credit: 3 semester hours.

338—Retailing. The nature and functions of retailing in the marketing structure. Development; organization; methods; policies of operation; problems. Class: 3 hours. Credit: 3 semester hours.

3310—Business Organizations. Detailed analysis of basic organizations and their contributions to business efficiency. Legal provisions; formation; operation; dissolution. Class: 3 hours. Credit: 3 semester hours.

3311—Labor Law. Historical interpretations and present provisions of regulations governing labor. Common law; state and federal statutes; Fair Labor Standards Act; workmen's compensation; social security; liability;

United States Department of Labor; social legislation. Class: 3 hours. Credit: 3 semester hours.

431—Business Statistics. Introduction to the quantitative methods of analysis as applied to business problems. Analysis; presentation; frequency distribution; index numbers; dispersion; correlation; time series. Prerequisite: 6 hours of mathematics. Class: 3 hours. Credit: 3 semester hours.

432—Business Statistics. Continuation of BA 431 including the theory and practical application of the normal curve, probable error, and sampling. Index number; secular trend; seasonal variations; correlation; marketing research; forecasting; budgeting; quality control and investment analysis. Class: 3 hours. Credit: 3 semester hours.

433—Advertising. Social and economic character of advertising. Production; administration; copy procedure; media; layout; budgets; organization; evaluation. Class: 3 hours. Credit: 3 semester hours.

434—Principles of Public Utilities. An industry-by-industry study of the economic, social, and political aspects of public utilities in the transportation, communications, and power fields. Railroads; trucks; waterways; airways; telephones; radio; television; electricity; gas; and pipelines. Class: 3 hours. Credit: 3 semester hours.

435—Human Relations. Case-study approach to business problems in human relations. Recognition and analysis of problems; formulation and communication of proposed solutions; critique. Prerequisite: BA 330. Class: 3 hours. Credit: 3 semester hours.

436—Production Control. Planning and controlling of industrial production processes. Quantitative and qualitative controls; scheduling; dispatching; problems. Prerequisite: BA 335. Class: 3 hours. Credit: 3 semester hours.

437—Investments. An appraisal of investment alternatives in financial markets. Markets; securities; methods of analysis; investment programming. Class: 3 hours. Credit: 3 semester hours.

438—Credit and Statement Analysis. Theories and methods in evaluating financial statements of business organizations for credit purposes. Accounting; reports; ratios; structures; problems. Class: 3 hours. Credit: 3 semester hours.

4311—Sales Management. Planning, organization, and control of sales operations. Functions programs; production; development; distribution channels; contracts; campaigns; customer and price policies; administration. Class: 3 hours. Credit: 3 semester hours.

4312—Marketing Problems. Case problems in planning and controlling marketing organizations. Budgeting; operations; turnover; inventory; store promotion; research. Class: 3 hours. Credit: 3 semester hours.

4313—Job Evaluation and Wage Administration. The analysis and evaluation of employment positions as used in salary and wage determina-

tion. Job analysis; job evaluation; wage surveys; wage programs; salary structure; controls. Class: 3 hours. Credit: 3 semester hours.

4314—Administrative Policy. Fundamental and considerations and procedures followed in business policy formulation and administration. Managerial structure; company objectives; coordination of departmental policies; organization of personnel; reappraisals. Class: 3 hours. Credit: 3 semester hours.

4315—Budgetary Control. Theories, problems and techniques of internal financial and budgetary controls. Financial planning; budgetary construction; evaluation; performance rating; replanning. Prerequisite: BA 335. Class: 3 hours. Credit: 3 semester hours.

4316—Business Problems. Intensive investigation and critical analysis of current business and economic problems. Individual research and reports required. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF ECONOMICS

The Department of Economics offers both the Bachelor of Arts degree and the Bachelor of Business Administration degree in the field of Economics. Students planning to enter graduate work are encouraged to follow the Arts curriculum.

Programs of Study

Bachelor of Arts—Economics Major

Requirements:

1. Complete 124 semester hours exclusive of HPE and Band.
2. Complete 24 semester hours in the field of economics.
3. Complete a minor of at least 18 semester hours, 6 of which must be in advanced courses.

First Year		Second Year	
Eng 131, 132—Comp.	6	*Eco 231, 232—Prin.	6
Foreign Language	6	Eng—Literature	6
Mth 133—Trigonometry	3	Foreign Language	6
Mth 134—Algebra	3	Gov 231, 232—State & Natl.	6
Science	8	His 231, 232—United States	6
HPE—Activity	2	HPE—Activity	2
Elective	3	Elective	3
	31		35

Third Year		Fourth Year	
BA 431, 432—Bus. Ststcs.	6	Eco 433—Hist. Eco. Tht.	3
Eco 339—Eco. of Firm	3	Eco 437—Interm. Theory	3
Sec 344—Bus. Commun.	4	Eco 438—Macro Eco.	3
**Electives	19	**Electives	21
	32		30

*Grade of "C" or better must be attained in Eco 231-232 by all Economics majors.

**Electives must include six semester hours of advanced courses in Economics.

Bachelor of Business Administration—Economics Major

Requirement: Complete 30 semester hours in the field of Economics.

First Year		Second Year	
BA 134—Int. to Bus.	3	Acc 231, 232—Prin.	6
Eng 131, 132—Comp.	6	*Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach	2	Gov 231—Const. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	Elective	3
HPE—Activity	2		32
	33		

Third Year		Fourth Year	
BA 331—Bus. Law	3	BA 335—Indus. Mgmt.	3
BA 332—Prin. of Finance	3	Eco 437—Interm. Theory	3
BA 334—Marketing	3	Eco 438—Macro Eco.	3
BA 336—Per. Mgmt.	3	Sec 344—Bus. Commun.	4
BA 431, 432—Bus. Ststcs.	6	**Electives	21
Eco 339—Eco. of Firm	3		34
Gov 232—Natl.	3		
**Electives	9		
	33		

*Grade of "C" or better must be attained in Eco 231-232 by all Economics majors.

**Electives must include 15 semester hours of advanced courses in Economics.

Economics (Eco)

231—Principles. Development and application of economic theory underlying the production, distribution, and exchange of goods and services. Utilization of resources; production; determination of value and prices;

monetary and banking theory; national income analysis; stabilization. Class: 3 hours. Credit: 3 semester hours.

232—Principles. Continuation of Eco. 231 with attention given to the application of economic principles to economic problems. Distribution of income; labor problems; fiscal policies; international economics; economic systems. Class: 3 hours. Credit: 3 semester hours.

233—Principles and Policies. Comprehensive introduction to economic principles and problems for non-business students. Resource utilization; price determination; distribution of income; fiscal and monetary problems; economic growth. Class: 3 hours. Credit: 3 semester hours.

333—Corporation Finance. Historical development and present organizational structure of the corporate form of business enterprise. Legal position; sources of capital; financial management; refunding; expansion. Class: 3 hours. Credit: 3 semester hours.

334—Public Finance. The collection, administration, and disbursement of fiscal resources of governmental units with application to current problems. Public revenues; public expenditures; governmental credit and debt; intergovernmental fiscal problems. Class: 3 hours. Credit: 3 semester hours.

335—International Trade. Theories, practices, and problems involved in international commerce between nations. Bases of trade; tariffs: exchange control; international monetary policies; current problems. Class: 3 hours. Credit: 3 semester hours.

336—Survey of Labor Economics. Past development and present organizational structure of the labor movement in America and its impact on the industrial society. Labor market; collective bargaining; wages; economic insecurity; labor legislation; governmental policies. Class: 3 hours. Credit: 3 semester hours.

339—Economics of the Firm. The application of the techniques of economic analysis to the managerial problems of business enterprises utilizing a problem-solving or case study approach. Goals of the firm; business forecasting; demand analyses; cost analyses; game theory; pricing policies; governmental relations. Class: 3 hours. Credit: 3 semester hours.

430—Government and Business. Regulation and restriction of business enterprises by government. Regulatory bodies; anti-trust laws; public utilities; transportation; government ownership. Class: 3 hours. Credit: 3 semester hours.

432—Money and Banking. Functions and policies of the American monetary and banking system. Commercial banking; central banking; Federal Reserve System; monetary theories and policies; economic stabilization and growth. Class: 3 hours. Credit: 3 semester hours.

433—History of Economic Thought. Historical development of economic thought from primitive periods to the present. Classical; historical; socialist; neo-classical; institutional thought. Class: 3 hours. Credit: 3 semester hours.

434—Resources. Functional approach to selected theories and problems relative to the nature and utilization of resources. Patterns; energy; agriculture; industrial problems. Class: 3 hours. Credit: 3 semester hours.

435—Comparative Economic Systems. A critical analysis of the basic theories and institutions of economic systems including a comparison of the American system with other existing systems. Capitalism; socialism; communism. Class: 3 hours. Credit: 3 semester hours.

436—Business Cycles. The nature and causes of business cycles. Cyclical theories; business fluctuations; forecasting; stabilization; current problems. Class: 3 hours. Credit: 3 semester hours.

437—Intermediate Theory. Economic analysis and methodology. Distribution; theory; price theory; imperfect competition and monopoly; national income analysis. Class: 3 hours. Credit: 3 semester hours.

438—Macro Economics. A descriptive-analytical approach to the dynamic forces that influence the aggregate level of economic activity. Income and employment determinants; levels of income and employment; stabilization theory; investment and income relationship; monetary and fiscal policies. Class: 3 hours. Credit: 3 semester hours.

419—Seminar. An investigation of current literature in the field of economics. Analysis of problems; formal discussions; presentation of papers. Class: 1 hour. Credit: 1 semester hour.

4312—Seminar in Economics. A seminar for non-majors with considerable emphasis placed on independent study and student research. Nature and scope of economics; structure and workings of the American economy; international economics; economic problems and issues. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF SECRETARIAL SCIENCE

The Secretarial Science Department offers a four-year program leading to the degree of Bachelor of Business Administration. The general and specific requirements of the four-year curricula furnish a broad preparation and a highly specialized proficiency in the professional secretarial field.

The Department also offers a two-year program for students who do not desire to follow any degree plan. An accelerated one-year program is also offered for students who have had some training in skill subjects in high school. The one and two-year curricula are designed to develop competence in typewriting, shorthand, office machine operation, clerical record keeping, and business correspondence. Successful students are prepared to pass civil service examinations and the employment tests given by large business and industrial offices.

A major in Secretarial Science may be combined with courses in Education. This plan will qualify a graduate for a permanent teacher's certificate.

Typewriting is strongly recommended for all college students regardless of department or vocational preference. Not only has it an immediate return in better college work, but it builds a skill that is most useful in later-life activities.

Young men will do well to consider the many advantages of a secretarial course. The field is particularly rewarding to them because of its unlimited promotional opportunities. This is proved by the many successful men in positions of leadership who began their business careers as secretaries.

Programs of Study

Second Year

BA 134—Int. to Bus.	3	Acc 231, 232—Prin.	6
Eng 131, 132—Comp.	6	Eco 231, 232—Prin.	6
Mth 131, 132—Finite	6	Eng—Literature	6
Sec 127—Off. Mach.	2	Gov 231—Const. & State	3
Science	8	His 231, 232—United States	6
Soc, Phl, or Ant	3	HPE—Activity	2
Spc	3	Elective	3
HPE—Activity	2		
	33		32

Third Year

BA 331—Bus. Law	3
BA 332—Prin. of Finance	3
BA 431, 432—Bus. Ststcs	6
Gov 232—Natl.	3
Sec 132—Interm. Typing	3
Sec 363—Adv. Shorthand	6
Sec 344—Bus. Commun.	4
Electives	6
	34

Fourth Year

BA 334—Marketing	3
BA 335—Ind. Mgmt.	3
BA 336—Pers. Mgmt.	3
BA 437—Investments	3
Eco 339—Eco. of Firm	3
Eco 438—Macro Eco.	3
Sec 331—Sec. Off. Proc.	3
Sec 332—Dict. & Trans.	3
Electives	9
	33

Teacher Certification—Secretarial Science Major

Students who wish to qualify for a provisional teacher's certificate — secondary — with a teaching field in Secretarial Science must include in the Bachelor of Business Administration degree program the following changes:

1. The inclusion of Edu 331, 332, 338, 438, 462, and Eco 437.
2. BA 336, 432, 437, Eco 339, 438 are not required of those following the teacher certification plan.

Two-Year Terminal Program in Secretarial Science

First Year		Second Year	
Eng 131, 132—Comp	6	Acc 231, 232—Prin.	6
Sec 132—Interm. Typing	3	Eco 231, 232—Prin.	6
Sec 125—Records	2	Gov 231—Const. & State	3
Sec 127—Off. Mach.	2	Mth 131, 132—Finite	6
Sec 231—Sec. Prac.	3	Sec 222—Prod. Typing	2
Sec 363—Advan. Shnd.	6	Sec 344—Bus. Commun.	4
Spc 131—Fund	3	Sec 331—Sec. Off. Proc	3
Electives	6	Sec 332—Dict. & Trans.	3
HPE—Activity	2		
	33		33

Secretarial Science (Sec)

121—Typewriting (Short Course). Introduction of the touch system on manual and electric machines. Simple letter forms; manuscripts; tabulations. Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

122—Typewriting (Short Course). Continuation of Sec 121 with emphasis on speed and accuracy in preparation of production units. (Sec 121 and Sec 122 equivalent to Sec 141) Letters; rough drafts; manuscripts; tabulations. Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

125—Records. Methods and procedures in classifying and storing business records. Filing systems; records management and retention; duplicating equipment; dictating and transcribing machines; evaluation. Class: 2 hours. Credit: 2 semester hours.

127—Office Machines. Technique familiarization in the operation of the most commonly used office machines. Computations; calculations; speed drills; percentages; discounts and net values; chain discounts; business forms. Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

141—Typewriting. Basic fundamentals of touch typewriting skill on manual and electric machines with emphasis on the development of speed and accuracy in preparation of production units. Letters; manuscripts; tabulations; rough drafts; business forms. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

132—Intermediate Typewriting. Continuation of Sec 141 with high standards of speed and accuracy. Specific letter forms; tabulations; rough drafts; financial and legal forms; manuscripts; business forms and reports. Class: 1 hour. Laboratory: 4 hours. Credit: 3 semester hours.

231—Secretarial Practice. Practical secretarial projects emphasizing use of functional English in correspondence; good judgment in office routine. Class: 3 hours. Credit: 3 semester hours.

222—Production Typewriting: Speed production of office-style material. Business forms; statistical tables; financial statements; legal documents; reports; correspondence. Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

233—Beginning Shorthand (Short Course). Introduction of Gregg simplified shorthand. Reading; writing; theory principles; brief forms. Class: 2 hours. Laboratory: 2 hours. Credit: 3 semester hours.

234—Beginning Shorthand (Short Course.) Continuation of Sec 233 with intensification of shorthand reading and writing skills. (Sec 233 with sec 234 equivalent to Sec 261) Brief form review; previewed dictation; pretranscription practice. Class: 2 hours. Laboratory: 2 hours. Credit: 3 semester hours.

261—Beginning Shorthand. Intensive introduction to Gregg Simplified Shorthand. Reading; writing; theory principles; brief forms; previewed dictation; pretranscription practice. Class: 4 hours. Laboratory: 4 hours. Credit: 6 semester hours.

331—Secretarial Office Procedures. Analysis of responsibilities and duties of the administrative secretary. Procedures; work simplification; supervision; office etiquette and ethics; sources of information. Class: 3 hours. Credit: 3 semester hours.

332—Dictation and Transcription. Continuation of Sec 363 with stress on building shorthand speed and improving transcription skill. Vocabulary development; sustained dictation; volume production. Class: 3 hours. Credit: 3 semester hours.

344—Business Communications. Theories, practices, and problems involved in communications in business and industry with emphasis on use of practical psychology, good judgment. Letters; reports; memoranda; dictation. Prerequisite: touch system of typewriting. Class: 3 hours. Laboratory: 2 hours. Credit: 4 semester hours.

363—Advanced Shorthand. Continuation of Sec 261 with improvement of ability to take dictation and transcribe mailable copy. Theory principles; brief form derivatives; vocabulary development; speed building; mailable transcription; office-style dictation. Class: 4 hours. Laboratory: 4 hours. Credit: 6 semester hours.

SCHOOL OF ENGINEERING

Departments

Chemical
Civil
Electrical
Industrial
Mechanical
Mathematics

School of Engineering

Engineering has been defined as "the art and science by which the properties of matter and sources of power in nature are made useful to man in structures, machines, and manufactured products." The educational objective of the School of Engineering is to prepare its students to take positions of leadership commensurate with their abilities in a world where human relations, science, and engineering are of basic importance. The programs of the various departments of the engineering school are planned to prepare the students to become practicing engineers, administrators, investigators or teachers. However, the basic knowledge and mental discipline gained from these educational programs is sufficiently broad and fundamental to constitute excellent preparation for other careers.

Doing is an essential phase of engineering education. Only through continued practice and exercise of judgment can the stature of an engineer be attained. Consequently, laboratory work under the supervision of those who have had professional experience as well as a full scientific background is an important part of the various engineering curricula. Emphasis, however, is placed upon creative, analytical thinking rather than upon the acquisition of factual information or the attainment of manual skills.

All curricula have been designed upon a common core of subjects which appear throughout each curriculum. The first two years of study are common for all engineering students and are rich in mathematics and science. Until a student completes the first two years of work, he will be classed as an engineering student without departmental designation. A student will be able to determine his ultimate professional interests during this period of general study through consultation with his advisor, members of the faculty and practicing engineers.

The entrance requirements from high school for the School of Engineering are:

1. *English	4	units
2. Mathematics		
Algebra	2	units
Geometry	1	unit
Trigonometry	½	unit
3. Natural Sciences		
Chemistry	1	unit
Biological sciences or physics	1	unit
4. Social Sciences	2	units
5. *Electives	4½	units
Total	16	units

*If electives units are in a foreign language, only three units of English are required, but the units must total 16.

Physics is a desirable subject to offer from high school, and will be a required subject beginning June, 1965.

Students who meet the general entrance requirements of the College, but lack in specific requirements for the engineering curricula may, in some instances, be permitted to enroll in the School of Engineering; however, all deficiencies must be removed by the end of the first academic year. Students having entrance deficiencies or weaknesses are urged to use the summer terms preceding the freshman year in college to remove them.

Attention is directed to the section in this catalog on admission requirements and, in particular, to the requirement that each person desiring to begin his study of college mathematics with Mathematical Analysis I and II, must take the Advanced Mathematics Achievement Test.

In addition to instruction in the various branches of engineering, the functions of the School of Engineering include research, both on fundamental and on applied problems, development of a technological library, extension activities, and provision of a center of technical meetings and activities.

The degree of Bachelor of Science is offered in the following fields:

1. Chemical Engineering
2. Civil Engineering
3. Electrical Engineering
4. Industrial Engineering
5. Mathematics
6. Mechanical Engineering

Core Studies

First Year

First Semester				Second Semester			
Eng 131—Composition	3-	0-	3	Eng 132—Composition	3-	0-	3
Chm 141—Gen Prin	3-	3-	4	Chm 142—Gen Prin	3-	3-	4
Mth 138-139—Mth Analysis I and II[1]	6-	0-	6	Mth 231—Mth Analysis III	3-	0-	3
Egr 110—Int Egr Prac	1-	0-	1	Egr 111—Int Data Proc	1-	0-	1
or Egr 111				or Egr 110			
Egr 131—Graphics	2-	4-	3	Liberal Arts Elective[3]	3-	0-	3
or Liberal Arts Elect[3]				or Egr 131			
HPE—Activity	0-	3-	1	HPE—Activity	0-	3-	1
	15-	10-	18	Egr 132—Mechanics I[2]	3-	0-	3
					16-	6-	18

Second Year

First Semester		Second Semester	
Mth 232—Mth Analysis IV	3- 0- 3	Mth 234—Prob and Stat	3- 0- 3
Mth 233—Linear Algebra	3- 0- 3	Egr 221—Mat Science	2- 0- 2
Phy 241—Elect and Mag	3- 3- 4	Egr 232—Mechanics III	3- 0- 3
Egr 231—Mechanics II	3- 0- 3	Egr 234—Thermo	3- 0- 3
Egr 211—Mech Lab	0- 3- 1	Egr 233—Elect Cit and Fld	3- 0- 3
Professional Area[4]	3 to 4 SH	Professional Area[4]	3 to 4 SH
HPE—Activity	0- 3- 1	HPE—Activity	0- 3- 1
	18 to 19		18 to 19

[1] Three and one-half units of high school mathematics are required for registration in Mth 138. The Advanced Mathematics Achievement Test is required for registration in both Mth 138 and Mth 139. Students deficient in algebra or trigonometry should take Mth 134 or Mth 133 or both. Geometry deficiencies must be eliminated in a high school or by correspondence from the University of Texas.

[2] Credit in high school physics is recommended for Egr 132 and will be required in the fall of 1965.

[3] Liberal arts electives should be chosen from the following: modern language; Eco 231, 232, or 233; Psy 231; Ant 233; Geg 230; Phil 231 or 232; Soc 131; Bible (provided student satisfies 2-11 under requirements for all degrees as printed under general regulations in this catalog).

[4] Look at degree requirements for field of specialization.

Engineering (Egr)

110—Introduction to Engineering Practice. The historical development, current practice and likely future developments in engineering. Class: 1 hour. Credit: 1 semester hour.

111—Introduction to Digital Computers. Interpretive routines and compilers are used. Simple problems are used to illustrate methods. Each student prepares a program for one of the digital computers on campus. Prerequisite: Mth 138 or concurrent. Class: 1 hour. Credit: 1 semester hour.

112—Production and Fabrication Processes. Machinery, welding, casting, forming, and joining operations on materials of engineering importance. Demonstrations, lectures and laboratory exercises. Laboratory: 3 hours. Credit: 1 semester hour.

131—Engineering Graphics. Principles of orthographic projection combined with descriptive geometry to solve space problems graphically. Lettering and drafting technique emphasized. Class: 2 hours. Laboratory: 4 hours. Credit: 3 semester hours.

132—Mechanics I. Utilizes vectors in the study of particle dynamics. Statistics of particles and rigid bodies. Energy methods. Prerequisite: Mth 231 or concurrent. Class: 3 hours. Credit: 3 semester hours.

211—Mechanics Laboratory. Numerical and graphical solutions to problems in applied mechanics. Some problems in kinematics are included. Prerequisite: Egr 233 or concurrent. Laboratory: 3 hours. Credit: 1 semester hour.

221—Materials Science. Basic principles underlying the behavior of solid, liquid and gaseous materials. Prerequisites: Mth 234; Mth 235 or concurrent; Phy 241; Chm 142. Class: 2 hours. Credit: 2 semester hours.

223—Geological Drawing. Study of lines and planes in space. True length, slope and bearing of lines. True size and slope of planes. Principle of rotation. Intersections and developments of closed surfaces. With Geological applications. Laboratory: 6 hours. Credit: 2 semester hours.

231—Mechanics II. Kinematics of rigid bodies, kinetics of rigid bodies, work and energy, impulse and momentum. Prerequisite: Egr 132; Mth 231; Mth 233 or concurrent. Class: 3 hours. Credit: 3 semester hours.

232—Mechanics III. Stress, statically indeterminate force systems, thin-walled vessels, torsion, shearing force, bending moment, statically indeterminant beams, combined stresses, columns, riveted joints, welded connections, eccentric loads. Prerequisite: Egr 231 and Mth 234. Class: 3 hours. Credit: 3 semester hours.

233—Electric Circuits and Fields. Electrical and magnetic units; heating effects; basic circuit analysis; electric and magnetic fields; ferromagnetic circuits; inductance and capacitance; principles of energy conversion and measurements. Prerequisite: Phy 241; Mth 233 and 234 or concurrent. Class: 3 hours. Credit: 3 semester hours.

234—Thermodynamics. The fundamental laws of thermodynamics, properties of systems, gases, vapors, thermodynamic tables, and cycles. Prerequisite: Chm 142; Phy 241 or concurrent; Mth 234 and 235 or concurrent. Class: 3 hours. Credit: 3 semester hours.

331, 332—Heat, Mass and Momentum Transfer. Fluid dynamics, heat transfer and mass transfer. An integrated two semester sequence. Prerequisite: Completion of all core studies. Class: 3 hours each semester. Credit: 3 semester hours each semester.

333—Electronics. A study of charged particles; metals and semiconductors; vacuum tube and transistor characteristics; gaseous condition; rectifiers and power supplies. Prerequisite: Completion of all core studies. Class: 3 hours. Credit: 3 semester hours.

531—Materials Science. Principles underlying the behavior of materials existing in the solid liquid and gaseous phases. Class: 3 hours. Credit: 3 semester hours.

533—Engineering Analysis. Methods of solution of problems drawn from contemporary engineering practice. Methods of mathematical physics,

including lump parameter and distributed parameter problems will be covered. Analog and digital computer techniques will be introduced and employed. Statistical concepts will be employed. Prerequisite: Mth 4301 or concurrent. Class: 3 hours. Credit: 3 semester hours.

535—Controls Engineering. Principles and analysis of systems and processes with applications drawn from the various engineering fields. Covers controls, response, stability and compensation. Special topics, which may be varied according to interest, from nonlinear systems, digital systems, statistically described signals and multivariable systems. Prerequisite: Mth 4301. Class: 3 hours. Credit: 3 semester hours.

537—Energy Conversion. A study of energy forms and their relation to physical systems, including general laws of thermodynamics, quantum mechanics, electric and magnetic phenomena and methods of irreversible thermodynamics. Class: 3 hours. Credit: 3 semester hours.

5311—Transport Phenomena. The fundamental relationships involved in momentum heat and mass transfer. Emphasis is on principles and fundamentals, but applications and analogies are developed extensively. Prerequisite: Mth 4301 or parallel, or Mth 433 or parallel. Class: 3 hours. Credit: 3 semester hours.

5313—Rate Processes. Rates of energy transfer with selected topics in the fields of mechanical, thermal, chemical, electrical, and other energy transformation. Prerequisite: Mth 4301. Class: 3 hours. Credit: 3 semester hours.

5315—Advanced Engineering Mechanics. General analysis of stress and strain, equations of equilibrium and compatability, stress strain relations, two dimensional stress problems, elastic energy principles, thermoelastic problems. Class: 3 hours. Credit: 3 semester hours.

669—Thesis. Prerequisite: Admission to candidacy. Credit: 6 semester hours.

DEPARTMENT OF CHEMICAL ENGINEERING

Accredited by Engineers' Council for Professional Development

Professors: Jelen, McAllister;
Associate Professor Lutton; Instructor Oosterhout*

The growth of the American chemical industry since the first World War has been nothing short of phenomenal. While industry as a whole has made great strides, the chemical field has literally gone ahead in tremendous leaps.

The work of the chemical engineer is the changing of raw materials into finished products with the great efficiency and economy. He is concerned primarily with the design, construction and operation of equipment and plants in which chemical or physical changes of materials are involved. Thus the work of the chemical engineer enters into almost every modern industry. From petroleum to synthetic rubber, from steel to medicines, the chemical engineer enters into design, research, development, production, sales and management. Among the fields in which the chemical engineer is of prime importance are petroleum, petro-chemicals, metals, agricultural pesticides and fertilizers, plastics, paints, foods, paper, glass, dyes, synthetic fibers, and a host of others. There is virtually no field which offers a greater opportunity than chemical engineering.

Program of Study

Bachelor of Science in Chemical Engineering

First and Second Year
(See Core Program)

Professional Area

Chm 241, Quant Anal; Phy 232, Lt and Snd

Third Year

First Semester		Second Semester	
Chm 341—Organic	3-3- 4	**Second Semester**	
Egr 331—Ht Mass Mom Trans I	3-0- 3	Chm 342—Organic	3-3- 4
CHE 342—Chm Proc Prin	3-3- 4	Chm 442—Phys Chm	3-3- 4
Egr 333—Electronics	3-0- 3	Egr 332—Ht Mass Mom Trans II	3-0- 3
Humanities[1]	3-0- 3	CHE 333—Thermo II	3-0- 3
	17	CHE 320—Exp Design	2-0- 2
		Humanities[1]	3-0- 3
			19

*On leave of Absence

Fourth Year

First Semester		Second Semester	
CHE 414—Seminar	1-0- 1	CHE 443—Design	2-6- 4
CHE 442—Unit Operations	3-3- 4	CHE 433—Instrumentation	3-0- 3
CHE 432—Kinetics	3-0- 3	CHE 423—Unit Op Lab II	1-6- 2
CHE 422—Unit Op Lab I	1-6- 2	Humanities[1]	6-0- 6
Humanities[1]	6-0- 6	Elective	3
Elective	3		18
	19		

Humanities

Gov 231, 232; Spc 331

English (literature) 3 semester hours

His 231, 232

Chemical Engineering (CHE)

230—Introductory Chemical Engineering I. The application of mathematics and fundamental principles of chemistry and physics to the solution of problems in industrial chemistry. The course involves applications of mass balances, energy balances, phase equilibria, and economic evaluation. Class: 3 hours. Credit: 3 semester hours.

231—Introductory Chemical Engineering II. A continuation of CHE 230. More complex mass and energy relationships are dealt with in this course. Prerequisite: CHE 230. Class: 3 hours. Credit: 3 semester hours.

314—Seminar I. An oral and written presentation of selected topics in chemical engineering from recent technical publications. Class: 1 hour. Credit: 1 semester hour.

320—Experimental Design. Advanced statistical methods of experimental design and evolutionary operations. Prerequisite: Mth 234. Class: 2 hours. Credit: 2 semester hours.

330—Unit Operations I. Size reduction and separation, sedimentation and flotation, properties of fluid flow, and heat transfer. Prerequisite: Mth 331. Class: 2 hours. Credit: 3 semester hours.

331—Unit Operations II. A continuation of CHE 330. Includes a study of the fundamentals of diffusional processes, evaporation, filtration, fluidization, mixing, crystallization, humidification absorption, and drying. Prerequisite: CHE 330. Class: 3 hours. Credit: 3 semester hours.

333—Thermodynamics II. Properties of non-ideal substances, Maxwell relations, vapor pressure, latent heat, enthalpy-concentration diagrams, chemical equilibria, equilibrium constants, fugacity, and activity. Prerequisite. Egr 234. Class: 3 hours. Credit: 3 semester hours.

342—Chemical Process Principles. The application of mathematics, chemistry, and physics to solution of problems in industrial chemistry. In-

cluded are topics on mass and energy balances, phase equilibria and economic evaluations. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

414—Seminar. An oral and written presentation of selected topics in chemical engineering from recent technical publications. Class: 1 hour. Credit: 1 semester hour.

422—Unit Operations Laboratory I. Laboratory work based on CHE 330 and 331. Prerequisite. CHE 331. Class: 1 hour. Laboratory: 6 hours. Credit: 2 semester hours.

423—Unit Operations Laboratory II. Laboratory work based on CHE 330 and CHE 442. Prerequisite: CHE 442 or concurrent registration in CHE 442. Class: 1 hour. Laboratory: 6 hours. Credit: 2 semester hours.

432—Kinetics. Introduction to the kinetics of chemical reactions with a study of the rates and mechanisms of such reactions. Thermal and catalytic reactions, both homogeneous and heterogeneous, are considered. Application of fundamental principles to the design and operation of commercial reactors is covered. 3 hours. Class: 3 hours. Credit: 3 semester hours.

433—Instrumentation. Fundamental principles of process dynamics and instruments used for measurement and control of process variables such as pressure, temperature and flow rate. Class: 3 hours. Credit: 3 semester hours.

437—Unit Processes. Representative chemical and petroleum manufacturing processes and unit processes such as sulfonation, alkylation, nitrations, hydrogenation, cracking, and reforming. Class: 3 hours. Credit: 3 semester hours.

410, 420, 430, 440—Special Topics in Chemical Engineering. Selected topics in fluid mechanics, heat transmission, distillation, absorption, adsorption, filtration, and other Unit Operations. Class: 1 to 4 hours. Credit: 1 to 4 semester hours.

442—Unit Operations. A continuation of Egr 332. Includes extration, binary distillation, and multicomponent distillation. Prerequisite: CHE 331. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

443—Design. Application of chemical engineering fundamentals to the design and development of chemical processing plants. Includes calculations of capacity, economic evaluation of processes and equipment, equipment layout, specifications, cost estimates, and equipment design. Prerequisites: CHE 432, CHE 442. Class: 2 hours. Laboratory: 6 hours. Credit: 4 semester hours.

4110, 4210, 4310, 4410—Advanced Problems. Special advanced problems in chemical engineering to suit the needs of individual students. Class: 1 to 4 hours. Credit: 1 to 4 semester hours.

4111—Seminar. Oral presentation of advanced topics or research work in chemical engineering. Class: 1 hour. Credit: 1 semester hour.

4150, 4250, 4350, 4450—Chemical Engineering Projects. Individual projects in library or laboratory research in chemical enginering. Class: 1 to 4 hours. Crdit: 1 to 4 semester hours.

4311—Heat Transmission. Process design calculations and process calculations involving the transfer of heat by conduction, convection, and radiation. Steady and unsteady state heat transmission. Prerequisite: Mth 232 and 233. Class: 3 hours. Credit: 3 semester hours.

4312—Filtration. Flow of liquids through homogeneous and non-homogeneous solids, porosity, permeability, constant rate and constant pressure, filtration, variable pressure-variable rate filtration, washing, cycles for maximum production and optimum cost, rotary filtration, and washing. Prerequisite: Egr 331. Class: 3 hours. Credit: 3 semester hours.

4315—Phase Rule. Applications of the phase rule to chemical engineering three and four liquid components, and azeotropic distillation. Prerequisite: CHE 333. Class: 3 hours. Credit: 3 semester hours.

4316—Stagewise Processes. Graphical and analytical solutions of difference equations, and applications to the stagewise processes of engineering. Prerequisite: CHE 442, Mth 232 and 233. Class: 3 hours. Credit: 3 semester hours.

4317—Diffusional Operations. Principles of diffusion, boundary layer equations, mass-transfer coefficients, and diffusional operations of chemical engineering. Prerequisite: CHE 442. Class: 3 hours. Credit: 3 semester hours.

4318—Advanced Distillation. A study of the various design procedures used in multicomponent distillation and batch fractionation. Prerequisite: CHE 442. Class: 3 hours. Credit: 3 semester hours.

4321—Chemical Enginering Economics. Calculations involving process and control as determined by least cost or maximum profit. Based on unit operations and unit processes. Class: 3 hours. Credit: 3 semester hours.

4322—Advanced Unit Operations. The application of chemical engineering fundamentals to the refining of petroleum. Other unit operations are selected for advanced study. Prerequisite: CHE 442. Class: 3 hours. Credit: 3 semester hours.

4323—Corrosion and Materials of Construction. Construction materials and corrosion in the chemical and petroleum industry. Class: 3 hours. Credit: 3 semester hours.

4325—Introduction to Nuclear Engineering. A study of the engineering aspects of nuclear fundamentals and processes. Class: 3 hours. Credit: 3 semester hours.

4326—Applied Mathematics for Chemical Engineers. Application of higher mathematics to the solution of chemical engineering problems. Prerequisite: Mth 232. Class: 3 hours. Credit: 3 semester hours.

4329—Properties of Gases and Liquids. A critical review of various estimation and correlation procedures for a number of physical properties of pure gases and liquids. Though the subject matter is tied closely to basic theory, its intrinsic value results from its utility in almost every chemical or petroleum industry. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF CIVIL ENGINEERING

Accredited by Engineers' Council for Professional Development

Professor Beale
Associate Professors DelFlache, Henry
Assistant Professors Mays, Rogers, Szendy, *Woods
Instructor: Dust

Civil Engineering is vital to man's economic, political, and social well-being. Modern technological developments are ever widening the vistas of this profession and deepening its scientific roots. These trends are accentuating and creating needs that can be met only by truly professional people whose education has the breadth of a liberal education and the depth of a firm foundation in mathematics and science. This curriculum is designed to meet these requirements. It is strong in the engineering sciences including the natural and earth sciences. It embraces a sound core of mathematics, physics and chemistry. Completion of this curriculum will enable a student to enter the professional field of practice or to pursue an advanced program of study leading to the M. S. or PhD degree in Civil Engineering. Areas of activity include: soil, structural, hydraulic, sanitary, transportation, surveying and mapping, and power engineering. This curriculum is modern and designed to meet the requirements of the space and atomic age. Options are provided to fit the individual interest of the Civil Engineering student.

Program of Study

Bachelor of Science in Civil Engineering

First and Second Year
(See Core Program)

Professional Area Courses

Speech 331, Phy 232

Third Year

First Semester			Second Semester		
CE 311—Ex Str Anal 1	0-3-	1	CE 312—Ex Str Anal 2	0-3-	1
CE 313—Egr Meas 1	0-3-	1	CE 314—Egr Meas 2	0-3-	1
CE 320—Egr Spec & Fin	2-0-	2	CE 321—Egr Law	2-0-	2
CE 325—Soil Science 1	1-3-	2	CE 326—Soil Science 2	1-3-	2
CE 334—Struc Mech 1	2-3-	3	CE 333—Struc Mech 2	3-0-	3
Egr 331—Hmmt 1	3-0-	3	CE 315—Ex Fld Mech 1	0-3-	1
Humanities	3-0-	3	CE 322—Hydrology	1-3-	2
Elective		3	Humanities	3-0-	3
		18	Elective		3
					18

*On Leave of Absence.

Summer

CE 332—Geod Field Crse 3 semester hours

Fourth Year

CE 410—Seminar	1-0- 1	CE 437—Tran Egr	2-3- 3
CE 411—Ex Fld Mech 2	0-3- 1	CE 438—Re Con Des	2-3- 3
CE 412—Photogrammetry	0-3- 1	CE 439—Struc Stl Des	2-3- 3
CE 430—Indet Struc	2-3- 3	Eng Lit or Eng 3311	3-0- 3
CE 432—Sanitation	2-3- 3	Humanities	3-0- 3
CE 434—Soils Egr	2-3- 3	Elective	3
Humanities	3-0- 3		18
Elective	3		
	18		

Humanities

History 231, 232
Government 231, 232

Elective Groups

A Electives

Math 337—Theory of Equations
Math 433—Vector Analysis
Math 4301—Adv Calculus
Math 4312—Adv Data Processing
CE 4319—Math Methods in CE

B Electives

Phy 331—Solid State Physics
Phy 335—Atomic Physics
EE 334—Electronics
Engr 332—Hmmt 2
Chem 341—Organic Chem
Biol 142—General Biology
Eco 233—Prin & Policies

C Electives

Geol 433—Geophysics
Phy 336—Nuclear Physics
Phy 337—Astro Physics
Chem 342—Organic Chem
Biol 243—General Bacteriology

D Electives

CE 431—Hydraulic Mach
CE 435—Adv Sanitation
CE 436—Hydromechanics
CE 4310—Spec Problems
CE 4311—Plastic Design
CE 4312—Adv Struc Design
CE 4313—Foundation Egr
CE 4314—Traffic Analysis
CE 4315—Pavement Design
CE 4316—Soil Dynamics
CE 4318—Space Structures
CE 4322—Struc Dynamics
CE 4323—Theory of Elast

Options

Engineering Science

Student will elect 1 course from each of the A, B, and C Groups and 1 additional course from either of these groups.

Structures Option

1 course from Group A
Phy 331—Solid State
CE 4311 or CE 4312—Plastic Design or Adv Struc Design
CE 4313 or CE 4322—Foundation Engr or Struc Dynamics

Transportation

Geol 433—Geophysics
EE 334—Electronics
CE 4314—Traffic Analysis
CE 4315—Pavement Design

Reclamation

Geol 433—Geophysics
EE 334—Electronics
CE 436—Hydromechanics
CE 431—Hydraulic Machinery

Foundation Option

Math 433—Vector Analysis
Geol 433—Geophysics
CE 4313—Foundation Engineering
CE 4316—Soil Dynamics

Space Support

Math 4301—Adv Calculus
Phy 331—Solid State
Phy 337—Astro Physics
CE 4318—Space Structures

Sanitation

Biol 142—General Biology
Phy 335—Atomic Physics
Biol 243—Micro Biology
CE 435—Adv Sanitation

Civil Engineering (CE)

311, 312—Experimental Stress Analysis. Experimental methods of stress investigation utilizing electronic load and strain measurements. Static and dynamic loading considered. Photoelastic study of stress raisers. Axial, flexural and torsional studies of brittle and ductile materials. Creep studies at normal and elevated temperatures. Prerequisite: Egr 232. Laboratory: 3 hours. Credit: 1 hour.

313, 314—Engineering Measurements. Science of data collection applied to measurement of horizontal and vertical angles; horizontal and vertical distances; and site adaptation. Field layouts of tangents, simple curves, parabolic curves and clothoid spirals. Computation procedures utilize rotary and digital computers. Laboratory: 3 hours. Credit: 1 hour.

315—Experimental Fluid Mechanics I. Laboratory studies of fluid dynamics problems. Calibration of flow measuring devices. Friction and drag studies. Flow characteristics of open channels and closed conduits. Prerequisite Egr 331. Laboratory: 3 hours. Credit: 1 hour.

320—Engineering Specifications and Finance. Specification writing and interpretation for engineering projects. Legal significance of specifications. Study of depreciation, sinking funds, bonding procedures, principal and interest, annuities. Economic principles applied to engineered construction. Class: 2 hours. Credit: 2 hours.

321—Engineering Law. Law of contracts, negotiable instruments, agency, torts and insurance applied to engineering practice. Class: 2 hours. Credit: 2 hours.

322—Hydrology. Precipitation, surface water, infiltration, sub-surface water. Analysis of rainfall and runoff data. Collection studies. Hydraulics of wells. Net storm rain, peak discharge and flood runoff. Prerequisite: CE 325. Class: 1 hour. Laboratory: 3 hours. Credit: 2 hours.

325, 326—Soil Science. Study of the earth's crust from an engineering point of view. Emphasis on formation theories and properties of rocks and minerals. Soil classification and properties. Class: 1 hour. Laboratory: 3 hours. Credit: 2 huors.

332—Geodetic Field Course. Study of Geodesy and Engineering Astronomy. Determination of true bearings. Establishment of horizontal and vertical control. Credit: 3 hours.

333—Structural Mechanics 2. Advanced strength of materials. Stress analysis procedures for axial, flexure, and torsional loading. Unsymmetrical bending, shear center, curved beams, buckling, failure theories, residual stresses and connection analysis. Prerequisite: Engr 232. Class: 3 hours. Credit: 3 hours.

334—Structural Mechanics 1. Analysis of loadings for bridges and buildings. Dynamic effects of moving loads. Influence lines. Shear and moment diagrams. Approximate analysis of indeterminate structures. Model

analysis. Investigation of frames, girders, and bents. Prerequisite: Engr 232. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

410—Seminar. Involves library and laboratory research. Oral and written reports presented on technical literature. Undergraduate thesis to be approved by board of recommendation and approval. Oral presentation of thesis and defense of thesis required. Class: 1 hour. Credit: 1 semester hour.

411—Experimental Fluid Mechanics 2. Boundary layer studies. Advanced problems in fluid flow. Flow nets. Prerequisite: CE 315. Laboratory: 3 hours. Credit: 1 hour.

412—Photogrammetry. Principle of aerial photography applied to map making. Route locations. Ground control. Introduction to use of photogrammetry equipment, including stereoscopes and plotters. Prerequisite: CE 332. Laboratory: 3 hours. Credit: 1 hour.

430—Indeterminate Structures. Basic Principles of statically indeterminate structural analysis, based upon requirements of equilibrium and continuity. Classical methods of strain energy, slope deflection and moment distribution used for analysis of frames, trusses and beams. Prerequisite: CE 334. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

431—Hydraulic Machinery. Principles of fluid mechanics applied to design of hydraulic turbines, pumps and flow measurement equipment. Dynamic similarity. Efficiency and operating characteristics of hydraulic machinery. Prerequisite: CE 315. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4110, 4210, 4310—Special Problems. Advanced problems and research in civil engineering under supervision of the staff. Laboratory and library research required. Credit: 1 to 3 hours.

432—Sanitation. Fundamental aspects of microbiology and biochemistry as related to stream pollution, waste disposal, water purification and sewage treatment. Collection and distribution systems. Prerequisite: CE 315. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

434—Soils Engineering. Shallow foundations, deep foundations, retaining walls, excavation bracing, open cuts, embankments, caissons, dams, and tunnels, soil stabilization. Prerequisite: CE 326. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

435—Adv Sanitation. An introduction to sanitary engineering and its effects upon city life; forecasting water demand; elements of hydrology in rainfall, runoff and ground water; collection, treatment and distribution of water; financing and management of water works; supervised problem laboratory and inspection trips to treatment plants and construction projects. Prerequisite: CE 335, Chm 142. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

436—Hydromechanics. Advanced problems in dynamics and kinematics of nonviscous and viscous fluids. Equations of continuity, motion, deforma-

tion, rotation, circulation, and drag for two and three dimensional flow situations. Prerequisite: CE 315. Class: 2 hours. Laborary: 3 hours. Credit: 3 hours.

437—Transportation Engineering. Study of highway pavements. History and development of transportation facilities. Drainage requirements. Fundamentals of highway location, design, construction, and maintenance. Prerequisite: CE 434, CE 412. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

438—Reinforced Concrete Design. The design of structural members based upon elastic theory. Different methods used in designing columns. Study of standard specifications. Introduction to ultimate strength design and prestressed concrete. Prerequisite CE 430. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

439—Structural Steel Design. The elastic design of building and bridge components according to standard specifications. Plastic design of steel structures. Prerequisite: CE 430. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

4311—Plastic Design. Plastic methods of analysis applied to continuous frames, bents and girders Consideration of load and shape factors. Structural behavior in the plastic range. Prerequisite: CE 430. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4312—Advanced Structural Design. Advanced design theory of plates, shells, suspension structures, arches and modern forms. Includes ultimate strength and plastic design principles. Approximate analysis of highly indeterminate structures. General relaxation procedures. Prerequisite: CE 438, CE 439. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4313—Foundation Engineering. Principles of soil science applied to the design of rigid and elastic foundations. Spread footings, floating foundations, retaining walls, pile structures and caissons. Prerequisite: CE 439. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4314—Traffic Analysis. Theory of traffic analysis. Collection of traffic data. Electronic traffic control. Computer methods of traffic analysis. Interpretation of traffic data. Prerequisite: CE 437. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4315—Pavement Design. Structural behavior of highway and airport rigid and flexible pavements. Consideration of specifications in design. Support of facilities and accessories. Quality control of materials. Prerequisite: CE 437. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4316—Soil Dynamics. Detailed study of mechanical properties of soil masses under the effect of dynamic loading, impact and shock wave propagation. Seismic phenomena, their reflection and refraction. Electronic recording and analysis of experimental transient data. Prerequisite: Geo 433. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4318—Space Structures. Design of support facilities for space vehicles. Study of thrust loadings and dynamic effects in space structures. Consideration of space force fields. Prerequisite: CE 434, CE 438. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4322—Structural Dynamics. Development of feasible design procedures for structures subjected to dynamic response in structures with various degrees of freedom. Elastic and plastic effects considered. Prerequisite: CE 439. Class: 2 hours. Laboratory: 3 hours. Credit: 3 hours.

4323—Theory of Elasticity. Elastic theory of material behavior applied to analysis of structures under complex load patterns. Development of equations to predict stress intensities. Elastic deformation related to load capacity. Elastic failure theories. Prerequisite: Egr 232. Class: 3 hours. Credit: 3 hours.

DEPARTMENT OF ELECTRICAL ENGINEERING

Accredited by Engineers' Council for Professional Development

Professors Cherry, Cooke, Crum
Assistant Professor Bohrer, Instructor Carlin.

Electrical engineers are found in virtually every major American industry. Their services are needed by public utilities, communications systems, manufacturing companies, and many other organizations in which precise measurement and control of operations are essential.

In each of the electrical engineering courses emphasis is placed upon analytical thinking of a creative nature rather than upon the acquisition of extensive factual information. The two fields of specialization, power and electronics, receive equal emphasis throughout the entire program of study. However, a degree of specialization may be achieved by the selection of specific approved electives in the senior year.

Bachelor of Science in Electrical Engineering

First and Second Year

(See Core Program)

Professional Area Courses
His 231, 232

Third Year

First Semester		Second Semester	
EE 317—Jr EE Lab	0-3- 1	EE 318—Jr EE Lab	0-3- 1
EE 331—Cir I	3-0- 3	EE 332—Cir II	3-0- 3
EE 337—Elect & Mag Fields	3-0- 3	EE 334—Electronics I	3-0- 3
Egr 331—Ht, Mass & Momentum	3-0- 3	EE 336—Elec Mach	3-0- 3
Gov 231—Constitutions	3-0- 3	Egr 332—Ht, Mass & Momentum	3-0- 3
Phy 232—Lt & Snd	2-3- 3	Gov 232—State & Natl	3-0- 3
Spc 331 or Eng 3311	3-0- 3	Phy 335—Atomic	3-0- 3
	19		19

Fourth Year

First Semester		Second Semester	
EE 411—Seminar	1-0- 1	Eco 233—Economics	3-0- 3
EE 415—Proj. Lab.	0-3- 1	EE 412—Seminar	1-0- 1
EE 417—Proj. Lab.	0-3- 1	EE 416—Proj. Lab.	0-3- 1
EE 431—Electronics II	3-0- 3	EE 418—Proj. Lab.	0-3- 1
EE 433—Net Anal.	3-0- 3	EE 432—Electronics III	3-0- 3
EE 435—Elect. Mach.	3-0- 3	EE 436—Servo. Mech	3-0- 3
Elective—Group A	3-0- 3	EE Elective	3-0- 3
Eng Lit	3-0- 3	Elective Group A or B	3-0- 3
			3-0- 3
	16-6-18		15-9-18

Electives:

Group A Technical

Any Mathematics course of junior or senior level
IE 331, 333, 335
ME 331, 338
CHE 4325
CE 230, 333
Chm 241, 242
Bio 133-134
Geo 230, 237
Phy 331, 335, 336, 337, 346, 348

Group B General

French 130, 131, 132, 231 or 232
German 130, 131, 132, 231 or 232
Spanish 231
All English courses numbered 200 or above
All government and history courses
Music 130, Art 235, Spc 231, 238, 315, 330, or 434
Psy 231, 434; Eco 336, 430
Soc 131, 334

Electrical Engineering (EE)

314—Electronic Instrumentation. A brief course covering the calibration, applications, and limitations of cathode-ray oscilloscopes, vacuum-tube voltmeters, instrument amplifiers, and related equipment. Designed for students not majoring in electrical engineering. Prerequisite: Credit for or registration in Egr 333. Laboratory: 3 hours. Credit: 1 semester hour.

317—Junior E.E. Laboratory. To be taken in parallel with EE 331. Laboratory: 3 hours per week. Credit: 1 semester hour.

318—Junior E.E. Laboratory. To be taken in parallel with EE 332, Egr 333 and EE 336. Class: 3 hours per week. Credit: 1 semester hour.

331—Circuits I. A study of instantaneous current and power; effective current and voltage: average power; vector algebra as related to A-C circuit analysis; non-sinusoidal waves; and coupled circuits. Prerequisite: Egr 233. Parallel: Mth 233. Class: 3 hours. Credit: 3 semester hours.

332—Circuits II. Balanced and unbalanced polyphase circuits; symmetrical components; power system short-circuit and transient calculations. Prerequisite: EE 331. Class: 3 hours. Credit: 3 semester hours.

336—Electric Machinery. Basic theory of transformers; physical aspects of electro-mechanical energy conversion; basic concepts of machine performance; introduction to machine analysis of performance and application aspects of D-C machines. Prerequisite: EE 337. Parallel registration in EE 332. Class: 3 hours per week. Credit: 3 semester hours.

337—Electric and Magnetic Fields. Introduction to mathematical and physical concepts of electric and magnetic fields. Study of generalization of static electric fields; electric fields with spherical, cylindrical, and plane boundaries; methods of images capacitance concepts; magnetic fields with cylindrical boundaries; flux linkage relations, flux plotting; and estimating capacitance and permeance. Prerequisite: Egr 233. Parallel: Math 233. Class: 3 hours. Credit: 3 semester hours.

411-412—Electrical Engineering Seminar. A study of technical journals and magazines in electrical and related engineering fields; the preparation and presentation of papers on electrical subjects. Parallel: EE 431 and EE 435. Class: 1 hour. Credit: 1 semester hour for each course.

415-417—Projects Laboratory. An integrated laboratory study of the alternating current machines and circuits covered in EE 431, EE 433, and EE 435. Laboratory: 6 hours. Credit: 1 semester hour for each course.

416-418—Projects Laboratory. An integrated laboratory study of the machines and circuits covered in EE 432, EE 436, EE 437, and EE 438. Laboratory: 6 hours. Credit: 1 semester hour for each course.

431—Electronics II. Vacuum tubes and Semiconductors as circuit elements, untuned voltage and power amplifiers, and electronic computing circuits. Prerequisites: Egr 333, EE 331-337, and Mth 232. Class: 3 hours. Credit: 3 semester hours.

432—Electronics III. Tuned voltage and power amplifiers, oscillators, rectifiers with associated filers and regulators, amplitude and frequency modulation and demodulation (detection), relaxation oscillators, sweep generators, and electronic instruments. Prerequisite: EE 431. Class: 3 hours. Credit: 3 semester hours.

433—Network Analysis. A study of generalized four terminal networks, filters, transmission lines and termination equipment in steady state and in transient conditions. The course covers some applied mathematics not specifically covered in the prerequisites. Required of all electrical engineering students. Prerequisite: EE 317, 332, and 337. Class: 3 hours. Credit: 3 semester hours.

434—Transient Analysis of Circuits. The fundamental principles of transient circuit analysis by using the LaPlace Transform method of solving the circuit differential equations. Applications of method to television, servo-systems, and power system protection. Prerequisite: EE 317, 431, and Mth 232. Class: 3 hours. Credit: 3 semester hours.

435—Electric Machinery. Analysis of performance of synchronous machines, polyphase induction machines; fractional-horsepower A-C motors, control-type generators, and self-synchronous machines. Dynamics of electromechanically coupled systems. Prerequisite: EE 336. Class: 3 hours per week. Credit: 3 semester hours.

436—Servo Mechanisms. An introduction to the theory of linear open-and-closed-loop systems. An analytical analysis of the controlling differential equations of regular and hybrid systems. Includes an investigation

of the frequency response, stability and compensating methods of systems by using operational calculus. A study of components for use in servo-systems. Prerequisites: EE 431, and EE 435. Class: 3 hours. Credit: 3 semester hours.

437—Micro-Wave. A study of micro-wave generation, transmission, and detection. Includes a treatment of motion of electrons in microwave devices and specific tubes such as klystrons, traveling-wave tubes, and magnetrons. Consideration is given measurements and measuring devices at these frequencies. Parallel: EE 431, and EE 433. Class: 3 hours. Credit 3 semester hours.

438—Electric Power Systems. Theory of operation of electric power systems under balanced steady-state conditions and unbalanced or faulty conditions. Treatment involves generalized circuit equations and symmetrical components. Prerequisite: EE 435. Class: 3 hours. Credit: 3 semester hours.

439—Electrical Design. Application of the theory of electromagnetic circuits to the calculation and design of A-C and D-C apparatus and machines. Parallel: EE 435. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

4101, 4201, 4301, 4401—Special Projects. Individual student study of theoretical or experimental projects under the guidance of a member of the staff. An outline of each proposed project must have been accepted by the head of the department before registration in this course. Prerequisite: EE 318, 337, 332 and Mth 232. Class: 1 to 4 hours. Laboratory: 2 to 8 hours. Credit: 1 to 4 semester hours.

449—Advanced Circuit Theory. Generalized electric and electromechanical circuits in steady state and in transient conditions, including sufficient transformation calculus to analyze the stability of such networks. Class: 3 hours. Laboratory: 3 hours. Credit: 4 semester hours.

DEPARTMENT OF INDUSTRIAL ENGINEERING

Accredited by Engineers' Council for Professional Development

Professors Thomas, Tims.*
Assistant Professors Levosky, Meier.*
Instructors Faris, Naumann

Industrial Engineering is concerned with the design, improvement, and installation of integrated systems of men, materials, and equipment; drawing upon specialized knowledge and skill in the mathematical, physical, and social sciences together with principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems.

The course is basically engineering, with the usual engineering foundation in mathematics and the sciences, with additional emphasis on the human and economic factors essential in all engineering activity.

The organization and operation of industrial enterprises are stressed in the industrial engineering course. Courses in manufacturing processes, work measurement, industrial administration, management, engineering economy, tool engineering, and factory planning are offered.

The graduate is prepared to engage in the technical and managerial phases of industry and to advance to such responsibilities as engineering sales, purchasing, personnel administration, production planning and control, production cost control, plant location and factory planning, plant maintenance, product design and development and the administration and management of industries or their many subdivisions.

The successful industrial engineer must possess special interests and abilities in the analysis of the human, technical, and economic problems of the industrial culture. In addition he must possess the essential personality and character which will enable him to work with and direct others in the planning, organizing, improving, managing, and the successful operation of the various processes for the conversion, transformation, and fabrication of raw materials into products of all kinds and varieties.

Program of Study

Bachelor of Science in Industrial Engineering

First and Second Year
(See Core Program)

Professional Area Courses
His 231, 232

*On Leave of Absence

Third Year

First Semester			Second Semester		
IE 333—Engr Economy	3-0-	3	IE 331—Management	3-0-	3
IE 334—Human Relations	3-0-	3	IE 335—Acct for Engrs	3-0-	3
IE 339—Manf Process	3-0-	3	IE 338—Work Measurement	2-3-	3
Egr 112—Prod and Fab Proc	0-3-	1	Egr 332—Heat Mass Mom Trans II	3-0-	3
Egr 331—Heat Mass Mom Trans I	3-0-	3	Humanities[1]	3-0-	3
Phy 232—Light and Sound	2-3-	3	Phy 335	3-0-	3
Humanities[1]	3-0-	3			18
		19			

Fourth Year

First Semester			Second Semester		
IE 436—Factory Plan	1-6-	3	IE 434—Tool Engineering	2-3-	3
ME 332—Elements of Mech Design I	2-3-	3	IE 411—Seminar	1-0-	1
Egr 333—Electronics	3-0-	3	IE 430—Quality Control	2-3-	3
ME 4319—Adv Mat Science	2-3-	3	Humanities[1]	3-0-	3
Humanities[1]	3-0-	3	Electives[2]		6
Electives[2]		3			16
IE 311—Seminar		1			
		19			

[1] Humanities
Gov 231, 232
English literature, 3 semester hours
Spc 331

[2] Electives. The student must select 6 semester hours from the engineering sciences and 3 semester hours from courses which satisfy the general college regulations.

Industrial Engineering (IE)

311—Seminar. Current problems related to industrial engineering and the industrial engineering student. Class: 1 hour. Credit: 1 semester hour.

331—Management. Principles of management, management policies and methods of control in industry. Class: 3 hours. Credit: 3 semester hours.

333—Engineering Economy. Methods for determining the comparative financial desirability of engineering alternatives. Prerequisite: Mth 139. Class: 3 hours. Credit: 3 semester hours.

334—Human Relations in Industry. Interrelationships of industry and the social order; society of modern industry. Cases are presented for analysis and discussion. Class: 3 hours. 3 semester hours.

335—Accounting for Engineers. Elements of accounting, cost accounting, systems and budgets with industrial applications. Class: 3 hours. Credit: 3 semester hours.

338—Work Measurement. Methods used in developing procedures for effective utilization of human effort in industrial operations. Laboratory: practice in analyzing job situations with stop watch, motion picture camera, and other motion economy equipment. Prerequisite: Mth 231. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

339—Manufacturing Processes. Methods of processing engineering materials—primarily metals—including metal casting, working, forming, joining, and metal-removing techniques, and measuring and gaging techniques. Prerequisite Egr 112 or Concurrent. Class: 3 hours. Credit: 3 semester hours.

411—Seminar. Current problems related to industrial engineering and industrial engineering students. Prerequisite: IE 311. Class: 1 hour. Credit: 1 semester hour.

420—Industrial Control. System of quality and quantity control in production of goods. Methods of controlling personnel, machine, materials, and quality of products by means of scheduling, dispatching, routing, and statistical methods. Class: 2 hours. Credit: 2 semester hours.

430—Quality Control. Basic control techniques in the field of industrial production, inspection, and experimentation. Various sampling, control, and inspection problems are studied with special reference to practical applications. Underlying theory, assumptions, and limitations are presented. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

431—Industrial Organizations. The functions and relationships of the subdivision of industrial organizations. Prerequisite: IE 331. Class: 3 hours. Credit: 3 semester hours.

432—Industrial Administration. The problems, philosophy, and practices associated with employment, maintenance, utilization, supervision and compensation of industrial personnel. Prerequisite: IE 331. Class: 3 hours. Credit: 3 semester hours.

433—Job Evaluation. Job analysis, specifications, job descriptions, and evaluation of individual jobs. Laboratory practice in application of standard techniques. Prerequisite: IE 432. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

434—Tool Engineering. Study and design of mass production tools and their characteristics. Prerequisite: IE 333, 338 and 339; ME 332. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

436—Factory Planning. An industrial plant is designed, covering location capacity, material routing, machinery type of building, shipping, and an organization is designed to staff the plant. An analysis of the financial desirability of the design is required to be presented in a formal report. Prerequisite: IE 333, 335, 338 and 339. Class: 1 hour. Laboratory: 6 hours.

4111, 4211, 4311, 4411—Special Problems. An investigation of current specialized areas of industrial engineering. A written report of the investigation will be required. Class: 1 to 4 hours. Credit: 1 to 4 semester hours.

DEPARTMENT OF MECHANICAL ENGINEERING

Accredited by Engineers' Council for Professional Development

Professor Brown. Associate Professors Bruyere, Greene, Mei.
Assistant Professors Martinez, Stevens, Wilten.

Mechanical Engineering embraces the analysis, design, synthesis and selection of materials for mechanical and thermal processes and machines. Such a broad field must of necessity require a firm foundation in the fundamental sciences and mathematics as well as in the engineering sciences.

Application of the sciences to diverse areas of mechanical engineering are studied in the junior year. Although specialization at the upper-graduate level cannot be achieved, opportunity is provided the student at the senior level to examine certain aspects of Mechanical Engineering in more detail or to prepare for graduate study.

Mechanical engineers are found in every industry. They are engaged in professional engineering, research, management, and public service. The end products resulting from the application of their knowledge and professional skills are many, and a list would include, for example, all forms of transportation, central power plants, nuclear reactors and space vehicles.

Few fields of endeavor offer more to the individual in challenge and opportunity or require better preparation than does mechanical engineering.

Successful completion of the curriculum leads to the degree of Bachelor of Science in Mechanical Engineering.

Program of Study

Bachelor of Science in Mechanical Engineering

First Year

As specified in core program in engineering.
(See Core Program)

Second Year

As specified in core program in engineering with the professional area electives designated below.

First Semester		Second Semester	
Humanities*	3-0- 3	Egr 112—Prod. and Fab. Proc.	0-3- 1
	15-9-18	Phy 232—Light and Sound..	2-3- 3
			16-9-19

Third Year

First Semester		Second Semester	
ME 338—Thermo. II	3-0- 3	Egr 333—Electronics	3-0- 3
Egr 331—Heat, Mass and Mom. Transfer I	3-0- 3	Egr 332—Heat, Mass and Mom. Transfer II	3-0- 3
Humanities*	3-0- 3	Humanities*	3-0- 3
Phy 335—Atomic Physics	3-0- 3	Eng 3311—Tech. Report Writing	3-0- 3
Spc 331—Bus. & Prof. Spc	3-0- 3	ME 334—Engr. Anal. I	2-3- 3
ME 332—Elem. Mech. Des. I	2-3- 3	ME 333—Elem. Mech. Des. II	2-3- 3
ME 310—Instrmt. Lab	0-3- 1	ME 311—Fluid Mech. and Heat Trans. Lab	0-3- 1
	17-6-19		16-9-19

Fourth Year

First Semester		Second Semester	
Humanities*	3-0- 3	Humanities*	3-0- 3
Eco 233—Prin. & Policies	3-0- 3	ME 412—Test. & Des. Exp.	0-3- 1
ME 4319—Adv. Mat. Sc	2-3- 3		
ME 411—Seminar	1-0- 1		
ME 431—Engr. Sys. Des	1-6- 3		

(plus option 18 semester hours)

Total 146 Semester Hours

*Humanities

Hist 231, 232
Gov 231, 232
Eng (Literature)

ME Options

(18 semester hours minimum)

Aero-Space		Graduate School Preparatory	
ME 433—Aerodynamics	3	ME Elective (Engineering Science)	3
ME 4312—Gas Dynamics	3	ME Electives (Design and Analysis)	6
ME 4321—Celestial Mech	3	Tech. Electives (Phy 432, EE 337, Mth, Chm 441, ME 432)	6- 7
ME 4320—Propulsion Sys	3	Mod. Language	3
ME 432—Vibrations or ME 4311—Controls Engr	3		
Mth 433—Vector Analysis	3		
	18		18-19

Professional

Power Systems Elective	3
ME 438—Environmental Systems Engineering	3
ME 432—Vibrations or ME 4311—Controls Engr	3
Engineering Science Elective (ME or EE 331)	3
IE 339—Manf. Process	3
Electives (Mth 3301, IE 434, IE 436, IE 331, Psy 231, Soc 334, Phl 231, Phl 232)	3
	18

Courses selected in each option must include at least three semester hours of engineering sciences and at least six semester hours of analysis, design, and engineering systems.

Mechanical Engineering (ME)

211—Elementary Engineering Metallography. Metallurgical principles as related to the properties and utilities of metals and alloys of service in engineering with emphasis on the heat treatment of plain carbon and alloy steels, light alloys, and cast iron. Prerequisite: Concurrent registration in ME 212. Class: 1 hour. Credit: 1 semester hour.

212—Metallography Laboratory. Metallurgical specimens are prepared and studied. Prerequisite: Concurrent registration in ME 211. Laboratory: 3 hours. Credit: 1 semester hour.

234—Dynamics. A study of the motion of rigid bodies and of the force systems that act on rigid bodies which have non-uniform motion. Prerequisites: CE 231 and Mth 232. Class: 3 hours. Credit: 3 semester hours.

310—Instruments Laboratory. Various instruments with Mechanical engineering applications are studied and used. Instruments include pressure, temperature, area, speed, power, torque, and frequency measuring devices. Prerequisites: Egr 331 or parallel. Laboratory: 3 hours. Credit: 1 semester hour.

311—Fluid Mechanics and Heat Transfer Laboratory. Selected experiments illustrating the fundamentals of fluid flow and heat transfer are performed. Prerequisites: ME 310, ME 330 or parallel and ME 322 or parallel; or ME 310 and Egr 331 or parallel. Laboratory: 3 hours. Credit: 1 semester hour.

321—Fluid Mechanics II. A continuation of ME 330 with a presentation of compressibility phenomena, the boundary layer of selected applications or topics of special interest. Prerequisites: ME 330 and ME 334 or parallel. Class: 2 hours. Credit: 2 semester hours.

322—Heat Transfer I. Principles underlying conduction and radiation of heat. Prerequisite: ME 334. Class: 2 hours. Credit: 2 semester hours.

330—Fluid Mechanics I. An introduction to the fundamentals of fluid flow. Topics include statistics, kinematics, dynamics, energy, momentum, dimensional analysis, viscous flow and introduction to compressible flow. Prerequisite: ME 234. Class: 3 hours. Credit: 3 semester hours.

331—Kinematics. Analysis of mechanisms. Centros, velocities and accelerations in plane mechanisms; rolling and sliding contact in belts, chains and cams, and gears in plain and epicyclic trains. Prerequisite: ME 234 or parallel. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

332—Elements of Mechanical Design I. The design of machine components including shafting, columns, springs and frames with regard to static and dynamic forces employing analytical and graphical analysis. Prerequisite: ME 331 or approval of department head. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

333—Elements of Mechanical Design II. The design of power transmission machinery. Complete design of some assigned machine. Prerequisite: ME 332. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

334—Engineering Analysis I. Methods of analysis of engineering situations requiring application of fundamentals of engineering science and mathematics are studied. Projects requiring synthesis and analysis of engineering systems are assigned. Prerequisites: Mth 232 and approval of department head. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

338—Thermodynamics II. A continuation of Egr 234 including vapor and gas cycles, mixtures of gases, thermodynamics of chemical systems and psychrometrics. Prerequisite: Egr 332 or parallel. Class: 3 hours. Credit: 3 semester hours.

410-411—Seminar. Oral and written presentation and discussion of selected topics including those from current literature of fields related to mechanical engineering. Professional activities are encouraged. Class: 1 hour. Credit: 1 semester hour.

412—Testing and Design of Experiments. The design and execution of selected experiments from internal combustion engines, steam power plant, refrigeration, air-conditioning, and others. Emphasis is placed on analysis, procedure, and presentation of technical reports. Prerequisite: ME 311, and Egr 332 or parallel. Laboratory: 3 hours. Credit: 1 semester hour.

420—Heat Transfer II. A continuation of ME 322 with particular emphasis on convection, boiling, condensing and heat exchangers. Prerequisites: ME 322, ME 321 or parallel, and ME 338. Class: 2 hours. Credit: 2 semester hours.

4101, 4201, 4301, 4401—Advanced Problems in Mechanical Engineering. Special problems in the various phases of mechanical engineering are assigned to individual students or to groups. Readings are assigned and consultations are held. Class: By consultation. Credit: Up to 4 semester hours.

431—Engineering Systems Design. The design techniques of integrated component systems are treated. The student is required to utilize these techniques by designing such a system. Prerequisite: ME 333 and ME 334 or parallel. Class: 1 hour. Laboratory: 6 hours. Credit: 3 semester hours.

432—Mechanical Vibrations. The theory of vibrating systems, including kinematics of vibrations, harmonic and non-harmonic, single and multiple degrees of freedom; free and forced vibrations, with and without damping. Applications to crank and slider, rotating machinery, balancing, vibration isolation and absorption, and instrumentation. Prerequisites: ME 334 or parallel, and ME 332. Class: 3 hours. Credit: 3 semester hours.

433—Aerodynamics. Topics include circulation and curl, irrotational flow, velocity potential, vortex theorems, the equations of motion, flow velocity potential, vortex theorems, the equations of motion, flow about a body, and the thin airfoil. Vector and complex notation is used. Prerequisite: ME 321 or parallel, or Egr 332 or parallel. Class: 3 hours. Credit: 3 semester hours.

434—Internal Combustion Engines. The principles of design and analysis of various types of internal combustion engines. Prerequisites: ME 338 and ME 322 or Egr 332. Class: 1 hour. Laboratory: 6 hours. Credit: 3 semester hours.

435—Turbomachinery. Flow problems encountered in the design of water, gas and steam turbines, contrifugal and axial-flow pumps and compressors. Prerequisite: ME 321 or Egr 332. Class: 3 hours. Credit: 3 semester hours.

437—Advanced Machine Design. The application of machine design principles to an integrated design of a complete machine, including fabrication and economic considerations. Prerequisite: ME 333. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

438—Environmental Systems Engineering. Design of refrigeration and air-conditioning systems including selection of mechanical equipment, controls, piping, and duct layout. Laboratory consists of design and experiment. Prerequisite: ME 420 or parallel, or Egr 332. Class: 1 hour. Laboratory: 6 hours. Credit: 3 semester hours.

439—Advanced Dynamics. Dynamics of a particle. Dynamics of a system of particles. Dynamics of systems with constraints. Theory of small vibrations. Rotation of rigid body about a fixed point. Prerequisite: ME 334. Class: 3 hours. Credit: 3 semester hours.

4311—Controls Engineering. The theory of integrated automatic control systems with application to combustion, temperature, pressure, flow

and humidity control. Industrial control systems are considered. Prerequisite: ME 322 or Egr 332. Class: 3 hours. Credit: 3 semester hours.

4312—Gas Dynamics. Fundamentals of one-dimensional compressible flow. An introduction to multi-dimensional wave phenomena with various applications. Prerequisite: Egr 332 and approval of department head. Class: 3 hours. Credit: 3 semester hours.

4313—Advanced Heat Transfer. Advanced theory and applications of heat transfer for various boundary conditions. Conduction, convection, and radiation are considered. Prerequisite: ME 420 or Egr 332. Class: 3 hours. Credit: 3 semester hours.

4314—Fundamentals of Physical Metallurgy. Fundamental and scientific principles of physical metallurgy to include: nucleation theory of solidification, behavior of single and polycrystalline solids under stress and heat treatment—plastic deformation and recrystallization, and basic principles of x-ray diffraction used in physical metallurgy. Prerequisite: ME 4319 or parallel. Class: 3 hours. Credit: 3 semester hours.

4315—Thermodynamics III. An introduction to the kinetic theory of gases, statistical mechanics, and quantum theory. Prerequisites: ME 338, and ME 334 or parallel. Class: 3 hours. Credit: 3 semester hours.

4316—Thermodynamics IV. Topics in chemical thermodynamics of interest to the Mechanical Engineer, including combustion and combustion charts, binary mixtures, equilibrium and generalized thermodynamic charts. Prerequisite: ME 338. Class: 3 hours. Credit: 3 semester hours.

4317—Engineering Analysis II. A continuation of ME 334 with some emphasis being placed on analog methods and computer techniques in solving engineering problems. Prerequisite: ME 334. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

4318—Two-Dimensional Photoelasticity. Stress and strains at a point. Stress-strain relations. Isoclinics and stress trajectories. A brief review of optics with emphasis on polarization of light. Double infraction. Stress-optic law. Stress Patterns. Analysis of photoelastic results. The laboratory consists of preparing photoelastic models, determining stresses with a photoelastic analysis, and comparing results from existing theoretical approaches. Prerequisite ME 333, and ME 4319 or parallel. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

4319—Advanced Materials Science. A continuation of Egr 221. Aspects of elastic behavior, as well as stress and strain measurement, yield phenomena, tension, torsion, hardness, and assorted effects are considered. Criteria for selecting proper engineering materials are discussed. Prerequisite: ME 338. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

4320—Propulsion Systems. Basic elements of rocket propulsion involving both solid and liquid propulsion systems. Prerequisites: ME 322 and ME 330, or Egr 332. Class: 3 hours. Credit: 3 semester hours.

4321—Celestial Mechanics. An analytical treatment of the mechanics of orbital motion, with applications to the trajectories of astronomical objects and space vehicles. Prerequisite: Egr 332 or parallel. Class: 3 hours. Credit: 3 semester hours.

4322—Theories of Turbulence. Background and statistical theory of turbulence are discussed. Statistical theory is applied to isotropic turbulence. Older phenomenological theories of turbulence are reviewed. Prerequisites: Egr 332 and approval of department head. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF MATHEMATICS

Professors Stark, Archer.

Associate Professors Dennis, Latimer, Kerec, Wolkeau.

Assistant Professors L. Bell, DeMent, Dingle, McGuire, Brenizer, Wood, K. Bell.

Instructors Perkins, Smith, Lauffer, McNeir.

The importance of mathematics to the ambitious scientist and engineer of the present day can hardly be overemphasized. Many phenomena of nature can be understood adequately only when translated into the language of mathematics. In a day when inventions are sought almost on schedule, a student majoring in science or engineering at a technological college may expect to find an emphasis on the basic tool of mathematics.

Mathematicians with adequate training and background find a variety of opportunities in industry, in government service, in the acturial profession, as statisticians, and of course, as teachers of mathematics on the secondary school, college, or university levels. For further information along these lines, the reader is invited to confer with faculty members and is referred to the publication "Professional Opportunities in Mathematics," obtainable from the Mathematical Association of America.

The Mathematics Department offers programs leading to the Bachelor of Science degree, the Bachelor of Arts degree, and the Master of Science degree. The Bachelor of Arts degree is primarily for those who plan to teach mathematics in secondary schools. The Bachelor of Science degree is recommended for those undergraduate students who plan to do industrial work in mathematics or to enter graduate school for an advanced degree in mathematics. For information concerning the Master of Science degree, refer to the Bulletin of Lamar State College of Technology Graduate School.

Those wishing to secure the Bachelor of Arts degree in mathematics while fulfilling the requirements for a provisional secondary school certificate with a teaching field in mathematics, will find below the details of such a program. Also given below are programs of study for the Bachelor of Arts degree with major in mathematics and minor unspecified, the Bachelor of Science degree with major in mathematics and minor in engineering, and the Bachelor of Science degree with major in mathematics and minor in physics. Programs of study for the Bachelor of Science degree with other than the minors listed here may be prepared by consultation with the mathematics department. In the list of courses found below, graduate courses are distinguished by the fact that their course numbers begin with the digit 5.

Programs of Study

Bachelor of Arts — Mathematics Major

1. General requirements:
   (1) Eng 131, 132—composition
   (2) Eng Literature—6 sem hrs
   (3) Laboratory science—8 sem hrs (same science)
   (4) Gov 231, 232—State and National
   (5) His 231, 232—United States
   (6) Foreign Language through 232 (same Lang.)
   (7) HPE (activity)—4 sem hrs
2. Major requirements:
   (1) A minimum of 24 semester hours of mathematics including 15 hours of advanced courses approved by the department.
3. Minor requirements
   (1) A minor of 18 hours approved by the department.
4. Electives—(approved)

First Year

First Semester		Second Semester	
Mth 138—Analysis I	3-0- 3	Mth 231—Analysis III	3-0- 3
Mth 139—Analysis II	3-0- 3	Eng 132—Comp	3-0- 3
Eng 131—Comp	3-0- 3	Science	3-3- 4
Science	3-3- 4	Minor	3-0- 3
Minor	3-0- 3	His 231—United States	3-0- 3
HPE—Activity	0-3- 1	HPE—Activity	0-3- 1
	17		17

Second Year

First Semester		Second Semester	
Mth 232—Analysis IV	3-0- 3	Mth 331—Diff Equations	3-0- 3
Eng—Literature	3-0- 3	Eng—Literature	3-0- 3
His 232—United States	3-0- 3	Gov 231—St and Natl	3-0- 3
For Lang 131	3-0- 3	For Lang 132	3-0- 3
*Elective	3	*Elective	3
HPE—Activity	0-3- 1	HPE—Activity	0-3- 1
	16		16

Third Year

First Semester		Second Semester	
Mth (adv)	3-0- 3	Mth (adv)	3-0- 3
Gov 232—St and Natl	3-0- 3	For Lang 232	3-0- 3
For Lang 231	3-0- 3	Minor	3-0- 3
Minor	3-0- 3	*Electives	6
*Elective	3		15
	15		

Fourth Year

First Semester		Second Semester	
Mth (adv)	3-0- 3	Mth (adv)	3-0- 3
Minor	3-0- 3	Minor	3-0- 3
*Electives	9	*Electives	9
			15

*Approved by the Mathematics Department

Teacher Certification—Mathematics

Those wishing to secure the Bachelor of Arts degree in mathematics and at the same time certify for a provisional certificate—secondary with a teaching field in mathematics must include in their degree program the following:

(1) 18 hours of professional education as follows:
Edu. 331, 332, 338, 438, and 462.

(2) Minor to be expanded to include an approved 24 hours teaching field other than mathematics. (Consult this catalogue—Dept. of Edu.)

(3) 15 hours of advanced mathematics as follows:
Mth 330, 331, 333 or 334, 335 or 336 or 337, and 433.

(4) Approved electives sufficient to make a total of 132 sem hrs.

Bachelor of Science—Mathematics Major

Program I—Engineering Minor

First Year

(See First Year of Core Studies, School of Enginering.)

Second Year

(See Second Year of Core Studies, School of Engineering. For Professional Area of Second Year Core Studies, take Mth 331—Differential Equations and Phy 232.)

Third Year

First Semester		Second Semester	
Mth 332 or 4301— Adv Calculus	3-0- 3	Mth 433—Vector Anal	3-0- 3
Egr 331—Ht, Mass	3-0- 3	Egr 332—Ht, Mass	3-0- 3
Gov 231—St and Natl	3-0- 3	Gov 232—St and Natl	3-0- 3
Mth—Elective	3	Mth—Elective	3
Egr—Elective	3	Elective	3
	15		15

Fourth Year

First Semester			Second Semester		
Mth 431—			Mth 432—		
Complex Variables	3-0-	3	Complex Variables	3-0-	3
Mth 333 or 334—Geometry	3-0-	3	Egr 333—Electronics	3-0-	3
Elect (Mth, Phy, Egr)		8	Elect (Mth, Phy, Egr)		8
His 231—United States	3-0-	3	His 232—United States	3-0-	3
		17			17

Program II—Physics Minor

First Year

(See First Year of Core Studies, School of Engineering.)

Second Year

(See Second Year of Core Studies, School of Engineering. For Professional Area of Second Year Core Studies, take Mth 331—Differential Equations and Phy 232.)

Third Year

First Semester			Second Semester		
Mth 332—Adv Calculus	3-0-	3	Mth 433—Vector Anal	3-0-	3
Phy 335—Atomic Physics	3-0-	3	Gov 232—St and Natl	3-0-	3
Electives		7	Electives		7
Gov 231—St and Natl	3-0-	3	Phy 338—		
			Adv Elect and Mag		
			or		
			Phy 431—Mechanics	3-0-	3
		16			16

Fourth Year

First Semester			Second Semester		
Mth 431—			Mth 432—		
Complex Variables	3-0-	3	Complex Variables	3-0-	3
Mth—Elective		3	Mth—Elective		3
Mth 434—Part Diff Equa	3-0-	3	Phy—Elective		3
Electives		3	Electives		3
His 231—United States	3-0-	3	His 232—United States	3-0-	3
		15			15

Mathematics (Mth)

131—Finite Mathematics I. Principles of mathematics, number bases, and coordinate geometry. Prerequisite: 2 units of high school mathematics. Class: 3 hours. Credit: 3 semester hours.

132—Finite Mathematics II. Symbolic logic, theory of sets, probability and statistics, theory of games, mathematical induction, and group theory. Class: 3 hours. Credit: 3 semester hours.

133—Plane Trigonometry. Trigonometric functions and their applications, trigonometric identities and equations. Prerequisite: 1½ units of high school algebra and 1 unit in plane geometry. Class: 3 hours. Credit: 3 semester hours.

134—College Algebra. Determinants, binominal theorem, theory of equations, progressions, permutations, combinations and probability. Prerequisite: 2 years of high school algebra. Class: 3 hours. Credit: 3 semester hours.

138—Analysis I. Functions and graphs, slope, properties of limits, derivatives of algebraic functions and applications, integration. Class: 3 hours. Credit: 3 semester hours.

139—Analysis II. Applications of the definite integral, transcendental functions, methods of integration. Prerequisite: Analysis I. Class: 3 hours. Credit: 3 semester hours.

231—Analysis III. Plane analytic geometry, hyperbolic functions, polar coordinates, parametric equations, solid geometry, vectors. Prerequisite: Analysis II. Class: 3 hours. Credit: 3 semester hours.

232—Analysis IV. Partial differentiation, multiple integrals, infinite series, differential equations. Prerequisite: Analysis III. Class: 3 hours. Credit: 3 semester hours.

233—Linear Algebra. Set notation, number fields, groups, vectors, geometry of space, vector spaces, determinants, linear transformations, matrices. Prerequisite: Analysis III. Class: 3 hours: Credit: 3 semester hours.

234—Probability and Statistics. Permutations and combinations, factorials, elementary principles of probability, mathematical expectation, averages, curve fitting, engineering applications. Prerequisite: Analysis III. Class: 3 hours. Credit: 3 semester hours.

330—Principles of Mathematics. An introduction to some modern topics in mathematics. Symbolic logic, a development of the number system, groups, fields, sets, boolean algebra, function theory, and probability. Prerequisite: Mth 231. Class: 3 hours. Credit: 3 semester hours.

3301—Introduction to Data Processing. Types of digital computing systems. Design of computations for computing machinery. Prerequisite: Mth 232 or Acc 331. Class: 3 hours. Credit: 3 semester hours.

331—Differential Equations. Analytical solution of ordinary differential equations in terms of elementary and classical functions. Application to problems in geometry, engineering, and physics. Introduction to solution by series and numerical methods. Prerequisite: Mth 232. Class: 3 hours. Credit: 3 semester hours.

332—Advanced Calculus. Infinite series, hyperbolic functions, Fourier series, introduction to topics selected from complex variables, elliptic integrals, vector analysis. Prerequisite: Mth 232. Class: 3 hours. Credit: 3 semester hours.

333—Higher Geometry. An axiomatic treatment of one or more of the important types of space—projective, metric, Euclidean, or topologic. Emphasis on the method rather than on the content. Prerequisite: Mth 231. Class: 3 hours. Credit: 3 semester hours.

334—Higher Geometry. Advanced topics in Euclidean geometry followed by a brief study of satellites. Constructible elements, problem of Apollonius, geometrical transformations, Euler line, Feuerbach Theorem, geometry of the triangle, Dandelin spheres, conic sections. Prerequisite: Mth 231. Class: 3 hours. Credit: 3 semester hours.

335, 336—Higher Algebra. Postulates for the system of positive integers. Systems of integers, rational numbers, real numbers, and complex numbers by embedding. Dedekind cuts. Groups, rings, fields, Diophantine equations, congruences, matrix theory. Prerequisite: Mth 231. Mth 335 is not a prerequisite for Mth 336. Class: 3 hours. Credit: 3 semester hours for each course.

337—Theory of Equations. Complex numbers, general theorems on algebraic equations, solution cubic and quartic equations. Determinants and matrices, Cramer's Rule. Symmetric functions, resultants, discriminants and elimination, the Graeffe method. Prerequisite: Mth 231. Class: 3 hours. Credit: 3 semester hours.

4010, 4020, 4030—Special Problems. Special advanced problems in mathematics to suit the needs of individual students. Class: 1 to 3 hours. Credit: 1 to 3 semester hours.

4301, 4302—Advanced Calculus for Engineers. Linear ordinary differential equations, the Laplace Transform, series solutions of differential equations, boundary-value problems, orthogonal functions, introduction to vector analysis and functions of a complex variable, partial differential equations of mathematical physics. Prerequisite: Mth 331. Class: 3 hours. Credit: 3 semester hours.

431, 432—Introduction to Functions of a Complex Variable. Review of theorems from analysis and point set theory followed by a study of analytic functions from the Cauchy-Riemann and Weierstrass points of view. Compact sets, uniform convergence, Taylor Expansion Theorem, analytic continuation, Laurent expansions, calculus of residues, conformal mapping. Prerequisite: Mth 332 or Mth 4301. Class: 3 hours. Credit: 3 semester hours each course.

4310—Numerical Analysis. Approximations, interpolation, finite differences, numerical integration, curve fitting. Prerequisites: Mth 3301, 331, 337. Mth 4312 must be taken concurrently. Class: 3 hours. Credit: 3 semester hours.

4311—Numerical Solution of Differential Equations. Analytical foundations. Methods for ordinary and partial differential equations. Prerequisites: Mth 3301, 331, 337. Mth 4312 must be taken concurrently. Class: 3 hours. Credit: 3 semester hours.

4312—Advanced Data Processing. Applications of computing machinery. Programming and operation. Prerequisites: Mth 3301 and senior standing. Class: 3 hours. Credit: 3 semester hours.

433—Vector Analysis. The algebra and calculus of vectors with applications. Scalar and vector fields, operators, Green's, Stokes's, and Divergence Theorems; Curvilinear coordinates. Other topics as time permits. Prerequisite: Mth 331. Class: 3 hours. Credit: 3 semester hours.

434—Partial Differential Equations. General and particular solutions, boundary conditions, Fourier series, Bessel functions, harmonic analysis, numerical solutions, condition of heat, flow of electricity. Prerequisite: Mth 331 and either Mth 332 or Mth 4301. Class: 3 hours. Credit: 3 semester hours.

437, 438—Probability and Statistics. Discrete and continuous event spaces, functions of several random variables, independent experiments, Central Limit Theorem, and properties of special distributions. Introduction to analysis of variance. Prerequisite: Mth 234. Class: 3 hours. Credit: 3 semester hours for each course.

439—Seminar. Lectures, reports, and discussions on special topics. Class: 3 hours. Credit 3 semester hours.

530—Seminar in Mathematics for Teachers. A review of basic mathematics through description and problem solving techniques. May not be taken for credit by science, engineering, or mathematics students. Class: 3 hours. Credit: 3 semester hours.

531—Theory of Functions of Real Variable. Analytic functions, pathological functions, set functions, Riemann integral, measure theory, Lebesque integral, Riemann-Stieltjes and Lebesque-Stieltjes integral. Class: 3 hours. Credit: 3 semester hours.

533—Calculus of Variations. The Euler-Lagrange differential equation, necessary conditions of Legendre, Jacobi, and Weierstrass, sufficient conditions for an extreme, brachistochrone problem, geodesics, surfaces of revolution of minimum area, other problems as time permits. Class: 3 hours. Credit: 3 semester hours.

535—Introduction to Advanced Analysis. The Riemann mapping theorem, prime number theorem, functions of finite order, Turan's proof of Fabry gap theorem, other topics as time permits. Prerequisite: Mth 431. Class: 3 hours. Credit: 3 semester hours.

537—Methods of Applied Mathematics. The Dirichlet problem, solution of boundary-value problems, the Bergman kernel function, method of the minimum integral, applications of conformal mapping. Fredholm theory. Prerequisite Mth 431. Class: 3 hours. Credit: 3 semester hour.

539—Infinite Series. Sequences, power series, series of functions, complex series, expansion of functions, tests for convergence, uniform convergence, conditions for rearranging terms in a series, Fourier series, Lambert series, Weierstrass theorem on double series, asymptotic expansions, summation of series. Class: 3 hours. Credit: 3 semester hours.

669—Thesis. Prerequisite: admission to candidacy for the master's degree. Credit: 6 semester hours.

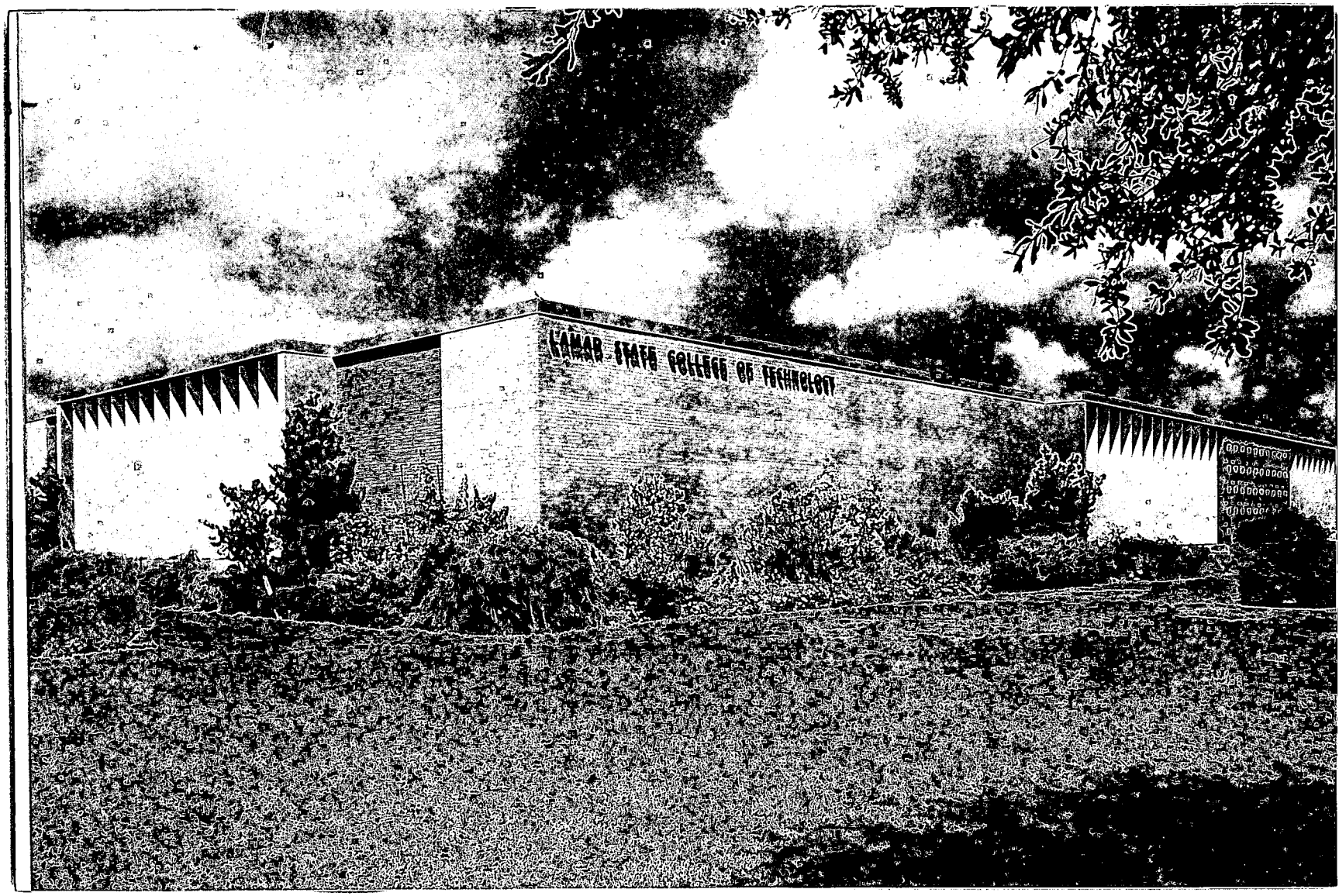
SCHOOL OF EDUCATION

Departments

Education and Psychology

Home Economics

Physical and Health Education


LAMAR STATE COLLEGE OF TECHNOLOGY

School of Education

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Professors: Olcott, Adams, Mang, McLaughlin.

Associate Professors: Flocke, Graves, Hybarger, Salter, Self, Sontag, Wilbanks.

Assistant Professors: Blackburn, Breining, Buller, Harlan, Permenter, Rodgers.

Teacher Education—A Shared Responsibility

The preparation of teachers is a responsibility that is shared by all of the schools of the college. Policies concerning teacher education programs and the actual curricular requirements in each program are determined by the Teacher Education Committee. This Committee is composed of faculty members who represent the various departments of the college offering teacher education programs. Within the framework of the policies established, the Department of Education and Psychology coordinates all teacher education programs throughout the institution.

Admission to Teacher Education

Applications for admission to teacher education are made during the latter part of the sophomore year or at the beginning of the junior year. Applications are filed with the Dean of the School of Education.

To be eligible for admission students must have an overall academic grade point average of 1.0 (C), be of junior standing, and have completed a minimum of 45 semester hours of the Academic Foundations Program. Prior to admission, students must demonstrate ability to write clear and correct English. Students may, at the discretion of the Teacher Selection and Screening Committee, be required to pass examinations in speech, hearing, and general physical health.

Teacher Education Programs

Lamar State College of Technology provides programs of teacher education in the following areas: Elementary School Teacher; Secondary School Teacher; Special Education—Mental Retardation; Special Education—Speech and Hearing Therapy; Driver Education; and All Levels Music.

The Department of Education and Phychology offers curricula leading to the Bachelor of Science degree in Education-Elementary, the Bachelor of Science in Education-Secondary, and the Master of Education-Elementary. These undergraduate and graduate programs respectively fulfill the curriculum requirements for the Provisional and Professional Certificates in the State of Texas.

Bachelor of Science in Education—Elementary

The Bachelor of Science in Education—Elementary as outlined fulfills the requirements for the Provisional Certificate—Elementary in the State of Texas. This program presumes an overlap of 6 semester hours between Academic Foundations and the Area of Specialization, thus allowing 12 semester hours of free electives. If the Area of Specialization is in a discipline other than English, mathematics, science, or history, the free electives may be reduced to 6 semester hours.

Additional information pertaining to Academic Foundations, Area of Specialization, and general requirements for certification may be found under the section of this catalogue "Certification and Degree Requirements."

First Year		Second Year	
Eng 131-132—Comp.	6	Eng—Literature	6
Science—Laboratory	8	His 231-232—United States	6
Mth	6	Gov 231-232—St. & Nat.	6
MTy 131—Ele. of Music	3	Science	3
His 234—Texas	3	Geg 230—Wld. Geography	3
HPE—Activity	2	HPE—Activity	2
Acad. Found.—Elect.	6	Acad. Found.—Elect.	6
	34		32

Third Year		Fourth Year	
CA 337—Art Elem. Sch.	3	Edu 335—Arith. in Elem. Sch.	3
Edu 331—Foundations	3	Edu 339—Read. in Elem. Sch.	3
Edu 332—Edu. Psy.	3	Edu 437—Sci. & Soc. Stud.	3
Edu 333—Lang. Arts	3	Edu 434—Clsrm. Mgt. & Eval.	3
Edu 334—Cur. & Mat.	3	Edu 465—Student Teaching	6
HPE 233—PE in Elem.	3	Area of Specialization—(Adv.)	6
Spc 333—Storytelling	3	Free Electives	6
Area of Specialization (3 hrs. advanced)	6		30
Acad. Found.—Elect.	3		
Free Electives	6		
	36		

Bachelor of Science in Education—Secondary

Students may qualify for certificates to teach in secondary schools by completing the requirements for a Bachelor of Science in Secondary Education or by fulfilling certification requirements while obtaining a degree in a specific discipline.

The following is a general outline showing the requirements for a Bachelor of Science degree in Secondary Education. Information pertaining to specific programs of study and Academic Foundations requirements may be found in the section "Certification and Degree Requirements."

First Year		Second Year	
Eng 131-132—Comp.	6	Eng—Literature	6
Science—Laboratory	8	His 231-232—United States	6
Mth	6	Gov 231-232—St. & Nat.	6
HPE—Activity	2	HPE—Activity	2
First Teaching Field	3	First Teaching Field	6
Additional Teach. Field	3	Additional Teach. Field	6
Acad. Found.—Elect.	6	Acad. Found.—Elect.	3
	34		35

Third Year		Fourth Year	
Edu 331—Foundations	3	Edu 438—Classroom Mgt.	3
Edu 332—Edu. Psy.	3	Edu 462—Student Teaching	6
Edu 338—Cur. & Mat.	3	First Teaching Field—Adv.	6
First Teaching Field (6 hrs. advanced)	9	Additional Teach. Field—Adv.	6
		Acad. Found.—Elect.	3
Additional Teach. Field (6 hrs. advanced)	9	Free Electives	6
Acad. Found.—Elect.	6		30
	33		

Master of Education in Elementary Education (M.Ed.)

The Master of Education degree in Elementary Education is designed to fulfill the curriculum requirements of the Professional Certificate for elementary teachers.

The prerequisites for full admission to graduate standing in this program are the same as those established for all master's degrees at this institution, with the following additional requirements: (1) The applicant must have completed 24 semester hours in education, including 12 semester hours of junior-senior courses in elementary education; (2) the student must have completed a course in supervised student teaching or have taught one year.

To fulfill requirements for this degree, the graduate student must earn a minimum of 36 semester hours of graduate credit and complete a residence requirement of one academic year or its equivalent in summer sessions. The student may elect to write a thesis. If so, he is required to complete a minimum of 30 semester hours of course work in addition to a thesis.

Additional information concerning this degree is included in the **Graduate Bulletin.** All correspondence concerning admission should be directed to the Dean of the Graduate School.

Certification and Degree Requirements

A student may qualify for a teaching certificate in Texas by completing a teacher education program that has been approved by the Texas Education Agency. At this college, a student may qualify for a Provisional Certificate—Elementary by completing requirements for a Bachelor of Science in Education—Elementary. He may qualify for a Provisional Certificate—Secondary by completing requirements for a Bachelor of Science in Education—Secondary or by obtaining a degree in a particular discipline and concurrently fulfilling certification requirements.

The Provisional Certificate, valid for life, gives the holder legal authority to teach in the public schools of Texas in the specialized areas designated on the face of the certificate. The Elementary designation authorizes the holder to teach grades 1-8, kindergarten, and grade nine of junior high schools. The Secondary designation authorizes the holder to teach grades 7-12.

All undergraduate programs leading to certification in Texas are divided into four categories: (1) Academic Foundations; (2) Academic Specialization; (3) Professional Development; and (4) Free Electives. Requirements in these categories are as follows:

Academic Foundations (60 semester hours)

The Academic Foundations program that is outlined below is required of all students working toward a Provisional Certificate at this college. Within the general framework shown, some course selections may be governed by the type of certification or degree obtained. Where appropriate a maximum of 6 semester hours (8 in science) taken in Academic Foundations may be included in any one teaching field.

A. Required Core Courses ..... 42 Hours

Eng 131-132—Composition	6 hrs.
Eng—Literature	6 hrs.
Mth	6 hrs.
Science—Laboratory (same science)	8 hrs.
Gov 231-232—State and National	6 hrs.
His 231-232—United States	6 hrs.
HPE—Activity	4 hrs.
	42

B. Foundations Electives and Degree Requirements ..... 18 Hours

These hours must be selected from the following groups with courses included from a minimum of three groups:

Group I: English, Foreign Language, Philosophy, Bible.
Group II: Art, Music, Speech.
Group III: Biology, Chemistry, Mathematics, Geology, Physics.
Group IV: History, Government, Economics, Geography.
Group V: Sociology, Anthropology, Psychology.

Academic Specilization

Elementary Education (36 semester hours)

A. Specialization in One Subject (18 hours, 9 advanced). Courses must be in one of the following areas: English, history, mathematics, one science, one foreign language, speech, art, music, or physical education. Courses may include 6 hours (8 in science) taken as part of the Academic Foundations.

B. Work in a Combination of subjects (18 semester hours). Specific requirements are:
Geg 230—World Geography
CA 337—Art in the Elementary School
Spc 333—Storytelling
HPE 233—Physical Education in the Elementary School
MTy 131—Elements of Music
His 234—Texas History

Secondary Education (48 semester hours)

All curricula leading to certification in secondary fields require a minimum of 24 semester hours (12 advanced) in each of two teaching fields or a minimum of 48 semester hours (18 advanced) in a single area of specialization. All programs at this college except Secretarial Science, General Science, Home Economics, and All Levels Music require two teaching fields. Details concerning specific requirements in the various specilization areas may be found in the section "Secondary Certification Plans."

Professional Development

Elementary Education (30 semester hours)

Courses Specified for Elementary Certification
Edu 331—Foundations in Education
Edu 332—Educational Psychology
Edu 333—Language Arts in the Elementary School
Edu 334—Curriculum & Materials in the Elementary School
Edu 335—Arithmetic in the Elementary School
Edu 339—Reading in the Elementary School
Edu 434—Classroom Management & Evaluation
Edu 437—Science & Social Studies in the Elementary School
Edu 465—Student Teaching in the Elementary School

Secondary Education (18 semester hours)

Courses Specified for Secondary Certification:
Edu 331—Foundations in Education
Edu 332—Educational Phychology
Edu 338—Curriculum, Materials, and Evaluation in the Secondary School
Edu 438—Classroom Management
Edu 462—Student Teaching in the Secondary School

Free Electives (6 semester hours)

All programs leading to certification provide a minimum of six semester hours to be chosen by the student as free electives.

Secondary Certification Plans

Students may obtain certificates to teach in secondary schools by obtaining a Bachelor of Science Degree in Secondary Education or by fulfilling certification requirements while obtaining a degree in a particular discipline. Some programs are available through only one of the above avenues.

Students certifying under Plan I (two teaching fields) are required to select one academic field as the one of greatest interest. They must fulfill the Academic Foundations requirements and the Area of Specialization requirements approved by the Teacher Education Committee for that discipline.

The following is a list of teaching areas and the degrees through which they may be obtained:

Bachelor of Science in Education	**Bachelor's Degree in a Particular Discipline**
Art	Art
Biology	English
Chemistry	French
English	Government
French	Health & Physical Education (Men)
General Science	Health & Physical Education (Women)
German	History
Government	Home Economics
Health & Physical Education (Men)	Mathematics
Health & Physical Education (Women)	Speech
History	Secretarial Science
Mathematics	
Physics	
Spanish	
Speech	

In all of these programs students must complete a minimum of 132 semester hours: 60 hours in Academic Foundations; a minimum of 24 hours in each of two teaching fields or 48 hours in one teaching field; 18 hours in Professional Development; and 6 hours of free electives. Specific requirements are as follows:

Art

Specialization: (24 semester hours) CA 137, 138, 235, 236, 337, 338, 437, 438.

(When selected as area of greatest interest program must include Spc 131, MLt 130, and 6 additional hours of art.)

Biology

Specialization: (24 semester hours) Bio 141, 142, 345, 346, plus 8 hours (4 advanced) of approved Biology courses.

(When selected as area of greatest interest program must also include Chm 141, 142, Bio 243, 244.)

Chemistry

Specialization: (24 semester hours) Chm 141, 142, 241, 341, 342, plus 4 hours of advanced Chemistry.

(When selected as area of greatest interest program must include Bio 141, 142, Phy 141, 142.)

English

Specialization: (24 semester hours) Eng 131, 132, 231, 232, 331, 332, 334, plus 3 hours of advanced English. (Foundations Program must include Foreign Language 132, 231, and 232.)

(When selected as area of greatest interest program must include 6 additional hours of advanced English.)

French

Specialization: (24 semester hours) Fre 131, 132, 231, 232, 333, 334, 335, 336. Other courses in French may be substituted for Fre 131 and Fre 132 if the student has high school credits equivalent to the 131 (two high school units) and 132 (three high school units.)

(When selected as area of greatest interest program must include Spc 131 and 3 hours from Phl 231, Soc 131, or Ant 231.)

General Science (Plan II—Composite Field)

Specialization: (50 semester hours) Bio 141, 142, Chm 141 or 143, Chm 142 or 144, Geo 141, 142, Phy 141 or 143, Phy 142 or 144, plus 18 hours of advanced science courses.

German

Specialization: (24 semester hours) Ger 131, 132, 231, 232, 333, 334, 335, 336. Other courses in German may be substituted for Ger 131 and Ger 132 if the student has high school credits equivalent to the 131 (two high school units) and 132 (three high school units.)

Government

Specialization: (24 semester hours) Gov 331, 332, 334, 436 or 437; 6 hours from 431, 432, 433; plus Gov 231, 232 which are included in Core requirements of Academic Foundations.

(When selected as area of greatest interest program must include 6 additional hours of advanced Government.)

Health & Physical Education (Men)

Specializiation: (26 semester hours) HPE 132, 235, 236M, 321, 322, 336, 435, 436, plus 4 hours of HPE activity included in Academic Foundations. (Foundations Program must include Bio 141, 142, 340, Spc 131.)
(When selected as area of greatest interest program must include HPE 333.)

Health and Physical Education (Women)

Specialization: (24 semester hours) HPE 132, 233, 238, 330, 437, 438; 2 hours from HPE 115, 117, 118, 119, 211, 212, 214, 215, 217, 218; plus 4 hours of HPE activity in Foundations Program. (Foundations Program must include Bio 141, 142, 340, Spc 131.)
(When selected as area of greatest interest program must include HPE 333 and 3 additional hours of HPE activity courses listed above.)

History

Specialization: (24 semester hours) His 131, 132, 6 hours advanced American History, 6 hours advanced World History, plus His 231, 232 which are included in Foundations Program.
(When selected as area of greatest interest program must include Foreign Language 132, 231, 232.)

Home Economics (Plan III—Single Teaching Field, Non-Vocational)

Specialization: (48 semester hours) HEc 111, 131, 132, 133, 137, 231, 232, 235, 331, 332, 333, 334, 335, 433, 444, 447.
(Academic Foundations Program must include Spc 131, Eco 231, Chm 143 or Chm 141, Chm 144 or Chm 142.)

Mathematics

Specialization: (24 semester hours) Mth 138, 139, 231, 330, 331, 333 or 334; 335, 336 or 337; 433.
(When selected as area of greatest interest program must include Foreign Language through 232.)

Physics

Specialization: (24 semester hours) Phy (141, 142, 348) or Phy (140, 241, 232, 314); 333; 335; plus 6 hours to be selected from (314 or 315), 336, 338, 346, 414, (416 or 417). Foundations Program must include Mth 138, 139, 231, 331, Chm 141, 142.
(When selected as area of greatest program must include Spc 131.)

Secretarial Science (Plan II—Composite Field)

Specialization: (48 semester hours) Acc 231, 232, BA 331, 332, 334, 335, 431, Eco 232, 437, Sec 127, 132, 331, 332, 344, 363.
(Academic Foundations must include Spc 131, Eco 231, plus 3 hours from Sociology, Philosophy, or Anthropology.)

Spanish

Specialization: (24 semester hours) Spa 131, 132, 231, 232, 333, 334, 335, 336. Other courses in Spanish may be substituted for Spa 131 and Spa 132 if the student has high school credits equivalent to the 131 (two high school units) and 132 (three high school units).

Speech

Specialization: (24 semester hours) Spc 131, 134, 233, 234 or 238, 335, 337, plus 6 advanced hours of Speech.
(When selected as area of greatest interest program must include Spc 133, both 234 and 238, CA 130.)

Other Certification Plans

Special Education—Speech and Hearing Therapy

The plan leading to certification in Speech and Hearing Therapy is outlined in the "Speech" section of this catalogue.

Special Education—Elementary Education and Mental Retardation

Certification in Elementary Education and certification in Special Education—Mental Retardation may be obtained under this plan. Students follow the same curriculum that is outlined for elementary teachers, except that the following specific courses in Special Education must be included:

Edu 3310—Survey in the Education of Exceptional Children
Edu 3311—Nature and Needs of the Mentally Retarded
Edu 430—Education of the Mentally Retarded
Edu 431—Phychology of Exceptional Children

Additional information concerning this program may be obtained from the Dean of the School of Education.

All Levels Music

The completion of this program leads to certification to teach music at all levels of the public schools in Texas. An outline of the plan may be found under the "Music" section of this catalogue. Additional information concerning it may be obtained from the Dean of the School of Education or from the Head of the Department of Music.

Professional Certificate—Secondary

Approved programs of study fulfilling the curriculum requirements for the Professional Certificate—Secondary are available in the specialization areas of English and history. To qualify for this certificate, a student must obtain a Master of Arts degree in English or in history and comply with other specified requirements. Details concerning the program are included in the **Graduate Bulletin** of this institution.

Driver Education

Certification to teach driver education is available as a special designation on an existing Texas Teaching Certificate. Specific course requirements are as follows:

HPE 320—Safety and First Aid
HPE 334—Driver Education
HPE 416—Student Teaching in Driver Education.

Certification for Persons with Baccalaureate Degree (or higher) Who Are Not Certified to Teach in Texas

Requirements for Provisional Certificate—Secondary:

1. Six hours of government, including Texas and National.
2. Six hours of United States History.
3. Eighteen hours of professional education courses as previously designated for secondary teachers. (Students with two years of successful teaching experience may substitute 6 hours of approved education courses for student teaching.)
4. Twenty-four hours (12 advanced) in each of two approved teaching fields.
5. A minimum of 6 semester hours on the Lamar campus, including Education 438.

Requirements for Provisional Certificate—Elementary:

1. The same history and government requirements as listed above for secondary certification.
2. Thirty semester hours of professional education courses as previously designated for elementary certification. (Students with 2 years of successful teaching experience may substitute 6 hours of approved education courses for student teaching.)
3. Eighteen semester hours (9 advanced) in an approved area of specialization.
4. A minimum of six semester hours on the Lamar campus, including Education 434.

Education (Edu)

330—Teaching Media and Programmed Instruction. Observation, demonstration, and practice in utilizing modern teaching media, including projectors, teaching machines, and programming. Class: 3 hours. Credit: 3 semester hours.

331—Foundations in Education. History, philosophy, and organization of education with particular emphasis on American education. Class: 3 hours. Credit: 3 semester hours.

332—Educational Phychology. The physical bases and the mental processes of learning. Consideration given to psychological vocabulary, psy-

chological procedure, testing methods, and literature of psychology. Class: 3 hours. Credit: 3 semester hours.

333—Language Arts in the Elementary School. The study and use of materials and techniques in the teaching of spelling, English, and writing. Prerequisite: Edu 331 and 332. Class: 3 hours. Credit: 3 semester hours.

334—Curriculum and Materials in the Elementary School. A survey of the elementary school including philosophy, grouping, class organization, curriculum plans, lesson plans, and materials for teaching. Preresuisite: Edu 331 and 332. Class: 3 hours. Credit: 3 semester hours.

335—Arithmetic in the Elementary School. A study of the content, materials, and methods used in teaching arithmetic. Prerequisite: Edu 331 and 332. Class: 3 hours. Credit: 3 semester hours.

336—Children's Literature. A survey covering the field of literature from the earliest writings for children to current books and magazines for juveniles. Prerequisite: Edu 331 and 332. Class: 3 hours. Credit: 3 semester hours.

338—Curriculum, Materials, and Evaluation in the Secondary School. The structure and organization of the curriculum, materials used, and types of evaluation utilized. Prerequisite: Edu 331 and 332. Class: 3 hours. Credit: 3 semester hours.

339—Reading in the Elementary School. Methods and materials for teaching reading in the elementary school. Emphasis upon the placement of materials and lesson planning. Prerequisite: Edu 334. Class: 3 hours. Credit: 3 semester hours.

3310—Survey in the Education of Exceptional Children. An orientation to characteristics, programs, and problems of children who are exceptional—mentally, physically, or emotionally. Designed as an overview of the field. A first course for those planning to certify in Special Education. Class: 3 hours. Credit: 3 semester hours.

3311—Nature and Needs of the Mentally Retarded. Nature and causes of mental retardation; physical and mental characteristics; the organization and administration of classes; evaluation, integration, and adaptation of the program to meet socio-economic needs. Observation opportunities provided. Class: 3 hours. Credit: 3 semester hours.

430—Education of the Mentally Retarded. Problems in the selection, preparation, development, and use of curriculum materials. Use of resource, selection of equipment, employment opportunities, and a review of recent research. Opportunities provided for functional experiences. Class: 3 hours. Credit: 3 semester hours.

431—Psychology of Exceptional Children. Social and emotional characteristics and adjustment problems of children and youth who are exceptional. Class: 3 hours. Credit: 3 semester hours.

432—Classroom Management — Music. A correlation of classroom management and practices with music principles and teaching techniques in grades 1-12. Prerequisite: Edu 334 and 338. Class: 3 hours. Credit: 3 semester hours.

434—Classroom Management and Evaluation—Elementary. A study of problems relating to classroom management, pupil control, methods of evaluation, reporting to parents, and record keeping. Prerequisite: Edu 334. Class: 3 hours. Credit: 3 semester hours.

437—Science and Social Studies in the Elementary School. Content, methods, and materials for teaching science and social studies in the elementary school. Prerequisite: Edu 334. Class: 3 hours. Credit: 3 semester hours.

438—Classroom Management — Secondary. Organization of subject matter, lesson planning., classroom management, and general methods of teaching. Prerequisite: Edu 338. Class: 3 hours. Credit: 3 semester hours.

462—Student Teaching in the Secondary School. Supervised observation and teaching in the secondary school. Prerequisite: Edu 438. Class: 3 hours in secondary classroom 5 days per week for 16 weeks. Credit: 6 semester hours.

464—Student Teaching—Music All Levels. Supervised observation and teaching music education. Includes participation in both elementary and secondary schools. Prerequisite: Edu 432. Class: 3 hours in elementary and secondary classroom 5 days per week for 16 weeks. Credit: 6 semester hours.

465—Student Teaching in the Elementary School. Supervised observation and teaching in the elementary school. Prerequisite: Edu 434. Class: 3 hours in elementary classrooms 5 days per week for 16 weeks. Credit: 6 semester hours.

530—Structure and Organization of Public Education. Analysis of the operation and functions of public education at the local, state, and national levels. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

531—Research. Introduction to skills and techniques necessary for research and problem solving in education. Emphasis on terminology, methodology, and spirit of systematic research. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

532—Current Issues in Education. Current controversies and trends in public education. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

533—Contemporary Philosophies of Education. Influence of recent philosophies on education. Schools of educational philosophy and implications for curriculum development and teaching methods. Class: 3 hours. Credit: 3 semester hours.

534—Advanced Study in Child Psychology. A study of the development and nature of the human personality. Emphasis on recent psychological and biological experiments. Prerequisites: graduate standing. Class: 3 hours. Credit: 3 semester hours.

535—Advanced Educational Psychology. Current theories and developments in the process of learning. Emphasis on motivation, transfer, and learning techniques. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

536—Problems in Teaching the Language Arts and Social Studies. Recent developments and trends with primary consideration given to individual teaching problems and individual research. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

537—The Elementary School Curriculum. Analysis of the objectives, organization, and content of the different areas of the elementary school curriculum. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

538—Problems in Teaching Arithmetic and Science. Study of current developments and trends with emphasis upon individual teaching programs. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

539—Developmental Reading. Methods for extending and refining fundamental reading habits and attitudes, and for increasing reading efficiency. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

5310—Current Literature for Children and Adolescents. Survey of recent literature for children and adolescents. Emphasis given to nonfiction in such areas as earth science and social science. Extensive reading of actual literature. Prerequisite: graduate standing. Class: 3 hours. Credit: 3 semester hours.

669—Thesis. Prerequisite: admission to candidacy for the Master of Education Degree. Credit: 6 semester hours.

Psychology (Psy)

Requirements for a Minor: 18 semester hours including Psychology 230, 231, 331, 332, 333, and 3 hours electives from the senior level courses.

230—Schools of Psychology. Historical development of psychology. Emphasis on the evolution of major systems of psychology. Prerequisite: Psy 231 or recommendation of department head. Class: 3 hours. Credit: 3 semester hours.

231—General Psychology. Introduction to general psychology. Class: 3 hours. Credit: 3 semester hours.

232—Human Development. Study of the growth and maturation of the human being with emphasis on the learning processes. Class: 3 hours. Credit: 3 semester hours.

331—Experimental Psychology. Techniques to demonstrate and investigate concepts in psychology. Prerequisite: Psy 230. Class: 3 hours. Credit: 3 semester hours.

332—Introduction to Statistical Methods. Statistical concepts and techniques used in psychological research. Class: 3 hours. Credit: 3 semester hours.

333—Psychological Tests and Measurements. Theory and use of instruments for the measurement of intelligence, interests, aptitudes, and attitudes. Prerequisite: Psy 231 and 332. Class: 3 hours. Credit: 3 semester hours.

337—Testing and Evaluation in the Public Schools. Evaluation techniques used in the public schools. Class: 3 hours. Credit: 3 semester hours.

431—Normal Psychology. A study of the normal behavior adjustment mechanisms. Prerequisite: Psy 231 or recommendation of the instructor. Class: 3 hours. Credit: 3 semester hours.

432—Abnormal Psychology. A study of abnormal behavior. Special emphasis on the symptomatology, etiology, and therapeutic approaches. Prerequisite: Psy 431. Class: 3 hours. Credit: 3 semester hours.

433—Differential Psychology. Individual and group behavior differences and similarities. Prerequisite: Psy 231 and 332. Class: 3 hours. Credit: 3 semester hours.

439—Individual Testing. Emphasis on evaluating intelligence with an introduction to personality measurement. Prerequisite: 12 hours of psychology. Class: 3 hours. Credit: 3 semester hours.

DEPARTMENT OF HOME ECONOMICS

Professor Tannahill. Assistant Professor Davis.

Bachelor of Science in Home Economics

Candidates for the Bachelor of Science Degree in Home Economics shall meet all basic requirements for the Bachelor of Science degree and shall include courses in economics, education, psychology, science, and speech as shown in the program of study. Courses in home economics are required as follows

Child Care and Family Relations—9 semester hours.
HEc 137—Family Living in Today's Society
HEc 333—Child Care
HEc 334—Nursery School

Clothing and Textiles—9 semester hours.
HEc 132—Beginning Clothing
HEc 231—Textiles
HEc 331—Clothing Construction

Food and Nutrition—9 semester hours.
HEc 131—Fundamentals of Food Preparation and Serving
HEc 235—Food Management
HEc 332—Nutrition and Dietetics

Home Equipment, Furnishings, and Management—10 semester hours.
HEc 335—Home Furnishings and Home Planning
HEc 433—Household Equipment
HEc 444—Home Management

Related Art—6 semester hours.
HEc 133—Basic Art
HEc 232—The Art of Dress

Specialization—5 semester hours.
HEc 111—Survey
HEc 447—Workshop

Program of Study

Plan I

First Year		Second Year	
Eng 131-132—Composition	6	Eng—Literature	6
Chm 143-144—Introductory	8	Gov 231-232—State & Nat	6
HEc 111—Survey	1	Psy 232—Human Development	3
HEc 131—Food Preparation	3	HEc 231—Textiles	3
HEc 132—Beginning Clothing	3	HEc 232—Art in Dress	3
HEc 133—Basic Art	3	HEc 235—Food Management	3
HEc 137—Family Living	3	Science or Math	8-6
Spc 131—Fundamentals	3	HPE Activity	2
HPE Activity	2		34-32
	32		

Third Year

Eco 231—Principles	3
Edu 331—Found in Edu Cur	3
HEc 331—Clothing Const	3
HEc 332—Nutrition	3
HEc 333—Child Care	3
HEc 334—Nursery School	3
HEc 335—Home Furnishing	3
His 231-232—United States	6
Electives	3-5
	30-32

Fourth Year

HEc 433—Household Equip	3
HEc 444—Home Management	4
HEc 447—Career Workshop	4
Electives	21
	32

Plan II (For those who wish to qualify for a teacher's certificate).

First Year

Eng 131-132—Composition	6
Chm 143-144—Introductory	8
HEc 111—Survey	1
HEc 131—Food Preparation	3
HEc 132—Beginning Clothing	3
HEc 133—Basic Art	3
HEc 137—Family Living	3
Spc 131—Fundamentals	3
HPE Activity	2
	32

Second Year

Eng—Literature	6
Gov 231-232—State & Nat	6
HEc 231—Textiles	3
HEc 232—Art in Dress	3
HEc 235—Food Management	3
Math	6
HPE Activity	2
Electives	3
	32

Third Year

Eco 231—Principles	3
Edu 331—Found in Edu Cur	3
Edu 332—Edu Psy	3
Edu 338—Cur, Mat, Eval	3
HEc 331—Clothing Const	3
HEc 332—Nutrition	3
HEc 333—Child Care	3
HEc 334—Nursery School	3
HEc 335—Home Furnishing	3
His 231-232—United States	6
Electives	3
	36

Fourth Year

HEc 433—Household Equip	3
HEc 444—Home Management	4
HEc 447—Career Workshop	4
Edu 438—Clasrm Mgt	3
Edu 462—Student Teaching	6
Electives	12
	32

Home Economics (HEc)

111—Home Economics Survey. A general course which introduces students to the curriculum and to career possibilities for a Home Economics major. For Home Economics majors but open to others. Class: 1 hour. Credit: 1 semester hour.

131—Fundamentals of Food Preparation and Serving. Principles underlying the cooking of various foods for family meals. Laboratory experiences in techniques for applying these principles in fitting foods into meal patterns. Class 2 hours. Laboratory: 4 hours. Credit: 3 semester hours.

132—Beginning Clothing. Elementary techniques in clothing construction with laboratory experiences in the use of these techniques. Experiences involve construction of different type garments and the use of different type materials, based on individual needs. Class: 2 hours. Laboratory: 4 hours. Credit: 3 semester hours.

133—Basic Art. Principles of art, design and color. Emphasis is placed on the use and recognition of these principles in the creation of beauty for family living. Class 1 hour. Laboratory: 4 hours. Credit: 3 semester hours.

137—Family Living in Today's Society. The individual and the family in our modern society. Establishing a family and recognition of pertinent problems in light of possible solutions. Class: 3 hours. Credit: 3 semester hours.

138—Food and Nutrition. For student nurses. Principles of nutrition as they relate to the health and welfare of an individual. Laboratory lessons will emprasize planning, preparing, and serving meals which provide optimum nutrition with special attention being given to meals for the sick. Class: 3 hours. Laboratory: 2 hours. Credit: 3 semester hours.

231—Textiles. Study of present day textiles to help students identify fabrics as to fiber content, construction and finish. Special emphasis on consumer problems in selection and care of fabrics for clothing and the home. Class: 3 hours. Credit: 3 semester hours.

232—The Art of Dress. Application of art principles of color and design as related to clothing. Class: 1 hour. Laboratory: 4 hours. Credit: 3 semester hours.

234—Meal Planning and Table Service. For majors and non-majors. Problems related to planning, preparing and serving meals for families and for special occasions. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

235—Food Management. Analysis of problems involved in personal and family feeding for nutritional adequacy. Problems and projects of meal planning, buying and caring for food, and conserving food will be carried out. Designed for both men and women students who may or may not be majoring in home economics. Class: 3 hours. Credit: 3 semester hours.

237—General Homemaking. For those desiring limited study and practical application of family problems, in such phases of homemaking as clothing, housing, and home care for the sick. Class: 3 hours. Credit: 3 semester hours.

238—General Homemaking. To be taken before or following HEc 237 or as an individual course by those interested in the phases of family life problems grouped as foods, family relation, and child care. Class: 3 hours. Credit: 3 semester hours.

330—Principles of Family Life. The practical problems of family life in a modern society. Housing, food, clothing, parenthood, finances, community life, and preparation for retirement. Class: 3 hours. Credit: 3 semester hours.

331—Clothing Construction. Advanced techniques in construction. Experiences will include tailoring and work with wool, silk, and man-made fibers. Class: 1 hour. Laboratory: 4 hours. Credit: 3 semester hours.

332—Nutrition. Principles of nutrition and special dietary problems, with a study of dietary habits of class members in relation to improved nutrition of the individual. Class experiences include weighing, visualizing, and figuring standard proportions of foods. Class: 3 hours. Laboratory: 2 hours. Credit: 3 semester hours.

333—Child Care. A study in child care beginning with the prenatal period and involving problems in the training of the young child, with special emphasis on the child in the home. To be taken as a parallel course with HEc 334. Class: 3 hours. Credit: 3 semester hours.

334—Nursery School. A study of nursery school procedure. Observation of children of various ages and actual work with children in a nursery school group. To be taken as a parallel course with HEc 333. Nursery School will be in session a minimum of 75 hours. Arrangements will be made for individual participation totaling 54 hours or more. Credit: 3 semester hours.

335—Home Furnishings and Home Planning. Designed to give the student a background of what to look for and plan for in the new or remodeled house. Also to acquaint the student with basic needs in house furnishings and with solutions to problems of interior decorating. Laboratory provides experiences in refinishing and upholstering; and/or making of accessories, slip-covers, and window treatments. Class: 3 hours. Laboratory: 2 hours. Credit: 3 semester hours.

337—Social Problems. For those planning to marry. Such major problems as planning for weddings and choosing silver, china, and other housewares will be considered along with problems of dress and social practices. Open to both men and women. Class: 3 hours. Credit: 3 semester hours.

338—Home Economics in Public Schools. Interpreting home economics as a field of knowledge concerned with developing competencies fundamental to effective family living. Class: 3 hours. Credit: 3 semester hours.

339—Applied Nutrition. The body's food needs for adequate and optimal diets and a study of meal planning and meal selection to satisfy these

body needs. Especially designed for physical education majors and for others wishing to choose such a course as an elective. Class: 3 hours. Credit: 3 semester hours.

410—Home Nursing Workshop. Procedures thought to be most frequently needed when caring for the sick in the home. Primarily intended for those desiring to give instructions in home nursing. Those completing the course may qualify as a Red Cross instructor in Home Nursing. Class: 30 hours total. Credit: 1 semester hour.

411—Equipment Workshop. "What is new in the field of household equipment and appliances." Opportunity will be made for students to see and work with new pieces of equipment. Class: 3 hours total. Credit: 1 semester hour.

412—Nursery Education Workshop. A refresher course in methods of handling children in a nursery school set up. Some attention will be given to schedules and programs and to equipment and materials desirable for nursery and play schools.

433—Household Equipment. Equipment and appliances used in homes. Selection, arrangement, operation, and care will be considered with emphasis being placed on contributions which equipment can make to management and efficiency. Class: 3 hours. Credit: 3 semester hours.

444—Home Management. Management of home resources — time, energy, money, and people—for achievement of maximum satisfaction in family living. Includes both laboratory and lecture periods with each student spending some time in residence at the home management house. Rental fee: $10. Class: 2 hours. Laboratory to be arranged. Credit: 4 semester hours.

447—Career Workshop. An analysis of fields of employment for women trained in home economics. Activities of the class provide opportunities for work experiences and for professional growth. Class: 2 hours. Workshop: 4 hours. Credit: 4 semester hours.

DEPARTMENT OF PHYSICAL AND HEALTH EDUCATION RECREATION AND SAFETY

Professors Higgins, Hilley. Associate Professors Martin, Terrell.

Assistant Professors Gunn, Rogas, Tubbs, Tipton.

Program of Study

The following degree program certifies students for the provisional teaching certificate—secondary—in the state of Texas.

Bachelor of Science In Physical And Health Education, Recreation and Safety (Men)—with teacher certification **(Plan I).**

First Year		Second Year	
Eng 131-132—Composition	6	Eng—Literature	6
Bio 141-142—Gen Biology	8	Gov 231-232—State and Natl	6
Mth 131-132—Algebra, Finite	6	His 231-232—United States	6
Spc 131—Fundamentals	3	HPE 235—Health Edu	3
HPE 132M—Principles	3	HPE 236M—P.E.—Sec. Sch	3
HPE—Activity	2	HPE—Activity	2
*Electives	6	*Electives	6
	34		32

Third Year		Fourth Year	
Bio 340—App Anat & Kinesiol	4	Edu 438—Classroom Mgt.-Sec	3
Edu 331—Foundations	3	Edu 462—Stu Tching Sec Sch	6
Edu 332—Edu. Psy	3	HPE 435—Correctives	3
Edu 338—Curr. Mat.—Sec. Sch	3	HPE 436—Org. & Admin	3
HPE 321—Coaching—Major Spt.	2	*Electives	18
HPE 322—Coaching—Major Spt.	2		33
HPE 333—Physiology	3		
HPE 336—P.E.—Sec. Sch	3		
*Electives	11		
	34		

*Electives must include the following:

a. An approved additional teaching field of 24 semester hours (Consult this catalogue, Department of Education, for requirements for additional teaching fields).

b. Eleven semester hours of electives from the following five groups with courses included from a minimum of 3 groups.

I	II	III	IV	IV
English	Art	Biology	History	Sociology
For. Lang.	Music	Chemistry	Government	Anthropology
Philosophy	Speech	Geology	Economics	Psychology
Bible		Mathematics	Geography	
		Physics		

Physical Education (HPE)

Activity Courses for Men

111, 112—Activity. Required for all students who are seeking a degree from Lamar. Consists of instruction in fundamentals and rules and participation in team, dual and individual sports in season. Class: 3 hours. Credit: 1 semester hour.

211, 212—Activity. Continuation of HPE 111, 112. Class: 3 hours. Credit: 1 semester hour.

119M—Modified Activities.
213M—Aquatics and Gymnastics.
214M—Football, Soccer, Speedball, Low Organized Games.
215M—Basketball and Handball.
216M—Track and Field and Volleyball.
217M—Badminton and Softball.
218M—Tennis and Golf.
219M—Modified Activities.

Physical Education (HPE)

Professional Courses

132M—Principles. Definitions, terminology, aims, objectives, history and principles of physical education, health education, recreation and safety. A survey course of the nature of the fields and specialized areas within the professional field with opportunities for self-evaluation in the professional competencies expected of personnel in the profession. May be used to satisfy part of requirements for the Teachers' Certificate. Class: 3 hours. Credit: 3 semester hours.

136—Introduction to Physical Education. Sports, games, and physical educational activities. Includes basic fundamentals and rules of the various sports and games. Classroom instruction and laboratories for demonstration and application of skills and techniques included. Prerequisite: HPE 132 or recommendation of department head. Class: 3 hours. Credit: 3 semester hours.

227M—Swimming. Demonstrations, lectures, and practice in the basic techniques of swimming and water safety. Class: 2 hours. Credit: 2 semester hours.

228—Senior Life Saving. Lectures, demonstrations and practice in the technique of life saving. Prerequisite: HPE 227(M). Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

229—Water Safety Instructor Course. Organization, conditioning, and preparation of student in the required swimming and life saving skills. Advanced students may qualify for American Red Cross Water Safety Instructor. Prerequisite: Current Red Cross Senior Life Saving Certificate. Class: 1 hour. Laboratory: 2 hours. Credit: 2 semester hours.

233—Physical Education in the Elementary School. The theory and practice of teaching physical education activities in the elementary grades. Classroom instruction and field laboratory assignments are included for demonstration and practice. Stress is placed on games of low organization. Classified as elementary physical education for purposes of teacher certification. Prerequisite: HPE 132. Class: 3 hours. Credit: 3 semester hours.

235—Health Education in the Secondary School. Subject matter and grade placement, teaching methods and practice in preparation of teaching units in Health Education at the secondary school level. A study of source materials, planning and organizing included. Prerequisite: HPE 132. Class: 3 hours. Credit: 3 semester hours.

236M—Physical Education in the Secondary School. Theory, methods and materials for instruction of physical education at the secondary level with stress on individual, team, recreational, and carry-over type games and sports for later adult life participation. Classroom and field laboratories for demonstration and practice included. Prerequisite: HPE 132. Class: 3 hours. Credit: 3 semester hours.

320—Safety and First Aid. A survey of safety and first aid. Includes traffic safety, and safety at home, work, school and play. Includes the scope, needs, and limitations of first aid with laboratory training in the techniques and methods of treatment of injuries. Class: 2 hours. Credit: 2 semester hours.

321—Coaching Major Sports—Football and Baseball. The fundamentals, theory, history, development, and modern techniques of football and baseball. Lectures and demonstration in coaching methods and techniques. Prerequisite: Nine semester hours in physical education. Class: 2 hours. Credit: 2 semester hours.

322—Coaching Major Sports—Basketball and Track. The fundamentals, theory, history, development, and modern techniques in basketball and track. Lectures and demonstrations in coaching methods and techniques. Prerequisite: Nine semester hours in physical education. Class: 2 hours. Credit: 2 semester hours.

333—Physiology of Exercise. Muscular, nervous, circulatory, and respiratory systems as related to exercise. Experiments on human subjects are used. Prerequisite: Bio 141, 142, and 340. Class: 3 hours. Credit: 3 semester hours.

334—Driver Education. Traffic rules and regulations and the basic facts concerning the cause and prevention of accidents. The course includes behind-the-wheel training in the use of the training automobile while

instructing students. For teaching professional students how to teach driver education. Prerequisite: Texas Driver's License. Class: 3 hours. Credit: 3 semester hours.

335—Officiating Major Sports. Theory and practice of officiating sports and games. Includes a study of the rules of each sport, mechanics for officials, and practice experience in officiating games and sports. Class: 3 hours. Credit: 3 semester hours.

336—Physical Education in the Secondary School. A continuation of Physical Education 236. Theory, methods, and materials for instruction of physical education at the secondary level with stress on individual, team, recreational, and carryover type games and sports for later adult life participation. Classroom and field laboratories for demonstration and practice included. Prerequisite: HPE 236. Class: 3 hours. Credit: 3 semester hours.

416—Student Teaching in Driver Education. Supervised observation and teaching of driver education in actual class and behind-the-wheel training. Prerequisite: "B" in HPE 334. Class: 1 hour. Credit: 1 semester hour.

430—Problems in Physical and Health Education, Recreation and Safety. Special problems in physical and health education, recreation and safety are assigned to individual students or to groups of students. Assignments are made and consultations are held. Class; by consultation. Credit: 3 semester hours.

431—Recreation Leadership. A survey of the field of recreation with stress on playground management, program making, observation and practice in activities and methods, leadership and skills. Include problems in the promotion of recreation in the community. Offered summer session only. Prerequisite: fifteen hours in physical education. Class: 3 hours. Credit: 3 semester hours.

435—Adapted Physical Education (Correctives). Diagnosis and recognition of remedial cases. Instructional and remedial activities for individuals needing modified or special exercise programs. Prerequisite: Twelve hours in physical education, Bio 141-142 and 340. Class: 3 hours. Credit: 3 semester hours.

436—Organization and Administration of Physical and Health Education and Athletics. Administrative procedures in setting up and conducting programs in physical education, health education, and intramural athletics. A survey of types of programs, administrative organizations, scope, personnel, policies, functions and duties of supervision, related problems in the three areas. Prerequisite: fifteen hours in physical education. Class: 3 hours. Credit: 3 semester hours.

PHYSICAL AND HEALTH EDUCATION FOR WOMEN

Associate Professor Baker.
Assistant Professors Wilson, Davis.
Instructor Gremillion.

Program of Study

Bachelor of Science in Physical and Health Education for Women
(Teacher Certification—Plan I)

First Year		Second Year	
Bio 141-142—General	8	Eng—Literature	6
Eng 131-132—Composition	6	Gov 231-232—St & Natl	6
Spc 131—Fundamentals	3	His 231-232—United States	6
Math	6	HPE 233—Ele. P. Edu	3
HPE 132—Principles	3	HPE 238—Hygiene	3
HPE Activity	2	HPE Activity	3
*Electives	6	*Electives	6
	34		33

Third Year		Fourth Year	
Bio 340—Anatomy	4	HPE 437—Sport Theory	3
HPE 330—Camping	3	HPE 438—Sport Theory	3
HPE 333—Phy. of Exer	3	Edu 438—Classroom Mgt	3
Edu 331—Foundations	3	Edu 462—Stud. Teaching	6
Edu 332—Edu. Psy	3	HPE Activity	2
Edu 338—Curr., Mat	3	*Electives	17
HPE Activity	2		34
*Electives	12		
	33		

*Electives must include the following:

1. Additional teaching field of 24 semester hrs. (See Dept. of Edu. this catalogue for requirements for additional teaching fields.)

2. Eleven semester hrs. of electives must be in academic foundation courses selected from English, Foreign Language, Philosophy, Bible, History, Government, Economics, Geology, Sociology, Anthropology, or Psychology.

Physical and Health Education for Women (HPE)

Candidates for a Bachelor of Science degree in Health and Physical Education for Women shall meet all general requirements for the degree as set forth by the college, as well as meet specific requirements designed by the department. The following are required courses in the professional field.

Theory Courses

132—Principles of Physical Education. Definition, terminology, aims, objectives, and history of physical education, and health education. Includes the nature of and specialized areas within the profession. Class: 3 hours. Credit: 3 semester hours.

233—Physical Education in the Elementary School. The theory and practice of teaching physical education activities in the elementary grades. Classroom instruction and field laboratory assignments are included for demonstration and practice. Stress is placed on games of low organization. Classified as elementary physical education for purposes of teacher certification. Class: 3 hours. Credit: 3 semester hours.

236—Physical Education in the Secondary School. Materials for teaching physical education in the secondary grades. Teaching situations and problems are studied, and activities are analyzed at the secondary level. Class: 3 hours. Credit: 3 semester hours.

237—Community Hygiene. Fundamental community health problems, sanitation and public health laws. Class: 3 hours. Crerit: 3 semester hours.

238—Personal Hygiene Applied. Conditioning exercises as they relate to fitness and body mechanics; elements of grooming for the woman of today. Class: 3 hours. Credit: 3 semester hours.

330—Camp Leadership. Lectures dealing with the problems of camp counselor, her duties and responsibilities. Students are required to participate in camping activities and field trips when scheduled. Class: 3 hours. Credit: 3 semester hours.

334—Driver Education. Traffic rules and regulations, and the basic facts concerning the cause and prevention of accidents. The course includes behind-the-wheel training in the use of the training automobile while instructing students. For teaching professional students how to teach driver education. Prerequisite: 320. Class: 3 hours. Credit: 3 semester hours.

435—Adapted Physical Education (Correctives). Diagnosis and recognition of remedial cases. Instructional and remedial activities for individuals needing modified or special exercise programs. Prerequisites: Twelve hours in Physical Education, Biology 141-142 and 340. Class: 3 hours. Credit: 3 semester hours.

437—Sports Theory. Lectures, demonstrations, and practices in techniques of teaching individual and team sports. Also study of the rules, their interpretation, and techniques of officiating. Class: 3 hours. Credit: 3 semester hours.

438—Sports Theory. Lectures, demonstrations, and practices in techniques of teaching individual and team sports. Also study of rules, their interpretation, and techniques of officiating. Class: 3 hours. Credit: 3 semester hours.

Activity Courses

The following are activity courses from which four hours must be selected for graduation. This requirement is met during both semesters of the freshman and sophomore years. It is recommended that the student take one sport, one dance, one aquatic and one elective hour.

Students enrolled in Physical Education are required to have regulation costumes which may be purchased in the college bookstore. Equipment for class work is provided by the student.

The physical education activity program is geared to meet the needs of every college woman, including those whose activity must be restricted and each student is expected to enroll in a class.

Students majoring in physical education must take ten semester hours of activity courses. Selection of courses subject to approval of the department head.

Aquatics:

113—Beginning Swimming and Diving. Demonstrations, lectures and practice in the basic techniques of swimming and diving. Class: 3 hours. Credit: 1 semester hour.

114—Intermediate Swimming and Diving. Demonstrations, lectures and practice in the advanced techniques of swimming and diving. Class: 3 hours. Credit: 1 semester hour.

115—Life Saving and Canoeing. Demonstrations, lecture, and practice in life saving skills. The student may obtain the American Red Cross Senior Life Saving certificate upon completion of specific requirements. Class: 3 hours. Credit: 1 semester hour.

Dance:

116—Ballroom Dance. Instruction and practice in beginning social dance. Dance forms taught are waltz, foxtrot, samba, rumba, and tango. Class: 3 hours. Credit: 1 semester hour.

117—Folk Dance. Instruction and practice in beginning folk dance. Emphasis is placed upon the historical and cultural background of the various national dances. Class: 3 hours. Credit: 1 semester hour.

118—Modern Dance. An introductory course in modern dance. Instructions and practice in the techniques of modern dance and beginning work in composition. Class: 3 hours. Credit: 1 semester hour.

119—Tap Dance. Instruction and practice in beginning tap dance. Class: 3 hours. Credit: 1 semester hour.

Sports:

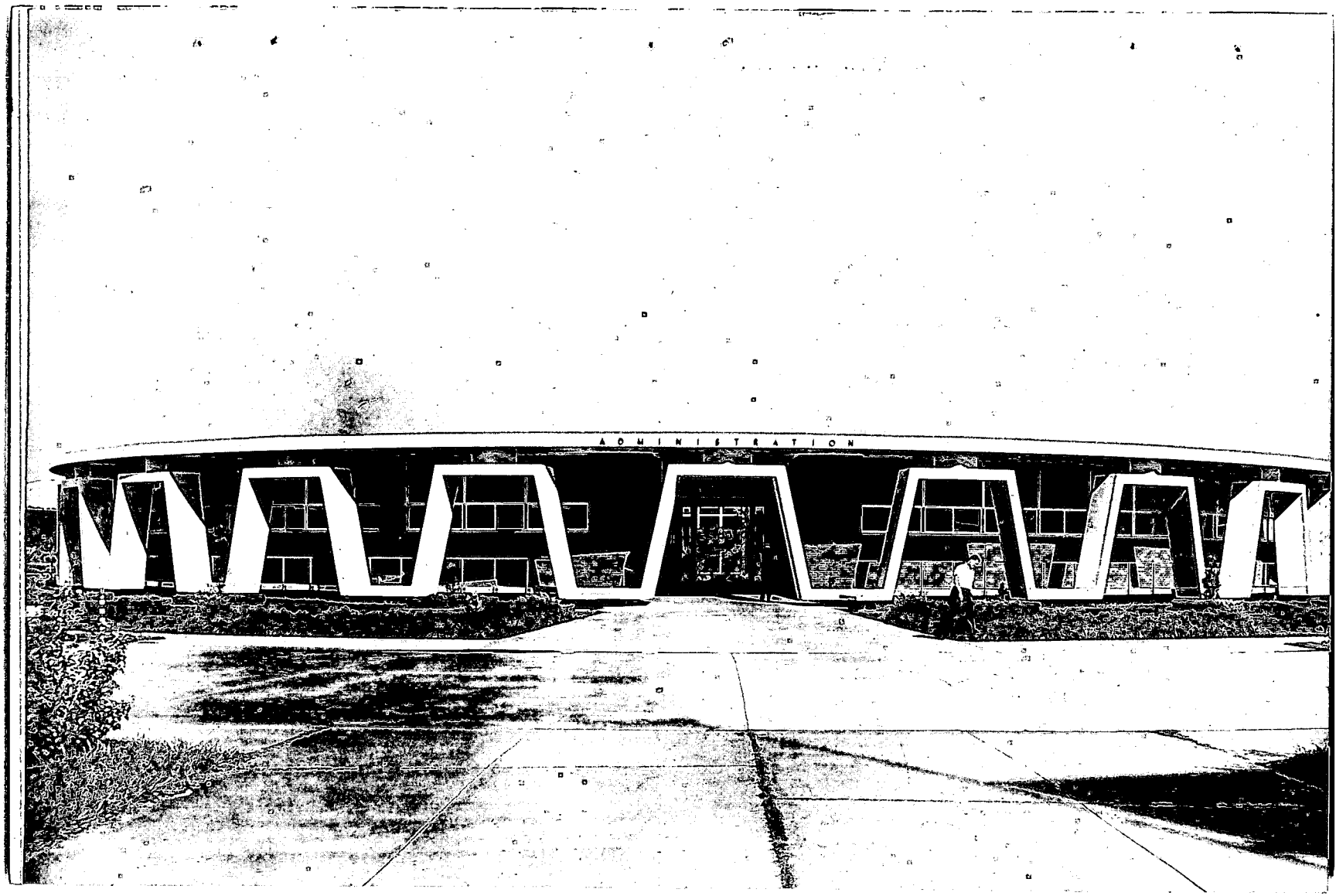
The following courses are planned to develop in the student an appreciation and knowledge of the activity, as well as to develop skills for the enjoyment of participation. Class: 3 hours. Credit: 1 semester hour.

110—Horseback Riding.
210—Archery.
211—Tennis.
212—Basketball and Hockey.
213—Bowling.
214—Soccer and Volleyball.
215—Trampoline and Tumbling.
216—Golf.
217—Badminton.
218—Fencing.
219-2110—Modified Activity.

SCHOOL OF FINE AND APPLIED ARTS

Departments

- Commercial Art
- Music
- Speech


ADMINISTRATION

School of Fine and Applied Arts

DEPARTMENT OF COMMERCIAL ART

Professor Boughton. Associate Professor Kerr. Assistant Professors Hock, Madden, Rogan. Instructors Newman, O'Neill.

Bachelor of Science—Commercial Art

This program prepares the student for a professional career in Commercial Art and requires a total of 132-136 semester hours including four semesters of physical education.**

Program of Study

First Year		Second Year	
CA 131, 132—Sketching	6	CA 231, 232—Figure	6
CA 133, 134—		CA 233, 234—Advert. Art	6
Design and Comp.	6	CA 235, 236—Art Concepts	6
CA 137, 138—Lang. of Art	6	His 231, 232—United States	6
MLt 130—Appr. Fine Arts	3	*Eng—Literature	6
Eng 131, 132—Composition	6	HPE—Activity	2
HPE—Activity	2		32
Electives (CA)	3		
	32		

Third Year		Fourth Year	
CA 237, 238—Watercolor	6	CA 335, 336—Silk Screen	6
CA 331, 332—Illustration	6	CA 431, 432—Oil Painting	6
CA 333, 334—Advan Advert.	6	CA 433, 434—Prob. in Advert.	6
Gov 231, 232—State & Nat.	6	CA 435, 436—Exper. in Form	6
Science or Math	6-8**	Science or Math	6-8
Elective (Gen Edu)	3	Elective (Gen Edu)	5
	33		35

*Speech 131 may be substituted for 3 hrs. English Literature.

**A student may choose two different sciences or 12 semester hours of mathematics. The total hours required for the science choice are 136 and for mathematics choice are 132.

Teacher Certification—Commercial Art (Plan I.)

Students wishing to secure the Bachelor of Science Degree in Commercial Art and at the same time certify for a Provisional Certificate—Secondary Level—with a teaching field in Commercial Art, must include in their degree program the following:

1. An approved twenty-four hour additional teaching field (see Department of Education section of this catalogue for a list of approved teaching fields.)

2. CA 137, 138, 235, 236, 337, 338, 437, 438 and 6 hours of CA electives are required in place of the Commercial Art courses listed in the above degree program.

3. Education courses: 331, 332, 338, 438, 462.

4. Sufficient approved electives to complete a total of 132 sem. hrs.

Commercial Art (CA)

130—Appreciation of the Fine Arts. (Same as Spc 130 and MLt 130). A survey course covering the areas of a. art, b. music, c. theatre. To be taught by representatives of the art, music and speech faculties. Class: 3 hours. Credit: 3 semester hours.

131, 132—Drawing and Painting: Sketching. Drawing with pencil, pen and brush to train the eye and hand in visual recording. These sketches will be developed into opaque watercolor paintings. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

133, 134—Design and Composition. The organization and arrangement of art elements and principles to express best the artist's purpose. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

135—American Art. The development of painting, sculpture and architecture in the United States, from colonial times to the present. Class: 3 hours. Credit: 3 semester hours.

136—Contemporary Art. A historical and critical analysis of painting, sculpture and architecture in Europe and the Americas from 1900 to the present. Class: 3 hours. Credit: 3 semester hours.

137, 138—The Language of Art. An introduction to the visual arts. An analysis of art form: Line, value, texture, volume, color and their application to the production of art. Class: 3 hours. Credit: 3 semester hours per course.

231, 232—Drawing and Painting: Figure. Drawing the human figure in pencil, pen and ink, charcoal, pastel. Painting in water color. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

233, 234—Advertising Art. Basic lettering: rough layout work: in pencil; pen and brush. Finished layout in black and white and color. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

235, 236—Art Concepts. An explanation of art history in terms of form, subject matter, ideology, related to the cultural periods. How the great art the past expressed its various attitudes. Class: 3 hours. Credit: 3 semester hours per course.

237, 238—Drawing and Painting. Watercolor. Study and practice in the planning and execution of paintings in transparent and opaque watercolors. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

331, 332—Drawing and Painting: Illustration. The visual illustration of subject matter for books, magazines, and advertising in black and white and full color. Technique for transparent water color and color separation for commercial art reproduction. Prerequisite: CA 231-232. Class and laboratory: 6 hours. Credit: 3 semester hours.

333, 334—Advanced Advertising Art. The study of layout and techniques of spatter work, zip-a-tone, craft and air-brush and their use in advertising (newspaper, house organs, catalogues). Prerequisite: CA 233, 234. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

335, 336—Silk Screen Printing. Study and practice in the various processes of multiple color reproduction by the use of the silk screen. Greeting cards, signs, posters, textiles and prints will be made in quantity. Prerequisite: CA 231, 232. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

337, 338—Public School Art. Teaching devices, techniques and media used in the elementary and secondary schools are studied and used in the laboratory. Special attention is given to skills in correlating art with other subjects in the elementary and secondary fields. Class and Laboratory: 6 hours. Credit: 3 semester hours.

431, 432—Drawing and Painting: Oil. The planning and producing of original oil paintings, either as commercial art projects or as fine art paintings. Their presentation for display or exhibition. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

433, 434—Problems in Advertising Art. Study of reproduction techniques and typography and their application to product design and TV. Prerequisite: CA 333-334. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

435, 436—Experiments in Form. Creative experimentation with the art elements and principles in abstract painting. Their modern use in display and layout and creative work. Prerequisite: CA 331-332. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

437, 438—The Psychology of Art. An investigation into the nature of the creative individual and how it is expressed graphically. Class and laboratory: 6 hours. Credit: 3 semester hours per course.

439—Directed Individual Study. An individual student assignment course for juniors and seniors. Time to be arranged. Credit: 3 semester hours.

DEPARTMENT OF MUSIC

Professor Parks, Wiley. Associate Professors Kaszynski. Assistant Professors Barrett, Brooks, Burkhart, Collier, Fisher, Holmes, Lockhart, Montgomery, Truncale.

The degree of Bachelor of Science—Music Major (voice, piano, theory and composition, or instrumental major) is granted under the following conditions:

1. Meet the basic requirements for all degree programs.
2. Complete one of the programs of study listed below.
3. Pass a department qualifying examination given by the music faculty before the end of the first semester of the senior year.
4. Must continue to take secondary piano until completion of all barrier requirements for the degree program. This requirement will be without credit after the first year.
5. Participate in student recitals as recommended by the department.
6. Put in a minimum of ten (10) hours of practice per week in the college practice hall.
7. For graduation all applied majors must present a junior recital at the end of three years or a senior recital during the senior year.
8. All students, transfers or otherwise, must reach a certain proficiency before graduating. The music faculty will determine this proficiency.
9. Percussion majors must complete two years of applied music on percussion instruments (1265 through 2266) and 8 additional hours in instruments of their choice.
10. Majors in theory and composition, in order to fill their applied music requirement, need to complete 4 semesters of secondary piano, 4 semesters of secondary voice, 2 semesters of secondary violin, and 2 semesters of a selected secondary brass or woodwind instrument.

All students must take a placement examination during their first semester.

Programs of Study

Bachelor of Science—Music Major

Plan I (Qualifies for teacher certification—music, all levels)

Instrument Major

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Mth 131—Algebra	3	Mth 132—Finite	3
MA—Major Instru.	2	MA—Major Instru.	2
MTy 121—Woodwinds	2	MTy 122—Brass	2
MLt 111—Mus. Prin.	1	MLt 112—Mus. Prin.	1
MTy 132—Elem. Harmony	3	MTy 133—Elem. Harmony	3
Spc 131 or Foreign Language	3	Spc 130—Appr. Fine Arts	3
MLb 114—Band or MLb 112—Orchestra	1	MLb 115—Band or MLb 112—Orchestra	1
	18		18

If choice is other than MLb 114, student must take HPE activity each semester.

Second Year

First Semester		Second Semester	
Eng—Literature	3	Eng—Literature	3
His 231—United States	3	His 232—United States	3
Science (laboratory)	4	Science (laboratory)	4
MA—Major Instrument	2	MA—Major Instrument	2
MTy 221—Strings	2	MTy 222—Percussion	2
MTy 232—Adv. Harmony	3	MTy 233—Adv. Harmony	3
MLb 114—Band or *MLb 112—Orchestra	1	MLb 115—Band or MLb 112—Orchestra	1
	18		18

*If other than MLb 114 is chosen then student must take HPE activity which adds 1 hour each semester.

Third Year

First Semester		Second Semester	
Edu	6	Edu	3
Gov 231—State	3	Gov 232—National	3
MA—Major Instru.	2	MA—Major Instru.	2
MTy 326—Inst. Mus.	2	MTy 317—Marching Theory	1
MLt 323—Mus. Hist.	2	Mty 328—Instru. Cond.	2
MTy 321—Counterpoint	2	MLt 331—Childrens Mus.	3
MLb 114—Band or MLb 112—Orchestra	1	MTy 322—Counterpoint	2
	18	MLb 115—Band or MLt 324—Mus. Hist.	2
		MLb 112—Orchestra	1
			19

Fourth Year

First Semester		Second Semester	
Edu	3	Edu	6
MLt 410—Seminar	1	MTy 325—Crl. Mus.	2
MTy 425—Band Arrng.	2	MLb 115—Band or MLb 112—Orchestra	1
MLb 114—Band or MLb 112—Orchestra	1	Electives	3
Electives	6		12
	13		

Piano Major

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Mth 131—Algebra	3	Mth 132—Finite	3
MA 1241—Piano	2	Spc 130—Appr. Fine Arts	3
MTy 121—Woodwinds or MTy 122—Brass	2	MA 1242—Piano	2
MLt 111—Mus. Prin.	1	MTy 221—Strings or MTy 222—Percussion	2
MTy 132—Elem. Harmony	3	MLt 112—Mus. Prin.	1
MLb 111—Chorus	1	MTy 133—Elem. Harmony	3
MA—Voice	1	MLb 111—Chorus	1
HPE—Activity	1	HPE—Activity	1
	17		19

Second Year

First Semester		Second Semester	
Eng—Literature	3	Eng—Literature	3
His 231—United States	3	His 232—United States	3
Science (laboratory)	4	Science (laboratory)	4
MA 2241—Piano	2	MA 2242—Piano	2
MLt 213—Piano Lit	1	MA—Voice	1
MTy 232—Adv. Harmony	3	MTy 233—Adv. Harmony	3
MLb 111—Chorus	1	MLb 111—Chorus	1
HPE—Activity	1	HPE—Activity	1
	18		18

Third Year

First Semester		Second Semester	
Edu	6	Edu	3
Gov 231—State	3	Gov 232—National	3
MA 3241—Piano	2	MA 3242—Piano	2
MTy 325—Choral Mus.	2	MTy 327—Choral Cond.	2
MLt 323—Mus. Hist.	2	MLt 331—Childrens Mus.	3
MTy 321—Counterpoint	2	MLt 324—Mus. Hist.	2
MLb 111—Chorus	1	MTy 322—Counterpoint	2
	18	MLb 111—Chorus	1
			18

Fourth Year

First Semester		Second Semester	
Edu	3	Edu	6
MLt 410—Seminar	1	Electives	6
Mty 326 or 328	2	MLb 111—Chorus	1
Electives	6		13
MLb 111—Chorus	1		
	13		

Vocal Major

First Year

First Semester		Second Semester	
Eng 131—Composition	3	Eng 132—Composition	3
Mth 131—Algebra	3	Mth 132—Finite	3
MA 1281—Voice	2	Spc 130—Appr. Fine Arts	3
MTy 121—Woodwinds or MTy 122—Brass	2	MA 1282—Voice	2
MLt 111—Mus. Prin.	1	MTy 221—Strings or MTy 222—Percussion	2
MTy 132—Elem. Harmony	3	MLt 112—Mus. Prin.	1
MLb 111—Chorus	1	MTy 133—Elem. Harmony	3
HPE—Activity	1	MLb 111—Chorus	1
	16	HPE—Activity	1
			19

Second Year

First Semester		Second Semester	
Eng—Literature	3	Eng—Literature	3
His 231—United States	3	His 232—United States	3
Science (laboratory)	4	Science (laboratory)	4
MA 2281—Voice	2	MA 2282—Voice	2
MTy 232—Adv. Harmony	3	MTy 233—Adv Harmony	3
MLb 111—Chorus	1	MLb 111—Chorus	1
HPE—Activity	1	HPE—Activity	1
	17		17

Third Year

First Semester		Second Semester	
Edu	6	Edu	3
MA 3281—Voice	2	MA 3282—Voice	2
MTy 325—Choral Mus	2	MTy 327—Choral Cond	2
MLt 323—Mus Hist	2	MTy 322—Counterpoint	2
MTy 321—Counterpoint	2	MLt 324—Mus Hist	2
MLt 331—Childrens Mus	3	MLb 210—Opra Wrkshp	1
MLb 111—Chorus	1	MLb 111—Chorus	1
	18	Mty 326 or 328	2
		Electives	3
			18

Fourth Year

First Semester		Second Semester	
Edu	3	Edu	6
Gov 231—State	3	Gov 232—National	3
MLt 410—Seminar	1	MLb 111—Chorus	1
MLb 210—Opra Wrkshp	1	Electives	4
MLb 111—Chorus	1		14
Electives	6		
	15		

PLAN II

B.S.—Music plus Performance Certificate

Meet all of the specifications and requirements for the Bachelor of Science Degree—music major, with the following additional requirements: two semesters of advanced Theory and two additional semesters of the Majors applied instrument. The education hours for Plan I may be regarded as elective hours for Plan II with the permission of the head of the department.

The Performance Certificate will be issued only after a junior recital before the faculty. This recital may qualify a student for a senior recital for the Performance Certificate.

Applied Music (M.A.)

1101—Beginning Band or Orchestral Instruments. Basic fundamentals of articulation and tone production. Scales and arpeggios. Elementary methods and easy solo materials. Freshman students must audition before registering for placement in MA. Class: One half-hour lesson per week. Credit: One semester hour per course.

1203, 1204, 2203, 2204, 3203, 3204, 4203, 4204—Bassoon. Practical Studies, Weissenborn; scale studies, Pare; Reveirie, Jancourt; Romanze, Klakhardt; The Carnaval, Hume. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1211, 1212, 2211, 2212, 3211, 3212, 4211, 4212—Cello. An approach to the left and right hand technique using materials and literature suitable to the level of the individual student. Auditions will determine the level of proficiency of each new student. Two half-hour lessons per week. Credit: 2 semester hours per course.

1215, 1216, 2215, 2216, 3215, 3216, 4215, 4216—Clarinet. Scales and arpeggios from Baermann Langenus Vol. III. Rose Forty Studies Canzonetta, Pierne, Concertino, Tartini-Jacob, Adagio-Tarantella, Cavallini; Fantasy Pieces, Schumann. Last 6semesters will include Voxman, Polastchek, Perier Etudes; Advanced Solos and Orchestra Studies. Class: Two one-half hour lessons per week. Credit: 2 semester hours per course.

1217, 1218, 2217, 2218, 3217, 3218, 4217, 4218—Cornet-Trumpet. Basic fundamentals of articulation and tone production. Major and minor scales and arpeggios. Transposition. Methods: St. Jacome, Arban, Hering, Sachse, Schlossberg. Representative solos: Ropartz, Andante and Allegro; Balay, Petite Piece Concertante. Performance on student recital once a semester. Prerequisite: Audition. Class: Two one-half hour lessons per week. Credit: 2 semester hours per course.

1221, 1222, 2221, 2222, 3221, 3222, 4221, 4222—Flute. Modern Method of Boehm Flute, Book; Sonata No. 3, Handel; 24 Caprices, Boehm; Fourth Sonata, Bach; Orchestral studies, Minuet in D, Mozart; Concertino, Chaminade. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1223, 1224, 2223, 2224, 3223, 3224, 3223, 4224—French Horn. Basic fundamentals of articulation and tone production. Major and minor scales and arpeggios. Transposition. Band and orchestral repertoire. Methods: Alphonse, Koprasch, Sansone. Representative solos. Performance on student recital once a semester. Prerequisite: Audition. Class: Two one-half hour lessons per week. Credit: 2 semester hours per course.

1231, 1232, 2231, 2232, 3231, 3232, 4231, 4232—Oboe. Complete method for Oboe, Barrett, scales studies, Pare; three Romances, Schumann; Niemann; 16 daily exercise, Labate; Orchestral Studies, Reed making; Pastorale, Labate; Naddell's Sonata No. 1. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1233, 1234, 2233, 2234, 3233, 3234, 4233, 4234—Organ. Organ instruction includes a study of the techniques needed to prepare and project publicly the literature of the keyboard representing organ literature of all periods in both small and large forms. Particular emphasis will be placed on manual and pedal technique, analysis of literature, thorough knowledge of registration, ability to adapt piano accompaniments, hymn playing, and

proficiency in accompanying, ensemble, chamber music and solo recital playing. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1143, 1144—Secondary Piano. Study of scale systems and application, intervals, chord structure, harmonization of melody, and other elements of keyboard harmony. Two octave scales and cadences. Maximum of four students per class. Class: 1 hour. Credit: 1 semester hour.

1241, 1242, 2241, 2242, 3241, 3242, 4241, 4242—Piano. To develop musicianship, through technical proficiency and ability to assimilate music without guidance. A study of the various techniques needed to prepare and project publicly the literature of the keyboard representing piano literature of all periods, in both small and large forms. Particular emphasis will be placed on scale and arpeggio playing, formal exercises, use of the pedals, analysis of the literature, programming, ability to employ and develop creative technique for individual requirements, and proficiency in accompanying, ensemble, chamber music and solo recital playing. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1251, 1252, 2251, 2252, 3251, 3252, 4251, 4252—Saxophone. Method for Saxophone by DeVille. Air from Suite in D by Bach-Leeson. Jota by Gurewich. Two one-half hour lessons per week. Credit: 2 semester hours per course.

1257, 1258, 2257, 2258, 3257, 3258, 4257, 4258—String Bass. Through the use of appropriate methods e.g. Simandl, the technique of the student will be developed. Scales and arpeggios will also form a vital part of this study. Two half-hour lessons per week. Credit: 2 semester hours per course.

1261, 1262, 2261, 2262, 3261, 3262, 4261, 4262—Trombone or Baritone. Basic fundamentals of articulation and tone production. Major and minor scales and arpeggios. Methods. Mueller, Rochut, Clarke, Vobaron, Kopprasch. Representative solos. Performance on student recital once a semester. Prerequisite: Audition. Class: Two one-half hour lessons per week. Credit: 2 semester hours per course.

1263, 1264, 2263, 2264, 3263, 3264, 4263, 4264—Tuba. Basic fundamentals of articulation and tone production. Major and minor scales and arpeggios. Band and orchestral repertoire. Methods: Eby, Bell, Slama, Solos. Prerequisite: Audition. Class: Two one-half hour lessons per week. Credit: 2 semester hours per course.

1253, 1254, 2253, 2254—Percussion. Garner, Goodman, Harr, and Rubank Methods, standard solos, band and orchestra repertoire. Performance on student recital once a semester. Two half-hour lessons per week. Credit: 2 semester hours.

1271, 1272, 2271, 2272, 3271, 3272, 4271, 4272—Viola. Scales and arpeggios. Studies and exercises selected according to the individual needs of the student. Sonata, concertos and short solo pieces. Minimum practice: two hours daily. Two half-hour lessons per week. Credit: 2 semester hours per course.

1273, 1274, 2273, 2274, 3273, 3274, 4273, 4274—Violin. Scales and arpeggios. Studies and exercises selected according to individual needs of the student. Sonatas and concertos selected for technical and musical advancement. Minimum practice: 2 hours daily. Two half-hour lessons per week. Credit: 2 semester hours per course.

1281, 1282, 2281, 2282, 3281, 3282, 4281, 4282—Voice. Study of breathing and vocalization. A balanced repertoire of songs will be studied each semester. Course offered to both music and non-music majors. Prerequisite: Ability to read music, and some knowledge of the keyboard. Two private half-hour lessons per week. Credit: 2 semester hours per course.

1183, 1184, 2183, 2184—Secondary Voice. Music majors not majoring in voice will learn to use the singing voice. Study of breathing and vocalization. Songs will be studied. Prerequisite: Ability to read music, and some knowledge of the keyboard. One lesson per week. Credit: one semester hour per course.

3283, 3284, 4283, 4284—Composition. Creative writing ranging from solo and small ensemble works to more extended compositions for orchestra, band or chorus. Prerequisite: MTy 233. Two half-hour lessons a week. Credit: 2 semester hours.

Music Laboratory (MLb)*

111—Chorus. A course in choral singing, organized to furnish training in the more important works of vocal ensemble literature. Presentation of selections in public throughout the year. Required of all voice majors. Open to students from other departments who can qualify. Three rehearsals per week. Credit: 1 semester hour per course.

112—Orchestra. A performing ensemble open to all college students who can qualify. Required of any student majoring in a string instrument. Three rehearsals per week. Credit: 1 semester hour per course.

113—Chamber Music Ensemble. String ensemble, woodwind ensemble, brass ensemble. A course designed to give the student an opportunity to study and perform music written for the smaller instrumental ensembles. These groups will participate in various recital programs throughout the year. Open to any student upon recommendation of the instructor. Class: 2 hours per week. Credit: 1 semester hour per course.

114—Marching Band. Performs at football games and other functions. Open to any student who can qualify. Four semesters completes P. E. requirement. Class: 6 hours per week. Credit: 1 semester hour.

115—Symphonic Band. Performs symphonic wind ensemble and band repertoire. Tryout required for admittance. Five rehearsals weekly. Credit: 1 semester hour per course.

117—Dance Band. Organized to furnish training in all styles of dance band performance. Open to any student who can qualify. Three rehearsals per week. Credit: 1 semester hour per course.

210—Opera Workshop. A laboratory class for advanced voice students providing study of opera excerpts of standard and contemporary roles and scenes for presentation in the opera-theatre. Students may enroll for full credit or may participate in production without credit with the approval of the instructor. Two meetings per week. One semester hour credit per course.

*Courses in **Music Laboratory** may be repeated for credit. Total credit not to exceed eight semester hours for any one course.

Music Literature (MLt)

111, 112—Music Principles. An appraisal of the important events in Music History with emphasis upon those aspects of music associated with style, form, and performance. Familiarization of the student with music terminology and a thorough briefing on score reading through the use of recordings from the significant periods in Music History. Class: 2 hours. Credit: 1 semester hour per course.

130—Appreciation of Fine Arts. (Same as Spc 130 and CA 130). A survey course covering the areas of a. art, b. music, c. theatre. To be taught by any representatives of the art, music, and speech faculties. Class: 3 hours. Credit: 3 semester hours.

213—Piano Literature. A brief, chronological survey and analysis of the styles and forms of compositions in relation to keyboard instruments. Minimum knowledge of all keyboard instruments will be required. Special emphasis will be placed on the contribution of the performers, composers, and compositions in the field of piano literature. Class: 2 hours. Credit: 1 semester hour per course.

323—Music History. A survey of the literature and advances made in music from ancient times to 1800. Three hours of listening required per week in addition to class lecture. Prerequisite: MLt 111-112. Class: 3 hours. Credit: 2 semester hours.

324—Music History. A survey of the literature and advances made in music from 1800 through early 20th century. Three hours of listening required per week in addition to class lecture. Prerequisite: Music History 323. Class: 3 hours. Credit: 2 semester hours.

331—Children's Music. Techniques and materials in teaching of music in the elementary school. The child's voice; rote singing, rhythmics; introduction of notation; creative music activities. Prerequisite: MTy 131 or equivalent. Class: 3 hours. Credit: 3 semester hours.

410—Seminar. A general study of the problems encountered in music. Class: 1 hour. Credit: 1 semester hour.

Music Theory (MTy)

121—Woodwinds. Materials for the woodwinds instruments. Performance on all woodwind instruments. Class: 2 hours. Lab: 1 hour. Credit: 2 semester hours.

122—Brass. Materials for the brass instruments. Performance on all brass instruments. Class: 2 hours. Lab: 1 hour. Credit: 2 semester hours.

131—Elements of Music. A study of scales, chords, musical terminology, signatures, sight singing and rhythms. Designed to prepare students for advanced study in music theory or to familiarize non-music majors with the meaning of musical notation and the harmonic, melodic, and rhythmic structure of music. Class: 3 hours. Credit: 3 semester hours.

132, 133—Elementary Harmony. Elementary keyboard and written harmony; sight singing; ear training. Prerequisite: MTy 131 or by advanced standing exam. Class: 5 hours. Credit: 3 semester hours.

221—Strings. Materials for violin, cello and string bass. Performance on all instruments. Class: 2 hours. Lab: 1 hour. Credit: 2 semester hours.

222—Percussion. Materials for the percussion instruments. Performance on all percussion instruments. Class: 2 hours. Lab: 1 hour. Credit: 2 semester hours.

232, 233—Advanced Harmony. Advanced keyboard and written harmony; sight singing; ear training. Prerequisite: MTy 133. Class: 5 hours. Credit: 3 semester hours.

317—Band Theory. Basic marching maneuvers. Charting various types of half-time shows for football games, such as the pageant type and the precision drill, and arranging the music for these shows. Term project: A completely charted half-time show with music. Class: 2 hours per week. Credit: 1 semester hour.

321, 322—Counterpoint. 16th and 18th century contrapuntal techniques through analysis and creative writing. Prerequisite: MTy 233. Class: 2 hours. Credit: 2 semester hours.

325—Choral Music. Vocal problems encountered in the choral music fields of the high school. A detailed study of the organization and administration of chorus, glee club, ensembles, etc. Class: 2 hours. Laboratory: 1 hour. Credit: 2 semester hours.

326—Instrumental Music. Materials, and problems encountered in the instrumental music field of the high school. A detailed study of the organization and administration of bands, orchestras, etc. Class: 2 hours. Lab: 1 hour. Credit: 2 semester hours.

327—Choral Conducting. The techniques of the baton; basic patterns and rudiments of conducting, phrasing, interpretation, and choral tech-

niques. Prerequisites: Some vocal study, piano keyboard, two years of vocal laboratory and music theory. Two class hours per week. Credit: 2 semester hours.

328—Instrumental Conducting. The rudiments of conducting, phrasing interpretation, etc., of the instrumental field, both band and orchestra. Class: 2 hours per week. Lab: 1 hour. Credit: 2 semester hours.

421—Form and Analysis. Analytical study of musical forms and styles. Prerequisite: MTy 321, 322. Class: 2 hours. Credit: 2 semester hours.

422—Orchestration. Techniques of writing and arranging for orchestral instruments in small combinations and for full orchestra. Prerequisite: MTy 321, 322. Class: 2 hours. Credit: 2 semester hours.

425—Band Arranging. Techniques in writing, transcribing from orchestra score and arranging for the instrumentation of the military and concert bands. Class: 2 hours. Credit: 2 semester hours.

DEPARTMENT OF SPEECH

Professors Kramar, Skinner. Associate Professors Anderson, Blanton, Canon. Assistant Professors Bogusch, Ellertson, Stephenson.

Bachelor of Science—Speech Major

Program of Study

Plan I (For those who wish to qualify for a teacher's certificate).

First Year		Second Year	
CA 130—Appr. of Fine Arts	3	Eng—Literature	6
Eng 131, 132—Composition	6	His 231, 232—United States	6
HPE—Activity	2	HPE—Activity	2
Lab Science	8	Spc 233—Intro. to Theatre	3
Mth	6	Spc 234—Intro. to Radio & TV	3
Spc 131—Fundamentals	3	Spc 238—Arg. & Debate	3
Spc 133—Voice Science	3	Electives	9
Spc 134—Spc. Cor: Survey	3		32
	34		

Third Year		Fourth Year	
Edu 331—Foundations	3	Edu 438—Classroom Mgmt.	3
Edu 332—Edu. Psy.	3	Edu 462—Student Teaching	6
Edu 338—Cur. & Mat.	3	Spc 335—Directing	3
Gov 231, 232—State & National	6	Teaching Field Two and/or Elec.	12
Spc 337—Adv. Interpretation	3	Electives	6
Spc—Adv. Electives	6		30
Teaching Field Two and/or Elec.	12	Total	132
	36		

Plan II (For those who wish to qualify for a teacher's certificate in speech and hearing therapy—all level).

First Year		Second Year	
Same as Plan I except Bio. 141, 142 is the lab science.		Eng—Literature	6
		His 231, 232—United States	6
		HPE—Activity	2
		Spc 230—Spc. Cor: Pathology	3
		Spc 232—Psy. of Speech	3
		Spc 332—Audiology	3
		Electives	9
			32

Third Year		Fourth Year	
Edu 3310—Edu. Excpt. Child	3	Edu 434—Classroom Mgmt.	3
Edu 331—Foundations	3	Edu 465—Student Teaching	6
Edu 332—Edu. Psy.	3	Psy 431—Normal	3
Edu 334—Cur. & Mat.-Elem.	3	Spc 433—Adv. Clinical Practice..	3
Gov 231, 232—State & National..	6	Spc 435—Spc. & Lang. Disords. ..	3
Psy 231—General	3	Electives	12
Psy 232—Human Development ..	3		30
Spc 339—Beg. Clinical Practice ..	3		
Spc 432—Stuttering:		Total	132
Thry. & Thrpy.	3		
Electives	6		
	36		

Plan III (For those not wishing the teacher's certificate).

First and Second Years: Same as **Plan I. Third and Fourth Years** substitute the following: Gov 231, 232, Spc electives 18 hours (12 must be advanced), Psy 6 hours, Phl 6 hours, Liberal Arts 6 hours, Fine Arts (non-speech) 6 hours, electives 18 hours. Total 132 hours.

Bachelor of Arts—Speech Major

Same as any of the above programs except for the substitution of 12 hours of the same foreign language for electives.

Speech (Spc)

113—Radio and Television Activities. A laboratory course for students who participate extensively in radio and television activities. Credit: 1 semester hour. (May be repeated for a total of four hours.)

116—Theatre Activities. A laboratory course for students who participate extensively in theatre activities. Credit: 1 semester hour. (May be repeated for a total of four hours.)

118—Forsenic Activities. A laboratory course for students who participate extensively in forsenic activities. Credit: 1 semester hour each course. (May be repeated for a total of four hours.)

130—Appreciation of the Fine Arts. (Same as M.Lit. 130 and Art 130). A survey course covering the areas of a. art, b. music, c. theatre. To be taught by representatives of the art, music, and speech faculties. Class: 3 hours. Credit: 3 semester hours.

131—Fundamentals of Effective Speech. Instruction in the theory of the voice, articulation, pronunciation, bodily activity, language, and the elements of speech preparation. Practice in the presentation of speeches and printed material with emphasis on the use of the fundamentals of speech production. Class: 3 hours. Credit: 3 semester hours.

132—Fundamentals of Effective Speech. Continuation of Speech 131. A study of speech construction, including the use of outlining and supporting material. Practice is given in outlining, preparing, and presenting spe-

cial types of speeches with emphasis placed on extemporaneous speaking. Prerequisite: Speech 131, Class: 3 hours. Credit: 3 semester hours.

133—Voice Science. Phonetic transcription, regional and foreign dialects, the application of phonetic study to speech correction. Class: 3 hours. Credit: 3 semester hours.

134—Speech Correction: A Survey. An introduction to the study of speech correction. A survey of the defects of speech with particular emphasis on articulation defects and voice problems. Class: 3 hours. Credit: 3 semester hours.

230—Speech Correction: Pathology and Therapy. A technical and professional course in the causes, nature, symptoms, and rehabilitation of disordered speech. Class: 3 hours. Credit: 3 semester hours.

231—Discussion Methods. Instruction in the types, principles, and methods of oral discussion. Practice in all forms of parliamentary procedure and various forms of group discussion. Class: 3 hours. Credit: 3 semester hours.

232—The Psychology of Speech. The study of the nature and origin of speech in terms of its psychological and neurological aspects. Class: 3 hours. Credit: 3 semester hours.

233—Introduction to Theatre. A general survey of the major fields of theatre art. For students who have a limited theatrical experience or knowledge. Emphasis on the various types and styles of plays, elementary theory and practice of acting and directing, basic principles of voice development, movement, and interpretation for the stage. An introduction to technical production: methods of construction and handling of scenery, elementary problems in scene design, stage lighting, costume and costume design. Participation in major productions. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

234—Introduction to Radio and Television. A general survey of the principles involved in radio broadcasting and television, including a study of station and network organization and control. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

235—Oral Interpretation of Literature. Instruction and practice in the principles of speech applied to performance in the interpretation of prose and poetry. Class: 3 hours. Credit: 3 semester hours.

237—Acting. Detailed study of characterization and styles of acting through class assignments of individual and group scenes. Class: 2 hours. Laboratory: 4 hours and participation in department production. Credit: 3 semester hours.

238—Argumentation and Debate. The principles of argument, analysis, evidence, reasoning, fallacies, briefing, and delivery, as well as their applications in speech situations. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

315—Parliamentary Procedure. Drafting of a constitution and by-laws; election and duties of officers; function of committees; rules governing presentation and disposal of motions. Class: 3 hours first six weeks. Credit: 1 semester hour.

330—Rhetoric and Public Address. A study and analysis of some of the world's great speeches with application of these principles of original speeches of special types. Class: 3 hours. Credit: 3 semester hours.

331—Business and Professional Speech. Application of the fundamentals of speech production to the needs of the professional man or woman. Practice in gathering and organizing material for speeches for special occasions. Emphasis is given to extemporaneous speaking, conferences and discussion group speaking, and report presentations. Class: 3 hours. Credit: 3 semester hours.

332—Audiology. Study of the human ear and its abnormalities. Administration and interpretation of hearing tests; clinical observation. Class: 3 hours. Credit: 3 semester hours.

333—Storytelling. Study of stories for different ages of children; study of sources of stories; practice in adapting story material from various sources; building story-hour programs; practice in telling stories in laboratory and in nearby schools, hospitals, and homes; practice in writing stories for children. Prerequisite: junior standing or Edu 336. Class: 3 hours. Laboratory: 1 hour. Credit: 3 semester hours.

334—Stagecraft. To give the student a theoretical and working knowledge of the crafts of the theatre; designing, building, and handling of scenery; technical plotting of scenery; lighting the stage; physical requirements of a theatre; nomenclature of the crafts of theatre. Class: 3 hours. Laboratory: 4 hours. Credit: 3 semester hours.

335—Directing. To give the student a background knowledge in directing from the viewpoint of the interpreter, the planner, the organizer, and the business man, the technician, the actor, the psychologist, and the artist with specific problems in directing scenes from plays. Class: 3 hours. Laboratory: 4 hours. Credit: 3 semester hours.

336—Creative Dramatics. Instruction in the methods of introducing creative dramatics into the elementary and junior high schools, and the presentation of projects related to the development of creative play-making in the home, community, and school. Class: 3 hours. Credit: 3 semester hours.

337—Advanced Oral Interpretation of Literature. Instruction and practice in the principles of speech applied to performance in the interpretation of dramatic literature. Class: 3 hours. Credit: 3 semester hours.

338—Radio and Television Production. Activities in writing, acting, directing, producing, announcing, and engineering various types of radio and television program. Class: 2 hours. Laboratory: 3 hours. Credit: 3 semester hours.

339—Beginning Clinical Practice in Speech and Hearing Therapy. Diagnostic and therapeutic procedures in speech and hearing therapy. One hour of clinical practice per week per credit hour. Class: 3 hours. Credit: 3 semester hours.

430—Problems and Projects in Speech. These problems are discussed and analyzed through discussion and research. Each student selects a project or problem on which he does extensive research and presents a report to the department faculty. Credit: 3 semester hours.

431—Problems and Projects in Speech. Projects for which the student has done research in Speech 430 are to be executed. Students will perform activities in one of the following areas: acting, directing, producing, designing and constructing costumes and stage settings for the school theatre; announcing, directing, and producing for radio and television; teaching. Credit: 3 semester hours.

432—Stuttering, Theories and Therapies. A comparative study of the various therapies proposed for stutterers. Class: 3 hours. Credit: 3 semester hours.

433—Advanced Clinical Practice in Speech and Hearing Therapy. Diagnostic and therapeutic procedures in speech and hearing therapy. One hour of clinical practice per week per credit hour. Class: 3 hours. Credit: 3 semester hours.

434—Persuasion. The psychological and emotional principles involved in influencing individuals and groups. An analysis and practice with the speech devices and techniques in effectively motivating audience reaction. Class: 3 hours. Credit: 3 hours.

435—Organic Speech and Language Disorders. A study of the speech and language problems resulting from aphasia, cerebral palsy, and mental retardation. Investigation of speech therapy methods applicable to these disorders. Class: 3 hours. Credit: 3 semester hours.

436—American Theatre Tour. A tour of representative American theatres and productions to include professional and educational theatre, arena, summer stock, repertory, community, and Broadway or Hollywood productions. Class: 2 weeks tour. Credit: 3 hours. (Course may be repeated for 3 additional hours credit. The number would be 437.)

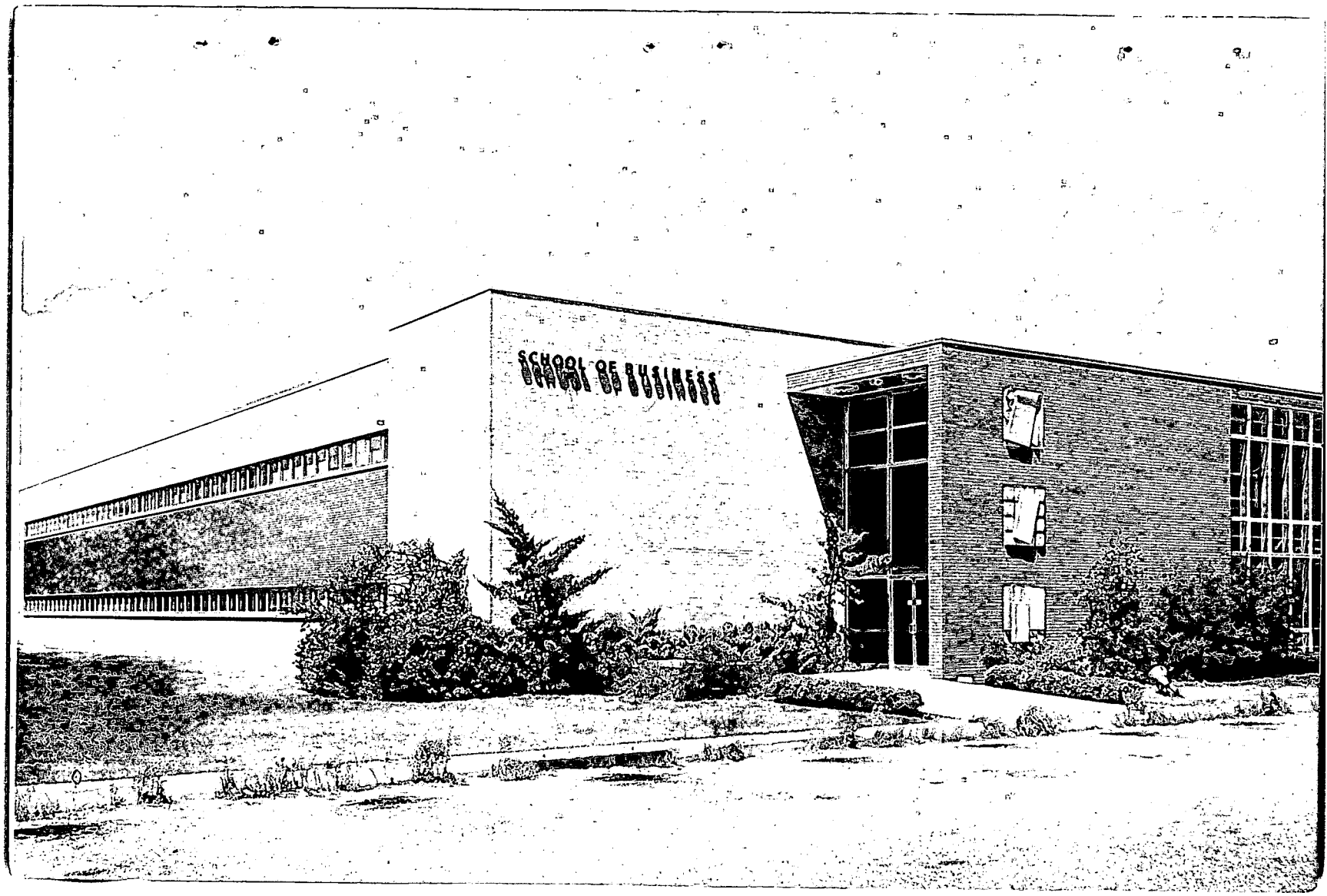
438—Directing Secondary School Speech Activities. Principles involved in extra-curricular activities such as plays, debate, extemporaneous speaking, declamation, interpretation, radio and television. Practical experience with workshop students constitutes a part of this course. (Offered in summer terms only). Class: 15 hours per week for 3 weeks, plus laboratory as arranged. Credit: 3 hours.

439—Seminar in Fine Arts. A study of the areas of art, music, and theatre. Class: 3 hours. Credit: 3 semester hours.

GRADUATE SCHOOL

Departments

Education
Engineering
English
History
Mathematics


SCHOOL OF BUSINESS

The Graduate School

The Graduate Council

The Graduate Program is administered by the Graduate Council which has the following membership: (1962-1963)

Richard W. Setzer, Ph.D., Dean, Graduate School, Chairman
Mrs. Ruth Olcott, Ed.D., Dean, School of Education
Frank A. Thomas, Ph.D., Dean, School of Engineering
Lloyd B. Cherry, M.A., B.S. in E.E., E.E., Head, Department of Electrical Engineering
Charles W. Hagelman, Jr., Ph.D., Head, Department of English
Jeremiah M. Stark, Ph.D., Head, Department of Mathematics
Preston B. Williams, Ph.D., Head, Department of History
Winfred S. Emmons, Jr., Ph.D., Professor of English
M. L. McLaughlin, Ed.D., Professor of Education
Peter Terwey, Jr., Ph.D., Professor of Mathematics
Ralph A. Wooster, Ph.D., Professor of History

The Graduate Bulletin

The Graduate Bulletin contains a complete listing of courses, admission requirements, and other information of value to graduate students. Requests for copies should be directed to the Office of the Dean of the Graduate School, Lamar State College of Technology, Beaumont, Texas.

Degrees Offered

The **Master of Arts** degree is offered in the fields of English and history. A master teacher program may be completed along with the graduate degree in each of these departments.

The **Master of Science** degree is available in the field of mathematics. **Master of Engineering Science** is offered in the School of Engineering and combines graduate work in engineering with courses in science and mathematics.

The **Master of Education** degree is available in Elementary Education through the Department of Education and Psychology.

For specific degree requirements, the student should consult the Graduate Bulletin.

Admission

Applicants seeking admission to the Graduate School must present evidence that their academic record and personal attributes indicate the ability to pursue graduate work successfully. Admission to the Graduate School is administered by the Graduate Council. In general, the policies set forth by this Council for admission are as follows:

1. An applicant must hold a bachelor's degree or its equivalent from an institution approved by a recognized accrediting agency.

2. The following official credentials should be filed with the Dean of the Graduate School at least four weeks before registration.

   A. A completed transcript of all previous college work.

   B. Two copies of the completed application form for admission to the Graduate School.

   C. Scores on the aptitude and the appropriate subject matter area of the Graduate Record Examination (sent directly to the Dean of the Graduate School by the Educational Testing Service). The College Testing and Placement Center, located in Room 102 in the Liberal Arts Building, administers the Graduate Record Examination. Application forms and information about the Graduate Record Examination are available at this Center.

   Applicants for admission to the Graduate School are urged to take the Graduate Record Examination prior to registration for their first term. Students who have not taken this examination prior to their first registration, must complete the examination before registering for a second semester.

   Students who fail to meet this requirement will not be permitted to register for additional courses, and credit for all courses taken at Lamar State College will be withheld.

3. Grade-point average on all undergraduate work taken of 2.0 (3-point system).

   A. Upon recommendation by the major department, a student with a grade-point average below 2.0 (3-point system) may be admitted to the Graduate School on probation. This probation may be removed upon recommendation by the major department, by the student completing nine semester hours of graduate work with grades of **B** or better.

4. A student who wishes to pursue graduate work in any area for which he has not had the prerequisites will be required to make up deficiencies as prescribed by the Graduate Council. In general, the student is required to have a minimum of twenty-four semester hours (twelve of which must be on the junior-senior level) of undergraduate work in the subject chosen as the graduate major. For a minor, twelve semester hours of undergraduate work are required.

5. Admission to the Graduate School does not imply candidacy for a master's degree.

6. The Dean of the Graduate School will notify the applicant of his admission to the Graduate School. All transcripts, certificates, etc., become the property of the Graduate School and are not returnable.

Special Students

An applicant who wishes to enroll in a graduate course without receiving credit toward any graduate degree may do so under the following conditions.

1. He must hold a bachelor's degree.
2. He must have the written consent of the department head concerned and the Dean of the Graduate School.
3. An individual may not pursue more than two courses under this agreement and only one such course in any semester or summer term.
4. Nothing in this statement is to prevent the Graduate Council from granting graduate credit for these courses toward a degree if the Council elects to do so in the event the student applies for admission to the Graduate School.

Registration

Students who have been admitted to the Graduate School may register in September or February, for the long sessions; or in June or July for the summer terms.

HOW TO ENTER LAMAR STATE COLLEGE

If You Have Graduated from High School

1. Make application on regular form.
2. Have transcript mailed to: Dean of Admissions, Lamar State College of Technology, Beaumont, Texas.
3. Have your doctor complete a health certificate and mail in your own stamped envelope addressed to: Dean of Admissions, at the above address.
4. Take entrance test at a convenient and early date. (See schedule of dates under "Admission").
5. If you do not plan to live at home send your dormitory deposit ($20.00) with request for space to Student Life Office, Lamar State College, Beaumont, Texas.

The above steps should be taken as soon as you decide you may want to attend Lamar. Application and health certificate forms may be obtained from the Admissions Office.

6. Report at time and place assigned by the Admissions office.
7. In the meantime, read the current catalog so that you can be familiar with the program of study you wish to follow.

If You are Transferring from Another College

1. Study "Admission by Transfer from Another College" in the admission section of this catalog to be certain that you are eligible for admission to Lamar.
2. Follow the same steps outlined for those entering directly from high school except that you must request each college attended to send your transcript of credits to the Dean of Admissions.

If You Did Not Finish High School

1. Study "Admission by Individual Approval" in the admission section of this catalog to determine your eligibility for consideration for admission by individual approval.
2. Request a personal interview with the Dean of Admissions.
3. If a favorable answer is received from the Admissions office, follow the steps outlined for high school graduates.
4. Only a very few students qualify for admission by this method. Success in doing satisfactory college work is very difficult for those having high school deficiencies.

REFERENCE INDEX