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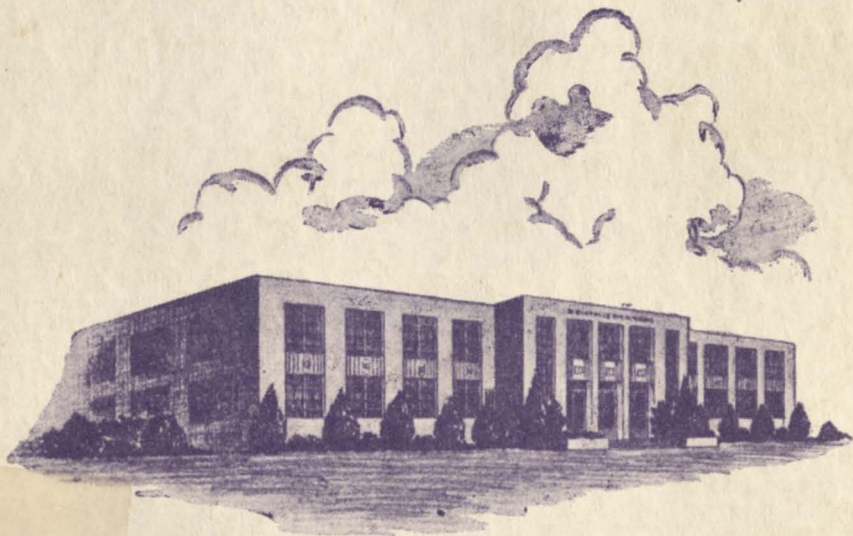
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PRAIRIE VIEW

AGRICULTURAL AND MECHANICAL
COLLEGE OF TEXAS

PRAIRIE VIEW, TEXAS

Dup.



1957-58

ARCHIVE COLLECTION

RECOGNITION

The institution is recognized as a Class "A" College by the Texas Education Agency, the Southern Association of Colleges and Secondary Schools, the American Association of Colleges for Teacher Education, and the Association of Texas Colleges.

(ENTERED AS SECOND-CLASS MAIL MATTER, AT THE POST OFFICE AT HEMPSTEAD, TEXAS) ISSUED AT PRAIRIE VIEW A. & M. COLLEGE BRANCH QUARTERLY.

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AUGUST 1957

Bulletin of

PRAIRIE VIEW

AGRICULTURAL AND MECHANICAL COLLEGE

Graduate

SEVENTY-EIGHTH CATALOG EDITION 1956-1957

WITH ANNOUNCEMENTS FOR 1957-1958

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Officially Approved College Calendar

1957-58

SUMMER SESSION — 1957

June 3	Registration, First Term	
June 4	Classes Begin	
June 10	Registration Closes	
July 4	American Independence Holiday	
July 14	First Term Closes	
July 15	Registration, Second Term	
July 16	Classes Begin	
July 22	Registration Closes	
August 24	Second Term Closes	

REGULAR SESSION 1957-58

September 3-7	Faculty Orientation	
September 9-11	Orientation and Registration	
September 12	Classes Begin	
September 14	Registration Closes	
November 6-7	Mid-Semester Examinations	
November 27 (5:00 PM) - December 2 (8:00 AM)	Thanksgiving Holidays	
December 21	Christmas Holidays Begin (Noon)	

1958

January 2	Classes Resume	
January 13-18	Final Examinations	
January 19	First Semester Closes	
January 20-21	Registration, Second Semester	
January 22	Second Semester Classes Begin	
January 29	Registration Closes	
March 19-20	Mid-Semester Examinations	
April 3 (5:00 PM) - 8 (8:00 AM)	Easter Holidays	
May 19-23	Final Examinations	
May 24	Second Semester Closes	

SUMMER SESSION — 1958

June 2	Registration, First Term	
June 3	Classes Begin	
June 9	Registration Closes	
July 4	American Independence Holiday	
July 13	First Term Closes	
July 14	Registration, Second Term	
July 15	Classes Begin	
July 21	Registration Closes	
August 23	Second Term Closes	

THE TEXAS AGRICULTURAL AND MECHANICAL COLLEGE SYSTEM

Composed of all colleges, agencies and services under the supervision of the Board of Directors of the Texas Agricultural and Mechanical College System, including:

- THE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS
- THE ARLINGTON STATE COLLEGE
- THE TARLETON STATE COLLEGE
- THE PRAIRIE VIEW AGRICULTURAL AND MECHANICAL COLLEGE
- THE TEXAS AGRICULTURAL EXPERIMENT STATION
- THE TEXAS AGRICULTURAL EXTENSION SERVICE
- THE TEXAS FOREST SERVICE
- THE TEXAS ENGINEERING EXPERIMENT STATION
- THE TEXAS ENGINEERING EXTENSION SERVICE

BOARD OF DIRECTORS

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INDUSTRIAL EXECUTIVE, LUFKIN
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- L. H. RIDOUT, JR., *Business Executive* Dallas
- PRICE CAMPBELL, *Utilities Executive* Abilene
- H. B. ZACHRY, *Construction Engineer* San Antonio

ADMINISTRATIVE OFFICERS

- M. T. HARRINGTON *Chancellor*
- D. W. WILLIAMS *Vice-Chancellor for Agriculture*
- E. L. ANGELL *Assistant Chancellor and Secretary of the Board*
- R. H. SHUFFLER *Director of Information and Publications*
- W. C. FREEMAN *Comptroller*
- T. R. SPENCE *Manager of Physical Plants*

Division of Graduate Study

ADMINISTRATIVE OFFICERS

EDWARD B. EVANS, V.M.D., *President of the College*
JESSE M. DREW, Ed.D., *Dean of Instruction, Dean of Graduate School*
THOMAS P. DOOLEY, Ph.D., *Dean of School of Arts and Sciences*
CLAUDE L. WILSON, M.E., M.S., *Dean of School of Engineering*
*GEORGE L. SMITH, M.S., *Dean of School of Agriculture*
JOHN C. WILLIAMS, M.S., *Acting Dean of School of Agriculture*
MRS. E. MAY GALLOWAY, M.S., *Dean of School of Home Economics*
ALVIN I. THOMAS, M.S., *Director of Division of Industrial Education*
MRS. MAIDA S. BRANNON, M.A., *Director of Division of Nursing Education*
JONEL L. BROWN, Ph.D., *Director of Extramural Services*
THOMAS R. SOLOMON, Ph.D., *Director of Student Life*
HARRY E. FULLER, *Dean of Men*
MRS. R. L. BLAND EVANS, M.S., *Dean of Women*
THOMAS H. WRIGHT, B.S., *Lieutenant Colonel, Infantry, U.S.A.,
PMS&T and Commandant, Reserve Officers Training Corps*
LEMMON C. McMILLAN, M.A., *Registrar*
ORESTES J. BAKER, M.L.S., *Librarian*
HORACE D. MURDOCK, M.B.A., *Business Manager*
WILLIAM C. DAVID, B.S., *State Director, Extension Service for Negroes*

COMMITTEE ON GRADUATE STUDY

JESSE M. DREW, Chairman *Dean of Instruction*
A. S. ARNOLD *Head of Department of Business Administration*
JONEL L. BROWN *Head of Department of Economics*
THOMAS P. DOOLEY *Dean of School of Arts and Sciences*
ELIZABETH M. GALLOWAY *Dean of School of Home Economics*
EARL M. LEWIS *Head of Department of Political Science*
ERNEST M. NORRIS *Professor of Agricultural Education*
ANNE C. PRESTON *Professor of Elementary Education*
THOMAS R. SOLOMON *Director of Student Life*
ALVIN I. THOMAS *Director of Division of Industrial Education*
JOHN C. WILLIAMS *Acting Dean of School of Agriculture*
CLAUDE L. WILSON *Dean of School of Engineering*

ADMINISTRATION

Administration of the Graduate Division is under the direction of the Committee on Graduate Study, which determines policies and administers them through its Chairman. Students seeking the Master's Degree are governed by the general rules of the catalogue and their work is under the general supervision of the Committee on Graduate Study.

* On leave.

ADMISSION TO THE GRADUATE DIVISION

Applicants for admission to the Division of Graduate Study should submit a regular application blank properly executed at least thirty days prior to the opening of the session in which they wish to register. This is to be accompanied by an official transcript of undergraduate work completed.

Students are admitted by the Committee on Graduate Study, acting through the Chairman, to whom application should be made. For admission to the Division of Graduate Study an applicant must have received his baccalaureate degree from a senior college of recognized standing.

Graduates of such institutions who have met the prerequisite requirements of the departments or divisions in which they wish to major are customarily accepted as graduate students in full standing if they graduated in the upper 50 per cent of their class while carrying an undergraduate program with a normal distribution of courses. All cases are considered on an individual basis. This includes a study of the courses taken and the grades made, which should average "B" or above at least in the junior-senior years of the undergraduate curriculum.

Students not eligible to admission in full standing as prospective candidates on probation or as Graduate Special students may be permitted to take individual courses with the approval of the instructors concerned.

GRADUATE WORK BY SENIORS

A senior in this College who lacks six semester hours or less of having completed the requirements for the undergraduate degree may, with the approval of his undergraduate dean, and the Chairman of the Committee on Graduate Study, register for graduate courses, not to exceed six semester hours, while completing his undergraduate requirements. If graduate credit is desired for any part of the work carried, the combined load of the graduate and undergraduate courses must not exceed 15 semester hours.

Seniors who wish to register for graduate courses may apply to the Chairman of the Committee on Graduate Study for information as to procedure.

FELLOWSHIPS

Prairie View Agricultural and Mechanical College offers ten graduate fellowships with a stipend of \$500.00 each, for the encouragement of research and advanced study.

The primary object of these appointments is to stimulate research and not to give pecuniary aid. The award is paid in twelve equal monthly installments and does not include a remission of college fees. The appointments are made for one year only, but application may be made for their renewal.

These fellowships are open to students who hold bachelor's degrees from colleges or universities in good standing. No student should apply for one of these awards who does not cherish a real and earnest desire to do a good quality of research and graduate work.

Forms for making application may be secured from the Dean of the Graduate School.

REQUIREMENTS FOR THE DEGREES OF MASTER OF ARTS, MASTER OF SCIENCE, AND MASTER OF EDUCATION

Graduates of Prairie View Agricultural and Mechanical College or of any other college of approved standing may, on the satisfactory completion of an approved program of study, receive the degree of Master of Arts, Master of Science, or Master of Education. The degree received will depend upon the field of subject matter emphasized at the graduate and undergraduate level.

The requirements for the degree are:

1. *Admission to Candidacy*—

A graduate student enrolled in the Division of Graduate Study does not automatically become a candidate for the Master's degree. To become a candidate, the student must complete the following requirements:

- a. A candidate must be accepted by the department in which the major and minor are to be performed. A student to be considered for admission to candidacy for the Master's degree must present evidence of satisfactory preparation for graduate study in the fields chosen. The general undergraduate record, the record in the fields selected for graduate study, and the record on the graduate work completed will be considered in determining admission to candidacy. As further evidence of satisfactory preparation, the major department may require the candidate to pass a qualifying examination.
- b. The prerequisites for the Master of Education degree are eighteen semester hours and two years of teaching experience.
- c. After twelve semester hours of graduate work have been satisfactorily completed, with an average of "B" or better, a formal application must be made for admission to candidacy. This application, approved by the heads of the major and minor departments, must be submitted to the Director of the Division of Graduate Study not later than twelve weeks prior to the date on which the degree is to be conferred.

2. *Residence*—

The minimum residence requirement is two semesters of at least 12 semester hours of graduate in each, five six-week summer terms, or an equivalent approved by the Committee on Graduate Study.

3. *Course Requirements*—

- a. A minimum of thirty semester hours, exclusive of thesis, with an average grade of "B," or better, in courses approved for graduate credit, is required for the degrees of Master of Arts and Master of Science.
- b. Thirty-six semester hours of course work are required for the degree of Master of Education.

c. Ordinarily, at least twenty semester hours of graduate work in the major field and ten semester hours in the minor field will be required.

4. *Transfer of Credit*—

Credit obtained in a different, but recognized institution, not exceeding six semester hours, may be transferred and credited to the Master's degree, provided that the work was of graduate character and provided that acceptance of the transferred credit does not reduce the minimum residence period of one academic year. Transfer of advanced credit is not made unless requested by the student in a letter to the Director of Graduate Study. Such a transfer of credits from another institution to apply in partial fulfillment of the requirements for the Master's degree must be approved by the Graduate Committee. An "A" grade from another institution or earned in extension courses, may not be used to validate a grade of "C" earned in this college.

5. *Extension and Correspondence Courses*—

A student who has satisfied requirements for admission to the Division of Graduate Study may receive credit toward the Master's degree for extension courses, subject to the following conditions: (1) graduate credit will be given only for courses approved by the Committee on Graduate Study; (2) the courses fit in with the student's program of study; (3) graduate credit for extension courses shall not exceed six semester hours and shall not reduce the residence requirement for the degree; and (4) an "A" grade from another institution or earned in extension courses, may not be used to validate a grade of "C" earned in this college.

Correspondence work is not accepted for graduate credit. With the consent of the department concerned, a student may take work by correspondence to remove deficiencies in his undergraduate training.

6. Not more than a total of nine semester hours of extension and transferred credits combined may be counted toward the Master's degree.

7. *Quality of Work*—

A candidate must maintain at least a "B" average in all work taken in graduate study.

8. *English Usage Requirement*—

A student who is deficient in English usage but who is otherwise doing satisfactory work will be required to satisfy the Committee on English Usage with regard to his use of the English language, before he is allowed to graduate. Such deficiency might be determined by an English Usage examination or by reports of instructors of courses in which a student is registered.

9. *Foreign Language Option*—

At the option of the head of the department in which the major work is done, a reading and working knowledge of French, German, or Spanish may be required to complete the requirements for the Master of Arts degree.

10. *Thesis*—

- a. In addition to the thirty semester hours in graduate courses all candidates for the degrees of Master of Arts and Master of Science must present an acceptable thesis on a subject germane to the major course of study. The thesis must be written under the direction of a member of the faculty of the Graduate Division in the department in which the individual is working. The thesis must have the approval of each member of the Student's Reading Committee. This work must be acceptable with respect to both scholarship and literary quality. A candidate for an advanced degree must have his thesis subject approved by his Chairman at least six months before the date he expects it to be filed with the Graduate Office. A candidate should complete his thesis not later than three weeks before the date of his intended graduation in order that it may be examined by each member of the Advisory Committee for the student. The following directions should be rigidly followed in the writing of the thesis.

The thesis should be typewritten, double-spaced on a durable rag bond, 8 1/2 x 11 inches, leaving the left hand margin at least an inch and a quarter wide, the right-hand margin at least three-quarters of an inch. Set up the title page according to the following form:

TITLE OF THESIS

A Thesis

Presented to the Graduate Division

of Prairie View Agricultural and Mechanical College

In Partial Fulfillment of the

Degree of

Master of

By

(Author's Name in Full)

(Date on which degree is to be conferred)

Two copies of the thesis must be filed in the Graduate Office.

- b. All candidates for the degree of Master of Education are required to enroll in a seminar in connection with which a seminar paper will be written in specially prepared form approved in writing by the instructor in charge of the seminar. This paper shall deal with a topic in the student's major field of concentration.

11. *Application for the Degree*—

Any candidate expecting to graduate at the end of a regular long session is required to file application for the degree expected during the first five days of the first semester of his attendance in that session on a blank available in the Registrar's Office. If graduation is expected at

the end of the summer session, the application for the degree should be made during the first three days of the first term of the student's attendance in that summer session. The application should be directed to the Registrar.

12. *Final Examination*—

After the thesis has been completed and filed with the Graduate Office, the candidate is required to pass a general comprehensive examination which shall be a test of the candidate's knowledge of the study which he has mainly pursued. This general examination is conducted by the Student's Advisory Committee of which the representative of the major field shall act as Chairman, and at least two other examiners to be appointed by the Director of the Graduate School, after consultation with the Advisory Committee. Any member of the Graduate Faculty may attend the examination as a visitor.

A candidate who fails in his general examination must register in the Graduate School and carry work for an additional semester before an opportunity will be given for a second examination, unless special permission is granted by the Committee on Graduate Study for an earlier examination and the request of the department concerned.

13. *Recommendation for the Degree*—

Upon completion of all requirements for the Master's degree, candidates are certified for graduation by the Chairman of the Committee on Graduate Study. Degrees are publicly conferred at the close of the regular and the summer sessions.

TIME LIMIT ON WORK FOR MASTER'S DEGREE

A student must complete his Master's work within six consecutive years after his first enrollment in the Graduate Division.

GRADING SYSTEM FOR GRADUATE STUDENTS

Course work of graduate students is reported as "A" (95-100); "B" (85-94); "C" (75-84); "D" (65-74); "F" (below 65); "I" (Incomplete); "K" (Delinquent Account); "W" (withdrew officially or withdrew passing); "Q" (withdrew unofficially or withdrew failing).

No graduation credit is given for courses in which a grade lower than "C" is received. In order to show satisfactory progress toward an advanced degree a student must receive an average grade of "B." A graduate student is expected to maintain a "B" average in all his work. An "A" grade from another institution, or earned in extension courses, may not be used to validate a grade of "C" earned in this college.

The work of a graduate student performed in connection with his thesis problem is reported as "satisfactory" or "unsatisfactory."

A graduate student may receive a grade of "I"—incomplete, in a course with the privilege of finishing the work at a later date. "Incomplete" work must be made up within twelve months after the close of the term in which the grade was earned, or no credit will be allowed for the course.

Graduate students registered in courses that are open to advanced undergraduates must do a certain amount of work in addition to that required of undergraduates. The nature of this additional work may be the reading of additional books on the subject and presenting a review of same, the making of reports, or such other work as the teacher in charge of the course may deem wise.

Special Note.—Any person reporting for matriculation as a graduate student without having filed an application and other necessary credentials for graduate status (two weeks prior) will be given only tentative graduate status, pending the proper evaluation of undergraduate work. The student should understand that after his credentials have been examined under this tentative arrangement, the institution reserves the right to deny him graduate status even though he has completed all other parts of his registration.

FIELDS OF STUDY

Majors and Minors may be selected in the following fields:

Administration	Music
Agricultural Economics	Physical and Health Education
Agricultural Education	Elementary Education
Biology	Engineering
Business Education	English
Chemistry	Extension Education
Economics	History
Education	Political Science
Guidance	Rural Education
Home Economics Education	Secondary Education
Industrial Education	Sociology
Mathematics	Supervision

For further information regarding course offerings on the graduate level write the Office of the Registrar, or the Office of Graduate Study.

SCHOOL OF AGRICULTURE

AGRICULTURAL ECONOMICS

The prerequisite for majoring in Agricultural Economics is the Bachelor of Science Degree in Agriculture from a recognized college of agriculture.

To fulfill the requirements for a major in this field, one must complete at least twenty semester hours of work in Agricultural Economics. For the minor, the student is required to complete at least ten semester hours of work in the minor field agreed upon in consultation with the major professor and approved by the Dean. However, if it becomes necessary, the hours required in the major and minor fields may vary to the extent of two or three hours accumulated in either field. In such a case, the total hours must amount to thirty or more.

513. AGRICULTURAL FINANCE. (AGEC 513 FINANCE) (3-0) *Credit 3*. Financial requirements of individual farmers; emphasis placed on credit institutions serving the farmers. Prerequisite: Principles of Agricultural Economics.

523. MARKETING OF FARM PRODUCTS. (AGEC 523 MKTG PROD) (3-0) *Credit 3*. Study of the principles underlying successful marketing of farm products; study made of various middlemen through which farm products pass from the producer to the consumer; trips arranged for the class to visit and study markets. Prerequisite: Principles of Agricultural Economics.

552. AGRICULTURAL ECONOMICS SEMINAR. (AGEC 552 SEMINAR) (2-0) *Credit 2*. Current problems in Agricultural Economics discussed; topics reported by students.

713. ECONOMICS OF AGRICULTURAL PRODUCTION. (AGEC 713 PRODUCTION) (3-0) *Credit 3*. Principles of production economics applied to production of major farm products in various areas; economic geography and agriculture, national production programs and the tariff on agricultural products. Prerequisite: Principles of Agricultural Economics.

723. COOPERATIVE MARKETING OF FARM PRODUCTS. (AGEC 723 COOP MKTG) (3-0) *Credit 3*. Principles underlying the successful operation of cooperative marketing organizations; examples of successful fruit, vegetable, livestock and cotton marketing associations.

733. ADVANCED FARM MANAGEMENT. BUSINESS ORGANIZATION OF TEXAS FARMS. (AGEC 733 FARM MGT) (3-0) *Credit 3*. Use of farm management principles in the organization and operation of Texas farms; selecting farms, farm enterprises; planning cropping systems, equipment needs, and capital trips to representative farms by the class. Prerequisite: Principles of Agricultural Economics.

743. LAND TENURE AND PROBLEMS. (AGEC 743 TENURE) (3-0) *Credit 3*. Land as a factor of production, land utilization, tenure and income. Prerequisite: Principles of Agricultural Economics.

763. AGRICULTURAL LAND USE PLANNING. LOCAL REGIONAL AND NATIONAL. (3-0) *Credit 3*. County, state regional and national land use program, submarginal, and supermarginal lands; work of the Farm Security Administration, Department of the Interior, and National Resources Board.

AGRICULTURAL EDUCATION

Undergraduate work equivalent to the Bachelor of Science Degree in Agriculture is required.

503. AGRICULTURAL EDUCATION SEMINAR. (AGED 503 SEMINAR) (1-0 or 2-0) *Credit 3*. Designed for all graduate students having majors in Agricultural Education. Only candidates for an advanced degree are eligible to take this course.

513. METHODS OF CONDUCTING PART-TIME AND EVENING SCHOOLS IN VOCATIONAL AGRICULTURE. (AGED 513 Voc AGRIC) (3-0) *Credit 3*. Teaching Vocational Agriculture. Permission of instructor is required. An analysis of the problems related to part-time and evening schools in Vocational Agriculture and to the development of objectives and procedures in the organization and conduct of such instruction.

523. SUPERVISED PRACTICE PROGRAM BUILDING. (AGED 523 PROG BLDG) (3-0) *Credit 3*. Teaching in Vocational Agriculture. Permission of instructor is required. Based upon researches in project accounting and analysis.

533. EXTENSION ORGANIZATION AND PROGRAM DETERMINATION. (AGED 533 EXTN PROG) (3-0) *Credit 3*. Best procedure to be followed in developing state, county, and community programs of work, and outlining of plans of work looking to the orderly development of specific projects; discussion of the place of local studies for the purpose of discovering points of contact and interest for cooperation in the conduct of extension work.

543. EXTENSION METHODS. (AGED 543 EXTN METH) (3-0) *Credit 3*. Aims and objectives of extension teaching and possible ways of measuring accomplishments reviewed and critically analyzed; various means and agencies employed in extension teaching as

result of demonstrations, method demonstrations, meetings, news articles, personal services, bulletins, exhibits, and circular letters; evaluated from the standpoint of their teaching functions, adaptability, relative influence, cost, interrelationship and general effectiveness.

553. ORGANIZATION AND CONDUCT OF 4-H CLUB WORK. (AGED 553 4-H CLUB) (3-0) *Credit 3*. Development of 4-H Club programs and organization; objectives; psychological groupings; community integration; program content; community, county, state, and Federal organization, selection and use of local leaders, annual plans of work, evaluation; methods employed in 4-H work: projects, club meetings, demonstrations, judging work exhibits, achievement days, camps, short courses, and leadership training.

562-563. SPECIAL PROBLEMS IN HOME ECONOMICS EXTENSION. (AGED 562 563 H E EXTN) (2-0 or 3-0) *Credit 2 or 3*. Extension research and other data of special significance to the organization and conduct of extension work with rural women; current problems of home demonstration workers.

571 and 571-B. YOUNG FARMERS I AND YOUNG FARMER PROBLEMS II. (1-2) (AGED 571 FRMR PROB) *Credit 1*. A correlate to 572 and 622; given on an unasssembled basis for teachers in service who are enrolled in either Agricultural Education 572 or 622. The classroom instruction in these two courses is followed up on an individual enrollee on-the-job basis.

572. METHODS OF WORKING WITH OUT-OF-SCHOOL GROUPS AGED 572 GROUPS) (1-2) *Credit 2*. Special techniques for working with young-farmer and adult-farmer groups on farm and community problems; integration of such work into the total program of Agricultural Education in the community.

613. HISTORY AND PHILOSOPHY OF EXTENSION EDUCATION. (AGED 613 EXTN HIST) (3-0) *Credit 3*. Development of Agricultural Extension Education; socio-economic influence responsible for the establishment of extension education; development of agricultural policy that has a bearing on the philosophy of extension education.

622. SUPERVISED FARMING PROGRAM BUILDING FOR OUT-OF-SCHOOL GROUPS. (AGED 622 SUPV FARM) (1-2) *Credit 2*. Enterprise planning, accounting and analysis; selecting and developing over-all supervised farming programs with special reference to working with young-farmer and adult-farmer groups.

623. PUBLIC RELATIONS AND EXTENSION EDUCATION. (AGED 623 PUB RELTN) (3-0) *Credit 3*. Methods and practices of acquainting the public with the scope and purposes of extension work through print, radio, visual aids, and full use of written and spoken words.

633. PSYCHOLOGY FOR EXTENSION WORKERS. (AGED 533 EXTN PSY) (3-0) *Credit 3*. Significance of psychology to extension workers in relation to its meaning, the job of the extension worker, the meaning of education and of teaching; problem of motivation; nature of learning; basic principles and major types of learning; and conditions favorable for learning.

643. EXTENSION WORK EVALUATION. (AGED 643 EVALUATN) (3-0) *Credit 3*. Measuring results of extension work; sampling procedures, analysis and interpretation, and presentation and use of data in reference to study plans; methods of systematically appraising extension work.

712 or 713. PROBLEMS IN AGRICULTURAL EDUCATION. (AGED 712 713 PROBLEMS) (2-0) or (3-0) *Credit 2 or 3*. Community-program approach to agricultural problems; scientific approximation of aims, objectives and standards; participation in field experiences and field research.

722 or 723. PRINCIPLES OF TEACHING METHODS IN AGRICULTURAL EDUCATION. (AGED 722 723 PRIN METH) (2-0 or 3-0) *Credit 2 or 3*. Logical and psychological bases for selecting methods of teaching agriculture.

SPECIAL NOTE.— *Majors in Agricultural Education will be advised to select additional courses in the field of Rural Education.*

AGRICULTURAL ENGINEERING

513. FARM STRUCTURES. (ENGR 513 STRUCTURS) *Credit 3*. The design and detail of construction of farm buildings; functional requirements and characteristics of materials; principles of sanitation, ventilation and water supply.

523. FARM SHOP WORK FOR TEACHERS. (ENGR 523 SHOP WORK) *Credit 3*. Presentation of purpose, plans and equipment of shops; organization of course of study; and methods of teaching farm shop work in vocational agricultural departments in high schools.

543. FARM POWER. (ENGR 543 FARM POWR) *Credit 3*. Trends in design and methods of stress analysis applied to typical agricultural machines; suitability of materials, power requirements, lubrication, safety, and economic factors.

553. SELECTION AND MANAGEMENT OF FARM MACHINERY. (ENGR 533 FARM MACH) *Credit 3*. Soil working, planting and forage handling, as well as processing machines from the mechanical, operational and economic standpoints.

573-583. SPECIAL PROBLEMS. (ENGR 573 583 SPEC PROB) *Credit 3*. Courses designed for students who are interested in working out problems not included in regular courses offered by the department.

561. SEMINAR. (ENGR 561 SEMINAR) *Credit 1*. Preparation, presentation and discussion of papers on agricultural engineering subjects.

593. RURAL ELECTRIFICATION. (ENGR 593 RUR ELEC) (Elective) *Credit 3*. Principles and applications of electrical apparatus included in modern farm equipment, electrical heating and motored appliances, protective devices, and lighting facilities.

603. WELDING AND IRONWORK. (ENGR 603 IRONWORK) (Elective) *Credit 3*. Advanced welding and metal work; repair and maintenance of farm machinery.

AGRONOMY

501. GRADUATE SEMINAR. (AGRN 501 SEMINAR) (1-0) *Credit 1*. Each student will present organized papers on assigned subjects in crops, soils and genetics, based upon library and local research.

514. PLANT ECOLOGY. (AGRN 514 ECOLOGY) (2-4) *Credit 4*. Native and crop vegetation in relation to factors of environment. The application of environmental factors to general plant production.

523. ADVANCED FARM CROPS. (AGRN 523 ADV CROPS) (2-2) *Credit 3*. Emphasis will be placed on the geographical distribution, classification and physiology of the important farm crops.

533. PRINCIPLES OF PLANT PATHOLOGY. (AGRN 533 PLNT PATH) (2-2) *Credit 3*. Virus, bacterial and fungous diseases of field and horticultural crops. Symptoms and possible controls.

543. RANGE AND PASTURE IMPROVEMENT AND MANAGEMENT. (AGRN 543 PASTURES) (2-2) *Credit 3*. Types of pastures; pasture and range vegetation, methods of establishment and improvement.

553. PLANT BREEDING (AGRN 553 BREEDING) (2-2) *Credit 3*. Crossing and breeding techniques for the most important farm crops. Inheritance and disease resistance and susceptibility. Field plot technique.

554. SOIL CHEMISTRY. (AGRN EED SOIL CHEM) (2-4) *Credit 4*. The application of the principles of chemistry to soils. The relationship between chemical properties and soil productivity.

563. DISEASES OF FIELD CROPS. (AGRN 563 DISEASES) (2-2) *Credit 3*. Common diseases found in field crops and best known methods of control.

573. FERTILIZERS AND SOILS. (AGRN 573 FERTLIZRS) (2-2) *Credit 3.* Fertilizer recommendations for various crops and localities. Soil types and fertilizer requirements.

583. SOIL MAPPING. (AGRN 583 SOIL MAPG) (1-3) *Credit 3.* The study of soil type characteristics by profiles; the mapping of selected local areas.

593. ADVANCED SOIL MANAGEMENT. (AGRN 583 SOIL MGT) (2-2) *Credit 3.* The application of the principles of soil management to the solution of practical farm problems.

ANIMAL HUSBANDRY

503. MARKETING LIVESTOCK. (A H 503 LIVESTOCK) (3-0) Livestock marketing services, functions and prices.

434. BIOCHEMISTRY (A H 434 BIOCHEM) (2-4) An introductory course on the chemistry of living matter, foods, metabolism and nutrition. The laboratory works deals with the examination of tests of foods, nutritional studies and the qualitative examination of blood and urine.

513. A. H. EXTENSION PRACTICES. (A H 513 EXTN PRAC) (3-0) Accumulation, interpretation, and dissemination of published and pictorial information as related to livestock practices.

523. VETERINARY OBSTETRICS. (A H 523 OBSTETRIC) (3-0) Physiology of reproduction, principles of normal and abnormal parturition, diagnosing and treating sterility, abortion, and reproductive failures.

533. HERD AND FLOCK MANAGEMENT. (A H 533 FLOCK MGT) (3-0) Systematic studies of methods of breeding, feeding and management practices used in commercial livestock production.

543. RANGE AND PASTURE IMPROVEMENT AND MANAGEMENT. (A H 543 PASTURES) (3-0) The course deals primarily with the types of pasture, and pasture and range vegetation; methods of establishment and improvement.

401. SEMINAR. (A H 401 SEMINAR) (1-0) Reviews and discussions of animal research articles.

DAIRY HUSBANDRY

533. DAIRY BACTERIOLOGY. (DAIR 533 BACTERIOL) *Credit 3.* Bacterial flora of milk products; milk sanitation, contamination and control—pure culture studies.

551. SEMINAR. (DAIRY PRODUCTION) (DAIR 551 SEMINAR) Current literature relating to various phases of milk production.

561. SEMINAR (DAIRY PRODUCTION). (DAIR 561 SEMINAR) Continuation of 551 prerequisite—Seminar D.H. 551.

572. SPECIAL PROBLEMS. (DAIR 572 SPEC PROB) Reports on special problems in dairy farm management.

582. SPECIAL PROBLEMS. (DAIR SPEC ER2 PROB) Continuation of 572.

523. DAIRY HUSBANDRY. (DAIR 523 DAIR HUSB) Specific examples of dairy farmer needs and how to meet them. Relationship between production, testing, artificial breeding association, sire proving, work of dairy production fieldman.

543. TECHNICAL DAIRY PRODUCTION. (DAIR 543 TECH PROD) *Credit 3.* Technical aspects of nutrition, milk secretion, and reproduction in dairy cattle.

434. BIOCHEMISTRY. (DAIR 434 BIOCHEM) *Credit 4.* An introductory course on the chemistry of living matter, foods, metabolism and nutrition. The laboratory works deal with the examination of tests of foods, nutritional studies and the qualitative examination of blood and urine.

DAIRY INDUSTRY

422. SPECIAL PROBLEMS. (DAIR 422 SPEC PROB) Research problems in Animal Husbandry; planning, execution, compiling and summarizing the data in publication form.

434. BIOCHEMISTRY. (DAIR 434 BIOCHEM) *Credit 4*. An introductory course on the chemistry of living matter, foods, metabolism and nutrition. The laboratory works deal with the examination of tests of foods, nutrition. The laboratory works deal with the examination of tests of foods, nutritional studies and the qualitative examination of blood and urine.

514. DAIRY LABORATORY METHODS. (DAIR 514 LAB METH) *Credit 4*. Theory of and Practice in Analytical Methods used for control and research in dairy manufacturing. Emphasis placed on various methods of fat determination, procedures for platform and plant quality tests, detergents, washing and sterilizing compounds.

503. DAIRY INSPECTION AND ORDINANCES. (DAIR 503 INSPECTN) *Credit 3*. Farm, plant, and products inspection; equipment and personnel; milk ordinances; standards.

533. DAIRY BACTERIOLOGY. (DAIR 533 BACTERIOL) *Credit 3*. Bacterial flora of milk products; milk sanitation, contamination and control—pure culture studies.

552. SPECIAL PROBLEMS. (DAIR 552 SPEC PROB) *Credit 2*. Reports on special problems in and relating to the dairy industry.

562. SPECIAL PROBLEMS. (DAIR 562 SPEC PROB) *Credit 2*. Continuation of D. I. 552.

571. SEMINAR. *Credit 1*. (DAIR 571 SEMINAR) Current literature review and reports in dairy manufacturing industry.

HORTICULTURE

513. GENETICS. (HORT 513 GENETICS) (2-2) *Credit 3*. Plant genetics which include Mendel's Laws, chromosome phenomena and plant improvement.

523. SYSTEMATIC POMOLOGY. (HORT 523 POMOLOGY) (2-2) *Credit 3*. Description, nomenclature, classification and identification of deciduous and non-deciduous fruits with reference to varietal relationships. Exhibits and judging.

533. MARKETING OF FRUITS AND VEGETABLES. (HORT 533 MKT FRUIT) (2-2) *Credit 3*. A study of economic factors involved in the marketing of fruits and vegetables, transportation, methods of handling, middlemen and costs of distribution.

543. FERTILIZERS AND SOILS. (HORT 543 FERTILIZR) (2-2) *Credit 3*. A study of soils and fertilizers in relation to production of stone, pome and small fruits, subsoils, drainage, elevation and contour.

553. ECONOMIC ENTOMOLOGY. (HORT 553 ECON ENT) (2-2) *Credit 3*. A course which deals with the study of insects which attack fruits and vegetables. Includes the use of spray calendars, insecticides and equipment.

563. DISEASES OF FRUIT AND VEGETABLE CROPS. (HORT 563 DISEASES) (2-2) *Credit 3*. Problems in the design of small land areas; orientation, arrangement and circulation, including instruction in drafting and presentation.

ORNAMENTAL HORTICULTURE

513. INTRODUCTION TO LANDSCAPE DESIGN. (HORT 513 LANDSCAPE) *Credit 3*. Problems in the design of small land areas; orientation, arrangement and circulation, including instruction in drafting and presentation.

523. TAXONOMY OF CULTIVATED PLANTS. (HORT 523 TAXONOMY) *Credit 3*. Principles of plant classification; bibliographic tools of systematic botany; methods of collection, preservation and study of vascular plants.

533. PROBLEMS IN THE PROPAGATION OF ORNAMENTAL PLANTS. (HORT 533 PLNT PROP) *Credit 2-4.* Problems in the propagation of ornamental plants in which the student is interested and which are approved by the instructor. Problems must be of a representative nature and must be worked out independently.

543. NURSERY PRINCIPLES AND PRACTICES. (HORT 543 NURS PRIN) *Credit 3.* Fundamentals and practices involved in the management of a modern nursery; status of the industry, its development, growing, merchandising, and marketing of nursery products in all phases. Trips to nurseries in the state will be made.

553. ECOLOGY OF ORNAMENTAL PLANTS. (HORT 553 ECOLOGY) *Credit 3.* Patterns of vegetation, local, regional and continental, relation of environmental conditions that limit the various plant communities and influence the growth of the competition in ornamental plants.

563. DISEASES OF FRUIT AND VEGETABLE CROPS. (2-2) *Credit 3.* Problems in the design of small and land areas; orientation, arrangement and circulation, including instruction in drafting and presentation.

573. COMMERCIAL GREENHOUSE PRODUCTION. (HORT 573 GREENHSE) *Credit 3.* Practical application of science to the production and marketing of greenhouse crops; the growing of seedling plants in the greenhouse, cloth house, and lath. Trips will be made to greenhouses in the State.

583. LANDSCAPE HORTICULTURE PROBLEMS. (HORT 583 PROBLEMS) *Credit 3.* Problems in landscaping in which the student is interested and which are approved by the instructor. Problems must be of a representative nature and must be worked out independently.

593. PLANTING DESIGN. (HORT 593 PLNT DSGN) *Credit 3.* The basic principles of planting design; arrangement and use of plants in landscape design with drafting and field practice; problems in color, texture, and mass in plants.

613. PROBLEMS IN LANDSCAPE HORTICULTURE. (HORT 613 PROBLEMS) *Credit 2-4.* Problem in landscaping in which the student is interested and which is approved by the instructor; problem must be of a representative nature and must be worked out independently.

623. PARK, CEMETERY, AND INSTITUTIONAL GROUNDS ADMINISTRATION. (HORT 623 PARK ADM) *Credit 3.* Lectures, collateral reading, and reports on visits to parks, cemeteries, and institutional grounds; lectures and discussions of problems connected with the administration of parks, cemeteries and institutional grounds.

POULTRY HUSBANDRY

POULTRY 561. (POUL 561 SEMINAR) SEMINAR. Extensive and intensive review and reporting of literature in various phases of Poultry Husbandry.

POULTRY 523. POULTRY MANAGEMENT. (POUL 523 POUL MGT) A detailed study of all phases of farm and commercial flocks, including cost of production.

POULTRY 533. POULTRY DISEASE AND SANITATION. (POUL 553 DISEASE) Anatomy of domestic fowls; poultry sanitation and hygiene; infectious and manificious diseases of fowls; parasites, minor surgery.

POULTRY 502. SPECIAL POULTRY PROBLEMS. (POUL 502 PROBLEMS) Research problems of a practical nature in Poultry Husbandry.

POULTRY 542. (POUL 542 GAME BIRD) DOMESTIC PROPAGATION OF TURKEY, GEESE, DUCKS AND GAME BIRDS. The history, characteristics, economic importance, reproduction, and development of the leading breeds and varieties of turkeys, geese, ducks and game birds.

POULTRY 603. POULTRY BREEDING. (POUL 603 BREEDING). A study of inherited characteristics; factors affecting the economic characteristics of poultry.

POULTRY 512. TURKEY PRODUCTION. (POUL 512 TURKEYS) A study of the principles and practices of turkey production with special emphasis on breeding, brooding, feeding and marketing.

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

A graduate major leading to a Master of Science degree in Extension Education is offered. The major field of study, which is approximately two-thirds of the graduate work leading to the degree, may consist of courses selected from an approved list. The list of courses for a major in the field of Extension Education has been made from courses offered by the departments of Agricultural Education, Agricultural Economics, Education, Home Economics Education, English, Physical Education and Sociology.

The Extension worker is permitted an even broader selection of courses for his minor subjects. Minor courses, constituting approximately one-third of the graduate program, may be chosen from the various academic departments in the College in which the worker feels the greatest need for subject matter training.

To be permitted to work toward the Master of Science degree in Extension Education, the candidate is required to have the equivalent of a Bachelor of Science degree in Agriculture or Home Economics. Also, the candidate must have had at least two years of satisfactory Extension experience.

A master's thesis or master's written report will be required. It is expected that the work of gathering material for the thesis will provide information useful to the Extension worker.

Two plans are available for obtaining the master's degree. Subject to the approval of the major instructor, the candidate for the master's degree may choose.

PLAN I—with the Master's Thesis. This plan requires 30 semester hours of graduate credit plus a master's thesis.

PLAN II—without the Master's Thesis. This plan requires 36 semester hours of graduate credit plus a written master's report of research or problem on a topic in the major field.

Associated with the credit requirement is the residence requirement. Under either plan, a student must spend in residence a minimum of two semesters or two and one-half twelve-week summer sessions.

Graduate credit may be earned off the campus by enrolling in absentia for a limited amount of research or problem work on the recommendation of the head of the major department and with the approval of the Chairman of the Committee on Graduate Study.

Some Extension workers have earned graduate credit at other institutions. If this work comes within the time limitations mentioned below, and if it is of such nature as to fit in with the student's program of study at Prairie View A. & M. College, the Committee on Graduate Study will permit up to six semester hours to be transferred from approved institutions. A student who is allowed to transfer six semester hours from another institution may not, because of the residence requirement, be allowed to use credit obtained from off-campus work.

The work included in a program for the master's degree must be completed within a period of six years of the date of the final examination for the degree. Work taken previous to this time will be considered invalidated by the passage of time.

SUGGESTED COURSES FOR A MAJOR IN THE FIELD OF EXTENSION EDUCATION

Agricultural Economics	713	Economics of Agricultural Production
	743	Land Tenure and Problems
Agricultural Education	533	Extension Organization and Program Determination
	543	Extension Methods
	553	Organization and Conduct of 4-H Club Work
	563	Special Problems in Home Economics Extension
	572	Methods of Working with Out-of-School Groups
	623	Public Relations and Extension Education
	633	Psychology for Extension Workers
	643	Extension Work Evaluation
	713	Problems in Agricultural Education
Agricultural Engineering.....Ag Engr	613	Farm Housing
Economics	543	Social and Labor Legislation
	583	Economic Problems of the Consumer
	573	Labor Problems
	773	Economics Theory and Social Policy
Education	Adm. 513	Vocational Guidance
	Sup. 723	Rural School Supervision
	Ed. 713	School and Community Relations
	Psy. 563	Mental Adjustment
	Home Ec. 623	Extension Clothing Methods
	Home Ec. 673	Nutrition for Extension Workers
Home Economics Education	703	Seminar in Nutrition
	705	Consumer Education
	743	Statistical Techniques
	793	Supervision of Home Economics
Physical Education	663	Advanced Personal and Community Hygiene
Health Education	583	Rural Health Problems
Health Education	683	Community Planning for Health
Health Education	693	Teaching of Health
Sociology	503	Introduction to Social Welfare
	603	Problems of Child Welfare
	643	Modern Social Problems

SCHOOL OF ARTS AND SCIENCES

BIOLOGY

A student entering graduate study in the field of biology should present at least an undergraduate minor, 20 hours or the equivalent, which includes: general zoology, botany, and physiology. It is preferable that he shall have had enough credits for an undergraduate minor in biology. It is expected that the average grades in these courses and of courses in related fields be not less than a grade of "C." The department reserves the right to give a qualification test to students and will make recommendations for the courses needed to enable a student to do graduate work in biology. It is expected that students who plan to qualify for the Master's Degree should become thoroughly grounded in the general principles of general zoology, botany, physiology, embryology and anatomy (comparative and microscopic).

Students who plan to minor in biology on the graduate level must have fulfilled all requirements for a minor in biology on the undergraduate level stipulated in the catalog. Prerequisite courses such as Vertebrate Embry-

ology (Biology 414) and Comparative Anatomy (Biology 424), which the student did not take while an undergraduate at this college, must be taken before the student begins the courses in the graduate program.

If the transcript of the undergraduate record of a student does not meet the above qualifications, additional satisfactory undergraduate work will be required before the student is admitted to graduate status.

ADMISSION TO CANDIDACY

Action on admission for candidacy for a Master's Degree will be taken after the student has been in residence for at least one semester or summer session, earning at least twelve hours of graduate work in biology with an average of "B" or better. Research projects for the thesis will be assigned AFTER THE STUDENT HAS BEEN APPROVED AS A CANDIDATE.

The student failing to meet the above requirement will be continued on probation for a second semester. In the event he does not meet the requirements for candidacy at this time, it will be understood that no more graduate credits by him will be applicable to the M.S. Degree in Biology.

It is highly recommended that persons who plan to qualify for the M.S. Degree in Biology plan to spend one semester or at least one summer which can be devoted entirely to research.

The offerings in Biology on the graduate level have been divided into six fields: (1) Embryology; (2) Genetics; (3) Histology; (4) Microbiology; (5) Physiology; and (6) General Biology plus Special Courses in Biology.

Students seeking a Master's Degree in Biology should present well chosen courses from three of these fields and pursue further work in one field. Programs should be outlined in consultation with the Professors of Biology.

I. EMBRYOLOGY

504. EMBRYOLOGY. (BIOL 504 EMBRYOLGY) (2-4) *Credit 4.* Descriptive embryology; vertebrate development with special reference to mammals; dissections and examination of selected embryological materials, including serial sections of the fetal pig. Prerequisite: Biology 114 and 124.

554. EXPERIMENTAL EMBRYOLOGY. (BIOL 554 EMBRYOLGY) (2-4) *Credit 4.* Modern problems and techniques of the development of the principles and mechanisms of development; analysis in factors operating in the morphogenesis, regeneration and development of selected vertebrates. Prerequisite: Biology 414 and 504.

604. ADVANCED VERTEBRATE EMBRYOLOGY. (BIOL 604 VERT EMBR) (2-4) *Credit 4.* Deals primarily with the very early stages in the formation of the human embryo, the mechanism of its implantation in the uterus; correlated changes in the reproductive organism of the mother, organogenesis and histogenesis. Each student takes a special problem in organogenesis. Prerequisites: Biology 414 and 504.

644. MYCOLOGY. (BIOL 644 MYCOLOGY) (2-4) *Credit 4.* The morphology, anatomy, classification and physiology of fungi; habitats, economic principles and taxonomic principles.

II. GENETICS

574. GENETICS. (BIOL 574 GENETICS) See Biology 254.

673. **CYO-GENETICS.** (BIOL 673 GENETICS) (3-0) *Credit 3.* Lectures, reports and laboratory work on the finer cell structures with special reference to chromosome structure, related structures and processes involved as they affect heredity.

674. **PLANT BREEDING.** (BIOL 674 BREEDING) (2-4) *Credit 4.* The application of the principles of genetics to plant improvement. Discussion, reports, lectures, demonstrations and individual participation in techniques and methods are to be used as procedures of instruction. Prerequisite: Biology 254, Genetics.

683. **EXPERIMENTAL GENETICS.** (BIOL 683 GENETICS) (3-0) *Credit 3.* Through Experimentation to show how variations may be brought about; the techniques of mating and breeding to support accepted facts.

694. **ANIMAL BREEDING.** (BIOL 684 BREEDING) (2-4) *Credit 4.* Application of the principles of genetics to animal breeding and improvement. Comparison of various methods of selection and technique. Prerequisite: Biology 254, Genetics.

III. MICROBIOLOGY

533. **PRINCIPLES OF PLANT PATHOLOGY.** (BIOL 533 PLNT PATH) (2-3) *Credit 3.* The fundamentals of parasitism as they affect plants and the means of controlling the diseases resulting from the various parasites which are detrimental to plants.

549. **GENERAL MICROBIOLOGY.** (BIOL 549 MICROBIOL) See Biology 334.

BIOLOGY 594. **SURVEY OF THE PLANT KINGDOM.** (2-4) *Credit 4.* Comparative morphology, taxonomy, physiology, and anatomy of representatives of the major taxa of the plant kingdom, including fungi, algae, mosses, hepatics, ferns allies, and gymnosperms; theories of evolution in plants, taxonomic principles, comparison of life cycles and methods of reproduction, and biotic relationships of representatives of these groups; methods of culturing, collecting, and identification. Prerequisite: Biology 134 with minimum grade of "C," senior or graduate status.

614. **PROTOZOLOGY.** (BIOL 614 PROTOZOOL) (2-4) *Credit 4.* Structure, taxonomy, physiology, life history and adaptations of protozoa, especially the nonparasitic form. Prerequisite: Biology 114 and 124.

624. **GENERAL PARASITOLOGY.** (BIOL 624 PARASITOL) (2-4) *Credit 4.* Morphology, life history, diagnosis and control of the important parasites affecting man and other animals. Prerequisite: Biology 614.

724. **DAIRY BACTERIOLOGY.** (BIOL 724 BACTERIOL) (3-4) *Credit 4.* Importance of bacteria in dairy products; the number and types of bacteria in dairy products and significance of their occurrence.

IV. HISTOLOGY

514. **HISTOLOGICAL TECHNIQUE.** (BIOL 514 HIST TECH) See Biology 354. In addition to the requirements of 354, the student is required to master some of the special techniques.

524. **HISTOLOGY.** (BIOL 524 HISTOLOGY) See Biology 364.

714. **CYTOLOGY.** (BIOL 714 CYTOLOGY) (2-4) *Credit 4.* Lectures, reports and laboratory work on the finer structured cells and processes.

V. PHYSIOLOGY

534. **GENERAL PHYSIOLOGY.** (BIOL 534 PHYSIOLGY) (2-4) *Credit 4.* Functioning of the organ systems along with the chemical and physical processes involved; quantitative experimentation on warm-blooded animals basic physiological technique; original research on a problem. Whenever possible original research sources are consulted for information to acquaint the student with leading workers in the field and their methods. Prerequisite: Biology 452 and elementary courses in Physics and Chemistry.

544. **ENDOCRINOLOGY.** (BIOL 544 ENDOCRINL) (2-4) *Credit 4.* Organs of internal secretion, embryology, physiology, microscopic anatomy, and physiology. Prerequisite: Biology 114, 124 and 324.

584. SPECIAL PHYSIOLOGY OF MAMMALS. (BIOL 584 MAMMAL) (2-4) *Credit 4.* The experiments not given in the general courses.

634. NEUROLOGY. (BIOL 634 NEUROLOGY) (2-4) *Credit 4.* A brief review of the brain and cranial nerves of the shark; the morphology of the spinal cord and brain of a mammal; the principle tracts and nuclei (reaction systems) of the cord and brain of the human nervous system.

VI. GENERAL BIOLOGY AND SPECIAL COURSES IN BIOLOGY

543. PLANT ECOLOGY. (BIOL 543 ECOLOGY) (2-3) *Credit 3.* The distribution of plants and the effect of environmental factors upon determining the geographical distribution. Prerequisite: Systematic Botany.

553. GENERAL ENTOMOLOGY. (BIOL 554 ENTOMOLOGY) (3-2) *Credit 3.* The structure, life history, habits and means of recognizing and classifying the more common insects. Attention is also given to their relations with man and other animals as well as plants.

563. ECONOMIC ENTOMOLOGY. (BIOL 564 ENTOMOLOGY) (3-2) *Credit 3.* Insect pests; identification, distribution and the principles and methods of various types of insect pest control. Literature and research methods are also studied.

564. SYSTEMATIC BOTANY. (BIOL 564 BOTANY) (2-4) *Credit 4.* Local flora, giving training in the identification and classification of the higher plants. Prerequisite: Botany 134.

664. GENERAL INVERTEBRATE ZOOLOGY. (BIOL 664 INVERTEBR) (2-4) *Credit 4.* Classification, morphology, embryology, physiology, and life histories of invertebrates exclusive of insects. Prerequisite: Biology 124.

704. BIOLOGY FOR TEACHERS. (BIOL 704 TEACHERS) A training course for prospective teachers of Zoology and Botany. Lectures or conferences, field and laboratory work. Prerequisite: at least Biology 604 and 644.

600. RESEARCH IN ZOOLOGY. (BIOL 600 RESEARCH) This course will vary in credit according to the work performed, its value being indicated at registration. Research in Zoology may be carried on in any area listed which the student has a sufficient background.

700. RESEARCH IN BOTANY. (BIOL 700 RESEARCH) This course will vary in credit according to the work performed, its value being indicated at registration. Research in Botany may be carried on in any area listed which the student has a sufficient background.

640-650. SEMINAR IN BIOLOGICAL PROBLEMS. (BIOL 640 650 BIOL PROB) Required of all graduate students in the department. No credit.

CHEMISTRY

Persons who plan to pursue the graduate degree in chemistry must fulfill the undergraduate requirements, which are essentially: one year of inorganic chemistry, one year of analytical chemistry, one year of organic chemistry, one year of physical chemistry. It is expected that the average grades in these courses and of courses in related fields be not less than a grade of "C." The department reserves the right to give a qualification test to students and will make recommendations for the courses needed to enable a student to do graduate work in chemistry.

Students who plan to minor in chemistry on the graduate level must have fulfilled all requirements for a minor in chemistry on the undergraduate level stipulated in the catalog.

Upon acceptance as a graduate student in chemistry an advisor will be assigned who shall advise the student on courses to pursue, etc.

At the completion of a minimum of twelve semester hours of graduate work in chemistry, satisfactorily completed with an average of "B" or better, a formal application must be made for admission to candidacy. This application must be approved by the heads of the major and minor department and submitted to the Director of the Graduate School for approval. Research projects for the thesis will be assigned AFTER THE STUDENT HAS BEEN APPROVED AS A CANDIDATE.

A reading knowledge of French or German is recommended for all candidates.

After approval of the thesis, the candidate will be given a written and/or oral preliminary examination in his major and minor fields. It is required that this exam must be taken at least six weeks before graduation.

The final examination will be oral and shall be over subject materials not covered in the preliminary exam and the thesis.

It is recommended that persons who plan to qualify for the M.S. Degree in chemistry spend at least two years in residence and that those who plan to study during the summer periods plan to spend at least one summer which can be devoted entirely to research. It is further required that the thesis be of such quality that it may be published in an accepted scientific journal. Below is a suggested outline of study for the various fields of chemistry. These, of course, represent the minimum requirements.

ANALYTICAL

<i>Course</i>	<i>Hrs.</i>
Identification of Organic Compounds	4 Lab and Lec
Organic theory	3 Lec
Physical Chemistry (Advanced)	3 Lec
Advanced Inorganic	3 Lec
Advanced Analysis	6 Lec and Lab
Seminar	
Research	
Biochemistry	4
Total	24 Hrs. (Exclusive of research)

BIOCHEMISTRY

<i>Course</i>	<i>Hrs.</i>
Identification of Organic Compounds	4 Lab and Lec
Advanced Inorganic Chemistry	3 Lec
Advanced Analysis	3 Lec
Advanced Physical	3 Lec
Intermediate Metabolism	3 Lec
Advanced Organic	6 Lec
Seminar	2 Lec
Research	
Total	24 Hrs. Exclusive of research)

INORGANIC CHEMISTRY

<i>Course</i>	<i>Hrs.</i>
Identification of Organic Compounds	4 Lec
Advanced Inorganic Chemistry	6 Lec and Lab
Advanced Physical	3 Lec
Advanced Organic	3 Lec
Advanced Analytical	3 Lec
Seminar	2 Lec
Biochemistry	4
Total	25 Hrs. (Exclusive of research)

ORGANIC

Course	Hrs.
Identification of Organic Compounds	4 Lab and Lec
Advanced Organic Chemistry	6 Lab and Lec
Advanced Physical	3 Lec
Advanced Analytical	3 Lec
Seminar	2 Lec
Research	
Biochemistry	4
Total	25 Hrs. (Exclusive of research)

COURSES

613 and 623. **ADVANCED INORGANIC CHEMISTRY.** (CHEM 613 623 ADV INORG) (3-0) *Credit 3.* The periodic law; several forms of the table. Quantum numbers. A brief discussion of chemical bonds and resonance. Structure and properties of typical non-metallic compounds. Behavior of electrolytes in non-aqueous solvents.

701. **CHEMICAL PRINCIPLES.** (CHEM 701 PRINCIPLES) (1-0) *Credit 1.* Fundamental concepts and principles of chemistry; designed especially for persons interested in the teaching of chemistry. Prerequisite: Graduate or advanced undergraduate standing.

704. **ADVANCED ANALYTICAL CHEMISTRY.** (CHEM 704 ANALYTICAL) (1-6) *Chemistry 4.* Lecture-recitation: Theory and picture of sampling, solution of refractory materials, special methods of precipitation, use of radioactive material, water analysis, special types of calculations.

Laboratory: Gravimetric and electrolytic separation (limestones and alloys), evolution methods, gas analysis, electrometric oxidation, reduction.

714. **IDENTIFICATION OF ORGANIC COMPOUNDS.** (CHEM 714 COMPOUNDS) (Qual. Organic Analysis). (2-4) *Credit 4.* The separation and identification of pure organic compounds and mixtures.

723. **QUANTITATIVE ORGANIC CHEMISTRY.** (CHEM 723 QUAN ORG) (1-4) *Credit 3.* The determination of elements and functional groups by micro-methods with an introduction to micromethods.

743. **ADVANCED TOPICS IN ORGANIC CHEMISTRY.** (CHEM 743 ORG TOPIC) (3-0) (a) Stereochemistry; (b) Reaction Mechanism; (c) Terpenes and Carbohydrates, 3 hours credit for each topic.

732. **ADVANCED ORGANIC CHEMISTRY.** (CHEM 732 ADV ORG) (2-0) *Credit 2.* A review of elementary organic chemistry with an extension of more advanced topics. Includes assigned current subject material.

752. **INTERMEDIARY METABOLISM.** (CHEM 752 METABOLISM) (0-4) *Credit 2.* A quantitative study of the intermediate formed in cellular metabolism of fats, carbohydrates, proteins, and minerals employing equipment currently used in biochemical research. Both manometric and spectrometric methods are included. Prerequisite 434, or taken concurrently with 753.

753. **INTERMEDIARY METABOLISM.** (CHEM 753 METABOLISM) (3-0) *Credit 3.* The intermediates formed in the metabolism of fats, carbohydrates, proteins, minerals and nucleic acids and interrelationship between the metabolic pathways in both plants and animals. Prerequisite: 434 and 424.

762. **ORGANIC SYNTHESIS.** (CHEM 762 SYNTHESIS) (1-4) *Credit 2.* Conferences and laboratory work dealing with the synthesis of various organic compounds. Prerequisite: one year of organic chemistry.

763. **BIOCHEMICAL AND CLINICAL ANALYSIS.** (CHEM 763 CLIN ANAL) (0-6) *Credit 3.* Conferences and laboratory work dealing with analysis of blood, urine and vitamin assay. Prerequisite: Chemistry 435.

764. **INSTRUMENTAL ANALYSIS.** (CHEM 764 INSTRMTL) (1-3) *Credit 4.* The theory and use of modern optical and electrical instruments in chemical analysis. These include

the polarograph, oscillogram, geiger counter, nephelometer, colorimeter, titrimeter, potentiometer, pH meter and spectrophotometer. Prerequisite: Chemistry 424.

782. TOPICS IN THE CHEMISTRY OF NUTRITION. (CHEM 782 NUTRITION) (2-0) *Credit 2*. Lectures, assigned readings on the most recent developments in research on vitamins, amino acids, proteins, minerals and hormones as related to human and animal nutrition. Prerequisite: Chemistry 453.

783. ADVANCED PHYSICAL CHEMISTRY. (CHEM 783 PHYSICAL) (3-0) *Credit 3*. A lecture course consisting of advanced topics in physical chemistry: Thermodynamics, chemical kinetics, theories of solutions, phase rule. Prerequisite: Chemistry 424 and mathematics through differential and integral calculus.

802. ELECTROCHEMISTRY. (CHEM 802 ELECTRO) (0-4) *Credit 2*. Conferences, assigned readings and exercises in the laboratory dealing with the fundamental theories of electrochemistry and the preparation of certain inorganic and organic compounds. Prerequisite: Chemistry 424.

*600, 700, 800, 900. RESEARCH. (CHEM 600 700 800 900 RESEARCH) *Credit Arranged*. Problems for investigation may be selected from one of the following fields of chemistry: 1. Analytical; 2. Biochemistry; 3. Inorganic Chemistry; 4. Organic Chemistry; 5. Physical Chemistry.

911 and 921. SEMINAR. (CHEM 911 921 SEMINAR) (1-0) Discussion of topics which are current in the various fields of chemistry.

ECONOMICS AND GEOGRAPHY

Majors and minors are offered in the Department of Economics. Students desiring to major or minor in Economics should consult with the Head of the Department and plan a program in conjunction with the major professor.

The graduate courses in Economics permit intensive research and study of the integrated undergraduate courses in the various departments of the Social Sciences.

Among the specific objectives: development of ability to use available literature, facilities and techniques of investigating current socio-economic problems; advancement of independent thought and writing necessary for further study, experimentation and contribution to the field, one must complete twenty semester hours of satisfactory work. Students who plan to minor in the Department are required to complete a minimum of ten hours.

Students who have not completed an undergraduate major in Economics must take, under the guidance of the Head of the Department, certain undergraduate courses in Economics.

For course sequence or any other information, consult the Head of the Department and the professor offering the course.

ECONOMICS

501. SEMINAR IN ECONOMICS. (ECON 501) (1-0) *Credit 1*. I or II. Informal seminar meeting once per week to allow staff members and majors and minor in economics to develop *esprit de corps* and to discuss contemporary economic developments. Open to others by consent of the instructor.

513. ECONOMIC HISTORY. (ECON 513 ECON HIST) (3-0) *Credit 3*. I. The development of agriculture, commerce, industry and transportation from colonial times to the present. Prerequisite: Economics 533.

523. PRINCIPLES OF ECONOMICS. (ECON 523 PRINCIPLS) (3-0) *Credit 3*. I. Basic economic principles as applied to contemporary economic institutions; determination of business and industrial organization; pricing, value, money and banking; and international trade and exchange.

533 ECONOMIC PROBLEMS. (ECON 533 PROBLEMS) (3-0) *Credit 3*. II. An application of economic principles to current economic problems and institutions; monopoly, business cycles, labor problems, public expenditures and revenue, public utilities, and comparative economics. Prerequisite: Economics 523. (This course is a prerequisite to all graduate courses in Economics.)

563. INTERNATIONAL TRADE. (ECON 563 TRADE) (3-0) *Credit 3*. II. Principles and practices of foreign trade with special emphasis upon international economic relations. Analysis of foreign exchange, balance of payments, foreign investment, tariff history and policy, currency problems, and world interdependence. Prerequisite: Economics 533 and consent of the instructor.

573. LABOR PROBLEMS. (ECON 573 LABOR) (3-0) *Credit 3*. I. Evolution of industrial society; labor movements as a "going government;" protective legislation dealing with wages, hours, and unemployment compensation; problems involving the employer-employee relationships. Prerequisite: Economics 533.

583. ECONOMIC PROBLEMS OF THE CONSUMER. (ECON 583 CONS PROB) (3-0) *Credit 3*. II. Family budgets, marketing, price controls, and other problems of the consumer. Prerequisite: Economics 533.

603. MONEY AND BANKING. (ECON 603 BANKING) (3-0) *Credit 3*. II. A study of the theory of money and banking with emphasis upon monetary policy. Special consideration is given to the implication of methods, monetary and banking control. Prerequisite: Economics 533.

653. ECONOMIC STATISTICS. (ECON 653 STATISTIC) (2-2) *Credit 3*. I. Techniques of gathering, assorting, tabulating and presenting statistical data. Prerequisite: Economics 533.

663. MODERN ECONOMIC THOUGHT. (ECON 663 MOD THGHT) (3-0) *Credit 3*. II. Analysis and appraisal of recent and contemporary economists and their contribution to public policy. Prerequisites: Economics 533 and 583.

703. PUBLIC FINANCE AND TAXATION. (ECON 703 TAXATION) (3-0) *Credit 3*. Introduction to the field of government finance; character and growth of public expenditures; public debt creation and fiscal policy; theories, principles and problems of taxation.

723. SEMINAR IN ECONOMIC THEORY. (ECON 723 THEORY) (3-0) *Credit 3*. II. Critical discussion of debatable topics in the field of economic theory, prices, value and distribution, reports will be made on recent contemporary theories and theorists. Prerequisite: Consent of instructor.

743. CAPITALISM AND SOCIALISM. (ECON 743 CAPITA'SM) (3-0) *Credit 3*. II. Capitalism, unionism, socialism, fascism, and individualistic anticapitalism, each viewed under the headings of conditions, theories and movements. A research course. Prerequisites: Economics 533, Sociology 213 and the consent of the instructor.

773. ECONOMIC THEORY AND SOCIAL POLICY. (ECON 773 SOC POLCY) (3-0) *Credit 3*. I. Analysis of economic theories involved in various institutional and governmental policies, especially those centering around farm control, education, housing, relief, protection of workers and consumers and social security. Prerequisites: Economics 533 and the consent of the instructor.

613-623. GEOGRAPHY FOR TEACHERS. (ECON 613 623 TCHR GEOG) (3-0) *Credit 3*. I and II. The relationship of geography to other fields of knowledge concerned with man and his adjustments. The use of geographic premises underlying the analysis of major industries. Tools of geography, space relations, weather, climate, vegetation, soils landforms population distribution, power and mineral resources. Each student will prepare resource units using materials available in the community and familiar to local students. Prerequisite: 12 hours in the social sciences (undergraduate and/or graduate).

713-723. THE TEACHING OF GEOGRAPHY. (GEOG 713 723 TCHING OF GEOG) (3-0) *Credit 3.* A foundation course for teachers and supervisors of Geography; organization of courses of study; how and where to obtain materials; the place and use of textbooks; and methods of presentation suitable for grades on the Junior and Senior high school level.

733. WORLD REGIONAL GEOGRAPHY. (GEOG 733 REGIONAL) (3-0) *Credit 3.* World regions as the home of man; a practical, logical and systematic approach to the field of geography; a survey of the world in terms of outlook; regional types.

BUSINESS EDUCATION

The graduate program in business education is designed to provide for the professional development of commercial teachers. The primary purposes of the program are to offer advanced instruction in professional and subject-matter areas for teachers, and to develop research in the field.

The program is adapted to the needs of persons who have completed as undergraduates a course of study in business education or persons who have completed an undergraduate minor in business education.

The major in business education leading to the Master's degree consists of 21 hours of which the following are required:

Problems in Business Education	3 hours
Advanced Methods of Teaching Business Subjects	3 hours
Curriculum Construction in Business Education	3 hours
Seminar in Business Administration	3 hours
Business Statistics	3 hours
	15

The minor in business education consists of 9 hours of which the following are required:

Problems in Business Education	3 hours
Seminar in Business Education	3 hours
	6

DESCRIPTION OF COURSES

523. PROBLEMS IN BUSINESS EDUCATION. (3-0) *Credit 3.* A survey course. Evolution of business and business practices. Business and Government-laws which govern and regulate business practices. Recent developments in business education.

533. ADVANCED METHODS OF TEACHING BUSINESS SUBJECTS. (3-0) *Credit 3.* Consideration is given to intensive review of subject content, selection of objectives and instructional materials, techniques and procedures in presenting educational activities, and to evaluating teaching effectiveness in Typewriting, Shorthand, Bookkeeping and Accounting, and Filing.

553-563. INTERMEDIATE ACCOUNTING. (3-0) *Credit 3.* Theory and problems of valuation of assets; application of funds; corporation accounts and statements and their interpretation.

573-583. BUSINESS LAW. (3-0) *Credit 3.* Fundamental principles of law most frequently involved in business transactions, including contracts, sales, partnerships, corporations, agency, negotiable instruments, property bailments and insurance.

593. CORPORATION FINANCE. (3-0) *Credit 3.* Corporate organization and control; securities; the management of fixed capital and working capital reserve, surplus and dividend policies; investment banking and the securities market.

623. CURRICULUM CONSTRUCTION IN BUSINESS EDUCATION. (3-0) *Credit 3.* Criteria for solving curricular problems are studied and applied in devising business education curricular for the secondary school and in appraising present school offerings.

563. LIFE INSURANCE. (3-0) *Credit 3*. A study of the life insurance industry, companies, contracts and markets.

723. SEMINAR IN BUSINESS ADMINISTRATION. (3-0) *Credit 3*. Co-operative research in one or more economic problems; each member of the class concentrating on a selected phase of the common subject.

733. BUSINESS STATISTICS. (3-0) *Credit 3*. Elementary theory and technique of statistical methods in application to typical production, distribution, accounting and general administrative problems of business organization.

EDUCATION

MINIMUM REQUIREMENTS FOR A MASTER'S DEGREE IN THE DEPARTMENT OF EDUCATION

The minimum undergraduate preparation for the Master's Degree is eighteen semester hours of basic course credit in the field of the graduate major.

Attention is called to the requirements of the Texas Education Agency for the teaching certificate in the field of graduate concentration.

ADMISSION TO CANDIDACY

Action on admission to candidacy for a Master's Degree will be taken after the student (1) has been residence for at least one semester or summer session, earning at least twelve hours of graduate course credit; (2) has maintained a "B" average or better; (3) has satisfactorily demonstrated proficiency in English usage and has satisfied all the classification requirements of the college.

The student failing to meet the above requirements will be continued on probation for a second semester. In the event he does not meet the requirements for candidacy at this time, it will be understood that no more graduate credits earned by him will be applicable to a Master's Degree.

SUGGESTED CURRICULUM FOR A MAJOR IN ELEMENTARY EDUCATION

Prerequisites: Legal certificate valid for teaching in the Elementary School and the following courses	
Elementary Art	3 hrs.
Public School Music	3 hrs.
Teaching of Reading	3 hrs.
Elementary Science	3 hrs.
Child Growth and Development	3 hrs.
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Psychology 533—Fundamentals of Statistics	15 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 683—Elementary School Curriculum	3 hrs.
Education 753—Teaching the Language Arts	3 hrs.
Education 793—Diagnosis and Remedial Treatment of Elementary School Subjects	3 hrs.
Education 743—Problems of the Elementary School Teacher (Seminar)	3 hrs.
Elective from the following:	3 hrs.
Education 653—Arts and Crafts in Public School	
Education 663—Special Projects in Public School Art	
Education 863—Audio Visual Education	
Supervision 643—Elementary School Supervision	
Administration 633—Elementary School Administration	
Education 603—Survey Course in Education of Exceptional Children	
Education 563—Child Accounting	
Education 783—Modern Practices in Elementary Education	
Education 813—Kindergarten Methods and Materials	

21 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN ELEMENTARY EDUCATION

Prerequisites: Psychology 593—Pupil Growth and Development	3 hrs.
Education 633—Teaching Reading in the Elementary Grades	3 hrs.
	6 hrs.
Education 683—Elementary School Curriculum	3 hrs.
Education 753—Teaching the Language Arts	3 hrs.
Education 763—Teaching the Social Studies	3 hrs.
	9 hrs.

SUGGESTED CURRICULUM FOR A MAJOR IN SCHOOL ADMINISTRATION (ELEMENTARY SCHOOL PRINCIPAL) ELEMENTARY SCHOOL

Prerequisites: Legal certificate valid for teaching in the Elementary School and the following courses:

Teaching of Reading in the Elementary Grades	3 hrs.
Teaching of Science in the Elementary Grades	3 hrs.
	6 hrs.
Psychology 533—Fundamentals of Statistics	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 683—Elementary School Curriculum	3 hrs.
Education 753—Teaching the Language Arts in the Elementary School	3 hrs.
Education 763—Teaching Social Studies in the Elementary School	3 hrs.
Administration 713—Fundamentals of School Administration	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Education 713—School and Community Relations	3 hrs.
Administration 633—Elementary School Administration	3 hrs.
Administration 523—Administration of Student Personnel	3 hrs.
	30 hrs.

SUGGESTED CURRICULUM FOR A MAJOR IN SCHOOL ADMINISTRATION (SECONDARY SCHOOL PRINCIPAL)

Prerequisites: Legal certificate valid for teaching in Secondary School Subjects and six-hours of advance secondary level methods

Psychology 533—Fundamentals of Statistics	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 583—Secondary School Curriculum	3 hrs.
Administration 713—Fundamentals of School Administration	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Education 713—School and Community Relations	3 hrs.
Administration 533—High School Administration	3 hrs.
Administration 523—Administration of Student Personnel	3 hrs.
	24 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN ADMINISTRATION

Prerequisites: Psychology 593—Pupil Growth and Development	3 hrs.
Education 683—Elementary School Curriculum or	
Education 583—Secondary School Curriculum	3 hrs.
	6 hrs.
Administration 713—Fundamentals of School Administration	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Administration 633—Elementary School Administration or	
Administration 533—High School Administration	3 hrs.
	9 hrs.

SUGGESTED CURRICULUM FOR A MAJOR IN SUPERVISION OF INSTRUCTION (ELEMENTARY SCHOOL)

Prerequisites: Legal certificate valid for teaching in the elementary school and the following courses:

Teaching of Reading in the Elementary Grades	3 hrs.
Teaching of Science in the Elementary Grades	3 hrs.
	6 hrs.

Psychology 533—Fundamentals of Statistics	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 683—Elementary School Curriculum	3 hrs.
Education 753—Teaching the Language Arts in the Elementary School	3 hrs.
Education 763—Teaching Social Studies in the Elementary School	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Education 713—School and Community Relations	3 hrs.
Administration 633—Elementary School Administration	3 hrs.
Supervision 643—Elementary School Supervision	3 hrs.
Supervision 673—Trends in Supervision (Seminar)	3 hrs.
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	30 hrs.

SUGGESTED CURRICULUM FOR A MAJOR IN SUPERVISION OF INSTRUCTION (SECONDARY SCHOOL)

Prerequisites: Legal certificate valid for teaching in secondary school subjects and six hours advanced secondary level methods.

Psychology 533—Fundamentals of Statistics	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 583—Secondary School Curriculum	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Education 713—School and Community Relations	3 hrs.
Administration 533—High School Administration	3 hrs.
Supervision 663—High School Supervision	3 hrs.
Supervision 673—Trends in Supervision (Seminar)	3 hrs.
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	24 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN SUPERVISION

Prerequisites: Psychology 593—Pupil Growth and Development	3 hrs.
Education 683—Elementary School Curriculum or	
Education 583—Secondary School Curriculum	3 hrs.
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	6 hrs.

Administration 713—Fundamentals of School Administration	3 hrs.
Supervision 753—Principles and Practices of Supervision	3 hrs.
Supervision 643—Elementary School Supervision or	
Supervision 663—High School Supervision	3 hrs.
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	9 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN SPECIAL EDUCATION

Prerequisites: Psychology 563—Mental Adjustment	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Psychology 523—Principles and Practices of Educational Measurement	3 hrs.
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	9 hrs.

Education 603—A Survey Course in Education of Exceptional Children	3 hrs.
Education 613—Problems and Methods of Teaching Mentally Retarded Children	3 hrs.
Education 873—Adjustment of Teaching for Exceptional Children	3 hrs.
Education 853—Introduction to Speech Correction	3 hrs.
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	12 hrs.

GRADUATE MAJOR IN SECONDARY EDUCATION

Prerequisites: Legal certificate valid for teaching in secondary school subjects; minor in content (subject matter) field.

Psychology 533—Fundamental of Statistics	3 hrs.
Psychology 593—Pupil Growth and Development	3 hrs.
Education 503—Principles of Secondary Education	3 hrs.
Education 583—Secondary School Curriculum	3 hrs.
Education 673—Methods of Teaching Secondary School Subjects	3 hrs.
Education 713—School and Community Relations	3 hrs.
Administration 533—High School Administration or	
Supervision 673—High School Supervision	3 hrs.
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	21 hrs.

MINOR IN SECONDARY EDUCATION

Education 503—Principles of Secondary Education	3 hrs.
Education 583—Secondary School Curriculum	3 hrs.
Education 673—Methods of Teaching Secondary School Subjects	3 hrs.
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	9 hrs.

SUGGESTED CURRICULUM FOR A MAJOR IN GUIDANCE

Prerequisites: Legal certificate valid for appropriate grade level served.	
Psychology 593—Pupil Growth and Development	3 hrs.
Guidance 543—Principles and Philosophy of Guidance	3 hrs.
Guidance 683—Organization and Administration of a Guidance Program	3 hrs.
Guidance 583—Occupational and Educational Information	3 hrs.
Psychology 553—Fundamentals of Statistics	3 hrs.
Psychology 513—Psychological Testing	3 hrs.
Guidance 733—Principles of Counseling	3 hrs.
	21 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN COUNSELING

Psychology 553—Psychology of Adjustment or Psychology 563—Mental Hygiene	3 hrs.
Guidance 733—Principles of Counseling	3 hrs.
Psychology 603—Theory of Counseling	3 hrs.
Guidance 603—Supervised Practice in Counseling and Guidance	3 hrs.
	12 hrs.

SUGGESTED CURRICULUM FOR A MINOR IN GUIDANCE

Guidance 543—Principles and Philosophy of Guidance	3 hrs.
Guidance 693—Organization and Administration of a Guidance Program	3 hrs.
Guidance 583—Occupational and Educational Information	3 hrs.
Guidance 733—Principles of Counseling	3 hrs.

ADMINISTRATION

513. VOCATIONAL GUIDANCE. (3-0) *Credit 3.* Open to all graduate students. Surveys required of all students. Vocational Guidance as a means of contributing to major objectives of secondary education; typical centers, movements, and programs as now carried on. Reading and reports.

523. ADMINISTRATION OF STUDENT PERSONNEL. (3-0) *Credit 3.* Open to students of senior and graduate standing. Common personnel problems of administrators and supervisors such as extra-curricular activities, guidance, student-faculty relationship, health, admission, discipline, records and reports, et cetera.

533. HIGH SCHOOL ADMINISTRATION. (3-0) *Credit 3.* A survey of problems in High School Administration with emphasis on the organization, administration and supervision of the high school program.

553. ELEMENTARY SCHOOL PRINCIPAL'S WORKSHOP. *Credit 3.* Study and solution of problems arising in elementary schools.

563. CHILD ACCOUNTING. (3-0) *Credit 3.* Principles and systems of child accounting Courses, attendance, progress, achievement, classification, and guidance records and reports.

633. ELEMENTARY SCHOOL ADMINISTRATION. (3-0) *Credit 3.* A survey of problems in elementary school administration with emphasis on the organization, administration and supervision of the high school program.

653. HIGH SCHOOL PRINCIPAL'S WORKSHOP. *Credit 3.* Study and solution of problems arising in secondary schools.

713. FUNDAMENTALS OF SCHOOL ADMINISTRATION. (3-0) *Credit 3.* General Principles of organization and administration with emphasis on problems of federal, state, and local school administrative organization.

763. PRINCIPLES OF RURAL SCHOOL ADMINISTRATION. (3-0) *Credit 3.* Open to graduate students holding administrative and supervisory positions in rural areas. Principles, practices, and problems of school administration with emphasis upon problems of schools located in rural areas. Reports required of all.

ELEMENTARY EDUCATION

563. TEACHING OF ARITHMETIC IN ELEMENTARY GRADES. (3-0) *Credit 3*. A survey of current issues, including: teaching arithmetic through pupil's first-hand experiences, the place of meaning, thinking, and drill in effective learning, the grade placement of topics in arithmetic, approved procedures in adapting instruction to pupils of varying ability.

633. IMPROVEMENT OF READING INSTRUCTION. (3-0) *Credit 3*. Problems in the teaching of reading in elementary, junior and senior high schools. Analyzing student needs, using appropriate remedial and developmental techniques, providing for individual differences, and developing basic insights for continued growth of reading efficiency.

643. IMPROVEMENT OF READING INSTRUCTION. (3-0) *Credit 3*. Problems in the teaching of reading in elementary, junior and senior high schools. Analyzing student needs, using appropriate remedial and developmental techniques, providing for individual differences, and developing basic insights for continued growth of reading efficiency. (Graduate).

653. ARTS AND CRAFTS IN PUBLIC SCHOOL. (3-0) *Credit 3*. Teaches prospective elementary teachers how to present art to children.

663. SPECIAL PROJECTS IN PUBLIC SCHOOL ART. (3-0) *Credit 3*. Methods, procedures and phases of teaching art; problems of art education and methods of teaching art.

683. ELEMENTARY SCHOOL CURRICULUM. (3-0) *Credit 3*. Study of important developments in elementary education with particular attention to methods and materials which may be used to improve the development of pupils in elementary schools. Problems which are encountered in day-to-day teaching situations receive much attention.

743. PROBLEMS OF THE ELEMENTARY TEACHER. (3-0) *Credit 3*. Open to undergraduates who are teachers in service and to graduate students. Special projects, investigations, and reports required; attention given to problems presented by members of the class as the outgrowth of their experiences.

753. TEACHING THE LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. (3-0) *Credit 3*. For those interested in guiding and directing children of elementary school age in reading and in oral and written composition; special emphasis placed on diagnosis and remedial work in reading.

763. TEACHING SOCIAL STUDIES IN THE ELEMENTARY GRADES. (3-0) *Credit 3*. Emphasis upon improving the social learning which grows out of the entire life of children both in and out of school. Selection and organization of content, learning activities, problem solving and social acting skills, building social values and developing methods of unified and correlated social studies program.

773. TEACHING OF SCIENCE IN THE ELEMENTARY GRADES. (3-0) *Credit 3*. Emphasis is placed upon the principles, materials and methods of teaching science, and its influence upon the development of children, in the elementary grades. Laboratory work is designed to help the teacher develop a background of science understanding with suitable experiments, and suggestions for appropriate equipment and suitable materials for various age levels.

783. MODERN PRACTICES IN ELEMENTARY EDUCATION. (3-0) *Credit 3*. For in-service teachers.

793. DIAGNOSIS AND REMEDIAL TREATMENT OF ELEMENTARY SCHOOL SUBJECTS. (3-0) *Credit 3*. Techniques of diagnosis and remedial treatment of difficulties in the various elementary school subjects at all levels.

813. KINDERGARDEN METHODS AND MATERIALS. (3-0) *Credit 3*. A study of selection and use of materials for program organization, creative self-expression, physical and mental activities, directing work habits and informal experiences in language arts in number work.

823. METHODS OF TEACHING ART IN THE ELEMENTARY GRADES. (3-0) *Credit 3*. Procedures, methods and techniques of teaching Art in the Elementary School.

GENERAL EDUCATION

703. MODERN EDUCATION TENDENCIES. (3-0) *Credit 3.* Current educational doctrines and controversies; fundamental problems considered with a view to the development of integrated outlook.

714. SCHOOL AND COMMUNITY RELATIONS. (3-0) *Credit 3.* Place of education, the responsibility of the public school, the curriculum, the reorganization of the educational administrative structure, and the provisions of special educational services, as they relate to child and community needs and methods for their provision from the standpoint of the whole child and the community as a whole. The community centered school philosophy emphasized.

733. THE RURAL ELEMENTARY CURRICULUM. (3-0) *Credit 3.* For rural school principals, supervisors and teachers specifically concerned with curriculum adaptations in rural elementary schools. The development of the curriculum in terms of environment, resources, and needs; and specifically adapted organization for school of one to four teachers; procedures for discovering environmental resources and needs and conditions in sample rural communities considered in their implications for selection and organization of curriculum materials.

803. PROBLEMS IN THE EDUCATION OF NEGROES. (3-0) *Credit 3.* Special problems in the education of Negroes which result from segregation and discrimination: attention given to such problems as adequacy of public education, equality of opportunities, the general status of Negro schools, educational facilities, etc.

843. TECHNIQUES IN EDUCATIONAL RESEARCH. (3-0) *Credit 3.* Study of research in education, the sources of information and techniques available, and approved form and style in preparation of research reports and thesis.

863. AUDIO-VISUAL AID. (3-0) *Credit 3.* Practical experience in the use of audio-visual aids, construction and development of various audio-visual aids and devices; sources of audio-visual aids; selection, evaluation and techniques of using audio-visual aids in education; study of movie projectors, slides, film strips, opaque projectors, etc.

913. HISTORY OF EDUCATION IN AMERICA. (3-0) *Credit 3.* Historical background of American Education and an analysis of the origin and development of educational practices.

GUIDANCE

543. PRINCIPLES AND PHILOSOPHY OF GUIDANCE. (3-0) *Credit 3.* Introductory course. Survey of the field; emphasis on the role of the classroom teachers, supervisors, counselors and other persons in personnel work.

583. EDUCATIONAL AND OCCUPATIONAL INFORMATION. (3-0) *Credit 3.* Where and how to get facts and assemble information about occupations and education. To learn the methods of evaluating and using collected information.

603. SUPERVISED PRACTICE IN COUNSELING AND GUIDANCE. (3-0) *Credit 3.* This course deals with actual counseling experience. The class will be built around the problems encountered in the counseling situation, case discussions, role playing, demonstration of counseling, observations of counseling interviews, and a limited amount of counseling under supervision.

683. ORGANIZATION AND ADMINISTRATION OF A GUIDANCE PROGRAM. (3-0) *Credit 3.* Emphasis is placed upon purposes and functions of guidance services; initiating, organizing, and promoting a guidance program; selecting organizing, and using adequate tools, techniques, and physical facilities for guidance; developing and using evaluative procedures for a program of guidance; relationships, status and scope of the guidance program to the total school and community.

733. PRINCIPLES OF COUNSELING. (3-0) *Credit 3.* Introductory course, survey of the area; emphasis on acquainting the student with counseling as it relates to the total development of the individual through a study of the basic principles.

743. SEMINAR IN COUNSELING AND GUIDANCE (Research). (3-0) *Credit 3*. Opportunity will be given to advance graduate students to undertake individual research on counseling, guidance, and testing problems worthy of investigation. The nature of the research will be governed by the particular needs and abilities of each student.

PSYCHOLOGY

513. PSYCHOLOGICAL TESTING. (3-0) *Credit 3*. Theory and Practice of Psychometrics, emphasis upon the individual intelligence test. Students will study a variety of tests and analyze the results.

523. PRINCIPLES AND PRACTICES OF EDUCATIONAL MEASUREMENT. (3-0) *Credit 3*. The place of tests and measurements in education; selection and construction of the most commonly used tests and measurements. Prerequisite: Education 433. See Education 433 in undergraduate catalog.

533. FUNDAMENTALS OF STATISTICS. (3-0) *Credit 3*. Understanding and techniques of collecting, tabulating and computing statistical data from central tendency through variability, relationship, and the significance of differences among such measures.

543. PSYCHOLOGY OF PERSONALITY. (3-0) *Credit 3*. Evaluation of theories in the field of personality. The development of personality as a pattern of strivings manifested in interpersonal relation. The convergence of constitutional, psychological, social cultural factors in the development of the normal individual and his adjustments.

553. PSYCHOLOGY OF ADJUSTMENT. (3-0) *Credit 3*. A systematic treatment of the principles of the dynamic psychology of human adjustment. The whole individual and how he adjusts to the situation—both outer and inner that confront him are considered.

563. MENTAL ADJUSTMENT. (3-0) *Credit 3*. Personality as an integrated force; psychology of the adjusted school child. Prerequisite: Psychology 103.

573. PSYCHOLOGY FOR STUDENTS OF EDUCATION. (3-0) *Credit 3*. See Education 383 in current catalog. General principles of human psychology as they relate to the learning process.

583. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3-0) *Credit 3*. A study of the special psychological and educational problems of the child who deviates from the normal. Behavior patterns of the mentally retarded, the physically handicapped, and the superior children will be considered.

593. PUPIL GROWTH AND DEVELOPMENT. (3-0) *Credit 3*. A study of the growth and development of the individual. Emphasis on problems of inheritance, growth, learning, intelligence, emotion, and personality. Consideration given to fundamental psychological needs of the organism and the conditions under which they may be realized. Applications to educational procedure, on home, school and community.

603. THEORY OF COUNSELING. (3-0) *Credit 3*. To provide a perceptual framework specific to the counseling process and to familiarize the student with the many inter-relationships that enter into the counselor's contribution to total mental health program. The course will also give the student a laboratory introduction to actual counseling.

623. MEASUREMENT OF APTITUDE. (3-0) *Credit 3*. The course will be concerned with the nature of vocational aptitudes and the means of disclosing them. Practice in the application of tests and the interpretation of data will provide.

SECONDARY EDUCATION

503. PRINCIPLES OF SECONDARY EDUCATION. (3-0) *Credit 3*. See general catalogue for course description, Education 313; Graduate students will be required to develop term papers and give special reports. Prerequisites: Education 113, 333.

583. SECONDARY SCHOOL CURRICULUM. (3-0) *Credit 3*. Principles of organizing and developing the high school curriculum, analyzed in relationship to the "prescribed" and "teacher made" course-of-study in individual schools. Various types of curriculum organization and the related teacher-pupil activities are studied in terms of community and

pupil needs. Methods and materials of the related activities of the curriculum, aside from instruction, are given consideration.

673. METHODS OF TEACHING SECONDARY SCHOOL SUBJECTS. (3-0) *Credit 3*. General methods treating the principles and practices of successful high school teaching.

SPECIAL EDUCATION

603. A SURVEY COURSE IN THE EDUCATION OF EXCEPTIONAL CHILDREN. (3-0) *Credit 3*. Foundations for special education set forth; its history, philosophy, policy, case studies, measurements and guidance, selection, organization and qualifications of teachers.

613. PROBLEMS AND METHODS OF TEACHING MENTALLY RETARDED CHILDREN. (3-0) *Credit 3*. Characteristics and needs of the mentally retarded child; principles of adapting the curriculum materials and methods of teaching to the needs of the retarded child.

623. SPEECH PROBLEMS OF EXCEPTIONAL CHILDREN. (3-0) *Credit 3*. This course aims to acquaint the student with the speech problems connected with the education of the atypical child—the blind, the deaf, the crippled, speech defective, mentally retarded, partially seeing, cerebral palsied, gifted, and delicate.

643. CORRECTION OF SPEECH DISORDERS. (3-0) *Credit 3*. Designed to acquaint the student with speech disorders normally found in the public school population, including some pathology, management, and therapy.

693. AUDITORY TRAINING AND LIP READING. (3-0) *Credit 3*. Review of hearing disorders, use of hearing aid and its employment in auditory training and hearing rehabilitation, use of group auditory training units and principles and practice of speech reading.

853. INTRODUCTION TO SPEECH CORRECTION. (3-0) *Credit 3*. Training in the recogni-

853. INTRODUCTION TO SPEECH CORRECTION. (3-0) *Credit 3*. Training in the recognition, diagnosis, and treatment of minor speech defects, with discussion of classroom handling of major speech defects.

873. ADJUSTMENT OF TEACHING FOR EXCEPTIONAL CHILDREN. (3-0) *Credit 3*. Objectives of education for exceptional children and the curricular experiences which may attain them. Ways and means of adapting materials and methods to special needs of exceptional children.

893. ADVANCED SPEECH CORRECTION. (3-0) *Credit 3*. A consideration of speech disorders traceable to the failure of some part of the speech apparatus to perform its basic and acquired functions, attention given to specific disorders as (a) articulatory defects, (b) cerebral palsy, (c) stuttering, (d) cleft palate. (e) laryngectomy, and less common disorders. Lectures, demonstrations, and case presentations.

SUPERVISION

643. ELEMENTARY SCHOOL SUPERVISION. (3-0) *Credit 3*. Study of important developments in elementary Education with particular attention given to methods and materials which may be used to improve the development of pupils in elementary schools. Problems which are encountered in day-to-day teaching situations received much attention.

673. TRENDS IN SUPERVISION (Seminar). *Credit 3*. (3-0) Trends in the supervision of elementary and secondary public schools with emphasis upon democratic practices related to objectives, content, materials, methods of planning and presenting lessons, evaluation of teaching as well as supervision and the development of skills in group dynamics.

663. HIGH SCHOOL SUPERVISION. (3-0) *Credit 3*. The nature and philosophy of supervision, the needs of supervision, the activities of supervisors, the promotion of teacher growth, and the appraisal of teaching efficiency in the high school.

723. RURAL SCHOOL SUPERVISION. (3-0) *Credit 3*. Principles underlying presentday supervision. Relationship of classroom teachers to supervisor, principal and superintendent.

753. PRINCIPLES AND PRACTICE OF SUPERVISION. (3-0) *Credit 3.* Open to graduate students who hold or are appointed to supervisory or administrative positions or who have consent of Director. Some practice in application of principles required of all. Principles, practices and problems of supervision. Special attention is given to organization for supervision, supervisory programs, research in supervision, cooperation of special agencies, and qualification for supervisors.

773. THE HIGH SCHOOL PRINCIPAL AS A SUPERVISOR. (3-0) *Credit 3.* Improvement of instruction; evaluation of teaching procedures; selection and use of textbooks and other instructional materials in elementary grades.

783. THE ELEMENTARY SCHOOL PRINCIPAL AS A SUPERVISOR. (3-0) *Credit 3.* Improvement of instruction; evaluation of teaching procedures; selection and use of textbooks and other instructional materials in elementary grades.

793. SUPERVISOR'S WORKSHOP. (3-0) *Credit 3.* Study and solution of problems arising in the supervision of learning experiences.

ENGLISH

REQUIREMENTS FOR A MASTER OF ARTS DEGREE IN THE DEPARTMENT OF ENGLISH

ADMISSION:

For admission to graduate study in English a student should present at least an undergraduate minor, 15 semester hours in this field, excluding the English courses required of all students and English 463, the Teaching of English, which is counted as Education. A student is expected to pass an English Proficiency Test before admission to candidacy is approved.

Prerequisite courses such as The English Language (English 353), The Teaching of English: Education (English 463), which the student did not take while an undergraduate at this college, must be taken before the student begins the courses in the graduate program.

REQUIREMENTS FOR THE GRADUATE DEGREE:

Requirements are stated in terms of minimum essentials. Students are urged to indicate some effort at enrichment of background by including in their program more than the minimum essentials. The following courses are required to fulfill the 20 credit hours for a graduate major in English. The 20 credit hours must be in courses on the graduate level—numbered 500 or above:

THE MAJOR

<i>Course Number</i>	<i>Credit Hours</i>
English 533	3
English 583	3
English 513	3
English 753	3
English 803	3
English 813	3

THE MINOR

The following courses are required to fulfill the 12 credit hours required for a graduate minor in English:

<i>Course Number</i>	<i>Credit Hours</i>
English 513	3
English 533	3
English 753	3
English 823	3

For both the major and the minor, the candidate's program of studies is always subject to revision and approval by the Department.

DESCRIPTION OF COURSES

ENGLISH

513. STUDIES AND PROBLEMS IN SPEECH. (ENG 513 SPCH PROBL) *Credit 3.* Problems in speech activities confronting the secondary school teacher such as discussion, debate, dramatics, public speaking, radio and television.

523. TRAINING OF THE SPEAKING VOICE. (ENG 523 TRNG VOCE) *Credit 3.* Voice training for the teacher: to establish correct breathing habits and proper focusing of tone; to overcome voice problems such as nasality, throatiness, breathiness, and vocal fatigue; to develop efficient and pleasing use of the voice.

533. NINETEENTH CENTURY PROSE. (ENG 533 19TH CENT) (3-0) *Credit 3.* Ideas, political and social conditions as revealed in the writings of chief representatives of the period.

543. A STUDY OF THE SHORT STORY. (ENG 543 SHRT STRY) (3-0) *Credit 3.* Study and analysis of the short story.

553. WORLD MASTERPIECES. (ENG MASTERPCS) (3-0) *Credit 3.* Selected classics read in translation.

562. MILTON. (ENG 563 MILTON) (2-0) *Credit 3.* Chief poetic and prose works.

572. WORDSWORTH AND COLERIDGE. (ENG 572 WORDSWORTH) (2-0) *Credit 2.* Advanced critical study of poetry and prose works.

583. THE NOVEL. (ENG 583 NOVEL) (3-0) *Credit 3.* Relations between literature and social conditions as revealed in outstanding examples in the field of the novel.

592. BROWNING AND TENNYSON. (ENG 592 BROWNING) (2-0) *Credit 2.* Study and analysis of chief poetic works; comparative studies.

616. DRAMATIC WORKSHOP. (ENG 616 DRAM WKSP) (6-0) *Credit 6.* Opportunity for the graduate student to study all phases of drama, to assist and participate in the presentation of at least one play to be given on the campus during the summer. Field trips involving summer theatre productions and radio productions in Houston required.

623. PLAY PRODUCTION. (ENG 623 PLAY PROD) (3-0) *Credit 3.* Methods and principles involved in the directing of high school plays.

653. JOURNALISTIC WRITING AND PUBLICITY METHODS. (ENG 653 JOURNALISM) *Credit 3.* Practical Work in the forms.

753. SEMINAR IN MASTERPIECES OF LITERATURE. (ENG 753 SEMINAR) (3-0) *Credit 3.* Historical and comparative study of masters of English and American literature.

803. BIBLIOGRAPHY AND METHODS OF RESEARCH. (ENG 803 RESEARCH) (3-0) *Credit 3.* Exercises in minor research projects.

813. LITERARY CRITICISM. (ENG 813 CRITICISM) (3-0) *Credit 3.* Study of the great critics—classical, foreign, English, and American—from Plato to T. S. Eliot.

823. SEMINAR IN THESIS WRITING. (ENG 823 THESIS) (3-0) *Credit 3.* Open only to candidates who are now working on their thesis in English.

833. STUDIES IN THE TEACHING OF ENGLISH. (ENG 833 TCHG ENG) (3-0) *Credit 3.* Modern and contemporary English and American authors.

863. STUDIES IN THE ROMANTIC PERIOD. (ENG 863 ROMANTIC) (3-0) *Credit 3.*

873. ENGLISH WORKSHOP IN THE LANGUAGE ARTS. (ENG 873 WORKSHOP) (3-0) or (6-0) *Credit 3 or 6.*

883. CHAUCER. (ENG 883 CHAUCER) (3-0) *Credit 3.* The Canterbury Tales; linguistic studies.

In the summer session 1957 a student may begin a program which provides for both a major and a minor in the Department of English, major: Language and Literature, minor: Speech and Drama. To fulfill requirements for a Minor in Speech and Drama the following courses are required:

English 513—Studies and Problems in Speech	Credit 3
English 523—Training of the Speaking Voice	Credit 3
English 613—Dramatic Workshop	Credit 6
English 623—Play Production	Credit 3

HISTORY

Majors and minors are offered in the Department of History and Philosophy. Students desiring a major in History should consult with the Head of the Department and plan a program in conjunction with the Major Professor.

All students are required to take a course in Research. Majors in History should register for History 563.

Arrangements should be made to take this course as early as possible after the commencement of work for the Master's Degree.

The offerings in History on the graduate level have been divided into three fields: (1) European History; (2) American History; (3) Training and Special Courses in History.

Twenty hours of satisfactory work are required for a major in the field of History, and ten hours for the minor. The satisfactory completion of a thesis, the subject of which to be determined in consultation with major professor, is required of all persons graduating with a major in this field. Minors in this field are allowable only if the candidate can demonstrate that the techniques in this field are necessary for his research project or that the minor field is reasonably associated with the major specialty in content and orientation.

Prerequisites for majoring or minoring in the field of History are: (a) lower college courses in American and European History corresponding to the lower college offering in the field at Prairie View; (b) at least an advance course in either modern and/or contemporary European or American History; (c) a cumulative average of "B" in their social science courses on the undergraduate level; (d) preliminary to the graduate regulation on candidacy for the degree, no person shall be acceptable for pre-candidacy status if at the end of the first semester he has not shown the proper inclination to master the skills and attitudes attendant upon graduate study.

MASTER OF ARTS IN HISTORY WITH AMERICAN ORIENTATION

<i>Course</i>	<i>Hrs.</i>	<i>Course</i>	<i>Hrs.</i>
History 533 or 543—England, 1485 to the present	3	History 623—Problems in Latin American History	3
History 553—Europe, 1914 to the present	3	History 663—Great American Historians (elective)	
History 563—Historical Methods	3	History 613—American Revolution and the Constitution (elective)	
History 693—The New South, 1865 to the present	3	History 633 or 643—American Foreign Relations, 1775 to the present (elective)	
History 653—Contemporary U. S. History, 1898 to present	3	History 593 or 583—History of Civilization (elective methods)	

MASTER OF ARTS IN HISTORY WITH
EUROPEAN ORIENTATION

<i>Course</i>	<i>Hrs.</i>	<i>Course</i>	<i>Hrs.</i>
History 533 or 543—England, 1485 to the present	3	History 623—Problems in Latin American History	3
History 553—Europe, 1914 to the present	3	History 563—Historical Methods	3
History 733—History of the Far East	3	History 633 or 643—American Foreign Relations, 1775 to the present (elective)	
History 523—Imperialism	3	History 653—Contemporary U. S. History, 1898 to present (elective)	
History 513—French Revolution and Napoleon (elective)		History 583 to 593—History of Civilization (elective Methods)	

Students seeking a Master's Degree in History should present well chosen courses from these fields and pursue further work in one field or a combination of fields in consultation with the Department of History.

I. EUROPEAN HISTORY

513. FRENCH REVOLUTION AND NAPOLEON. (HIST 513 FRENCH REV) (3-0) *Credit 3*. Causes of the revolution; reforms and discipline by Napoleon.

523. IMPERIALISM. (HIST 523 IMPERIAL) (3-0) *Credit 3*. Era of Imperialism; causes, results and techniques.

533 and 543. ENGLAND, 1485 TO THE PRESENT. (HIST 533 543 ENGLAND) (3-0) *Credit 3*. I. Development of Britain in modern historical perspective; Tudors and the Reformation; the Stuarts and Parliament; English expansion under Parliamentary; the Era of Reform and Empire; and World War I, Britain between the wars; the fight for survival—global war. Lectures, discussions, special reports. Offered in odd years.

553. EUROPE, 1914 TO THE PRESENT. (HIST 553 EUROPE) (3-0) *Credit 3*. I. 20th Century European development in its world setting; the background and causes of World War I; the war itself; the Versailles settlement and postwar efforts at political, economic and social security, collectively and nationally; the ideological clash between democracy and totalitarianism which led to global war and the Atomic Age—form the subject matter of the course. Lectures, discussions, special reports. Offered in odd years.

II. AMERICAN HISTORY

613. AMERICAN REVOLUTION AND THE CONSTITUTION. (HIST 613 AMER REV) (3-0) *Credit 3*. Revolutionary philosophy; declaration of independence; union and drafting the constitution.

633 and 643. AMERICAN FOREIGN RELATIONS, 1775 TO THE PRESENT. (HIST 633 643 FOR RELT) (3-0) *Credit 3*. I and II. The United States in its relations with Latin-America and the rest of the world; public opinion and the economic, social and political forces that have determined American foreign policy and the agencies through which that policy has been executed. May be taken as Political Science 533 and 543.

653. CONTEMPORARY UNITED STATES HISTORY, 1898 TO THE PRESENT. (HIST 653 CONTEMPRY) (3-0) or (2-0) *Credit 3 or 2*. II. Twentieth Century American development thus: America comes of age; the quest for social justice; the Great Crusade (World War I); postwar normalcy and reaction; Democracy in transition—the New Deal; and American leadership in the United Nations." Lectures, discussions, special reports.

663. ECONOMIC HISTORY OF THE UNITED STATES. (HIST 663 U S ECON) (3-0) *Credit 3*. I. Historical review of the development of agriculture, commerce, industry, and business from colonial times to the present; social and economic forces in American society with attention to various mass movements; industrialization of the country and the necessity for governmental regulations; historical interpretation of trade unions, employer's associations, cooperatives. Lectures, discussions, readings, special reports.

673. ECONOMIC HISTORY OF THE SOUTH. (HIST 763 SOUTH ECO) (3-0) *Credit 3*. II. The agricultural and industrial development of the South; the industrialization of the

Southwest; field trips, contact with state historical societies to obtain documents, and preparation for the writing and publication of materials.

683. SECTIONALISM AND CIVIL WAR, 1700-1865. (HIST 683 SECTIONSISM) (3-0) *Credit 3*. I. Regional hypothesis; socio-economic regionalism; government, politics, and the regional compromise in the middle period; ideas in imbroglia—issues and men; reconstruction and the new nation. Lectures, discussions, special reports.

693. THE NEW SOUTH, 1865 TO THE PRESENT. (HIST 693 NEW SOUTH) (3-0) *Credit 3*. II. Relation of the South to national development since 1860; the death of the Old South; reconstruction and the new nation; the "New Departure," 1876-1900; Southern strivings to follow national patterns, 1900-1932; the New Deal and the new South; the South in World perspective. Lectures, discussions, readings, special reports.

703. GREAT AMERICAN HISTORIANS. (HIST 703 AMER HIST) (3-0) *Credit 3*. Survey of the writers of American history; their sociological, economic and political motivations.

III. THE TRAINING AND SPECIAL COURSES

473. TECHNIQUES OF TEACHING HISTORY. (HIST 503 TCHG HIST) (3-0) *Credit 3*. Testing devices; visual aids; historical methods.

563. SURVEY OF THE CRITICAL ATTITUDE AND TOOLS OF SCIENTIFIC HISTORY. (HIST 563 TOOLS) (3-0) *Credit 3*. I or II. History and its relation to the Social Sciences; the Social Sciences; the subject and the collection and classification of sources; the criticism of data; exposition or the presentation of historical evidence. Lectures, laboratory exercises, special reports. History majors register for History 563.

572. HISTORICAL INVESTIGATIVE PAPER. (HIST 572 INV PAPER) (2-0) *Credit 2*. I and II. Credit allowed upon satisfactory completion of required thesis.

583. HISTORY OF CIVILIZATION TO 1500. (HIST 583 CIVILZATN) (3-0) *Credit 3*. Ideals and institutions connected with the political, social and economic life during periods of Greece, Rome, Feudalism, Renaissance, Reformation. Lectures, readings, tests, and special reports.

593. HISTORY OF CIVILIZATION FROM 1500 TO THE PRESENT. (HIST 593 CIVILZATN) (3-0) *Credit 3*. Ideals and institutions connected with political, social and economic life in the period of rational liberalism and nationalism, the French Revolution, Nineteenth Century English liberalism, nationalistic unifications, socialism, imperialism, and Twentieth Century fascism and democracy. Lectures, readings, test and special reports.

603. WESTERN AMERICAN HISTORY. (HIST 603 WEST AMER) (3-0) *Credit 3*. II. Seminar in the exploration, settlement and development of the region west of the Mississippi; designed in discover and preserve materials on the early Spanish, French, African and Anglo-Saxon explorations and the contributions of the immigrants who made their homes in the Western region later.

623. PROBLEMS IN LATIN-AMERICAN HISTORY. (HIST 623 LATN AMER) (3-0) *Credit 3*. I. Geography and resources of the Latin-American countries; cultural traits of the population; description of the social, political and economic institutions. History of the relations between the United States and Latin-American countries.

733. HISTORY OF THE FAR EAST. (HIST 733 FAR EAST) (3-0) *Credit 3*. Political institutions of China, Japan and other Far Eastern countries.

MATHEMATICS

A person holding the Bachelor of Science Degree with a major in Mathematics is eligible for admission to graduate study leading to the Master of Science in Mathematics with emphasis in Geometry, Algebra and Analysis.

Courses with emphasis in Geometry include:

- 343 Solid Analytic Geometry
- 363 College Geometry—Higher Plane Curves
- 713 Advanced Calculus
- 763 Differential Equations
- 773 Projective Geometry
- 783 Differential Geometry

Courses with emphasis in Algebra include:

- 703 Modern Algebra
- 713 Advanced Calculus
- 733 Advanced Algebra
- 793 Infinite Series
- 803 Numerical and Literal Solutions of Equations
- 813 Introduction to Algebraic Theory
- 833 Number Theory
- 873 Probability

Courses with emphasis in Analysis include:

- 623 Measure Theory
- 713 Advanced Calculus
- 743 Statistics
- 753 Partial Differential Equations
- 793 Infinite Series
- 853 Calculus of Variation
- 863 Real Variables
- 893 Complex Variables

MATHEMATICS

573. HIGHER PLANE CURVES. (MATH 573 CURVES) (3-0) *Credit 3*. Properties of logarithmic curves, the lemniscate, strophoid, cardioid, witch, cycloid, epicycloids, the folium, and inversions and invariant characteristics.

623. MEASURE THEORY. (MATH 623 MEAS THRY) (3-0) *Credit 3*. Fundamental topics on sets and classes, including Lebesgue Measure, Jordan Measure, rings. Integrable simple functions and pointwise convergence.

633. THEORY OF NUMBERS. (MATH 633 NUMBERS) (3-0) *Credit 3*. Properties of H.C.F., solution of the diophantine equation $ax + by = c$, infinitude of primes, perfect numbers, simple continued fractions, beginning of periodicity, congruencies, residues of given order, quadratic residues, factoring by means of residues, and equations having no integral solutions.

703. MODERN ALGEBRA. (MATH 703 MOD ALG) (3-0) *Credit 3*. Fundamental concepts of Algebra, integral domains, fields. Introduction to such concepts as groups, vector spaces, and lattices.

713. ADVANCED CALCULUS. (MATH 713 ADV CALC) (3-0) *Credit 3*. Advanced topics of the calculus; differential equations. Prerequisites: Differential and Integral Calculus.

723. ANALYTIC MECHANICS. (MATH 723 ANAL MECH) (3-0) *Credit 3*. Statics, the study of equilibrium and dynamics, motion of particles, of rigid bodies, and simple cases of formable bodies under action of forces. Prerequisites: Differential and Integral Calculus.

733. ADVANCED ALGEBRA. (MATH 733 ADV ALG) (3-0) *Credit 3*. Topics not taken up in the elementary courses of college Algebra; inequalities, theory of probability, summation of series, etc. Prerequisite: College Algebra.

743. STATISTICS. (MATH 743 STATISTIC) (3-0) *Credit 3*. Processes of statistical methods with reference to applications in various fields. Prerequisite: Analytic Geometry.

753. THEORY OF EQUATIONS. (MATH 753 THRY EQUA) (3-0) *Credit 3*. Complex numbers, general calculations of the cubic and biquadratic, and Horner's and Newton's method. Prerequisites: Differential and Integral Calculus.

763. DIFFERENTIAL EQUATIONS. (MATH 765 DIFF EQUA) (3-0) *Credit 3*. Methods of solving type forms and the formulation of practical problems as solutions of differential equations. Prerequisites: Differential and Integral Calculus.

773. PROJECTIVE GEOMETRY. (MATH 773 PROJ GEOM) (3-0) *Credit 3*. Fundamental forms; harmonic sets, perspectivity and projectivity of forms, duality involution. Prerequisite: Calculus.

783. DIFFERENTIAL GEOMETRY. (MATH 783 DIFF GEOM) (3-0) *Credit 3*. Curves in the plane, space, and of surfaces; introduction to the study of curved spaces. Prerequisites: Calculus and Solid Analytic Geometry.

793. INFINITE SERIES. (MATH 793 INF SERES) (3-0) *Credit 3*. The convergence and divergence of sequences, and series; simple, absolute, and uniform convergence; summable series. Prerequisites: Differential and Integral Calculus.

803. NUMERICAL AND LITERAL SOLUTIONS OF EQUATIONS. (MATH 803 SOLUTIONS) (3-0) *Credit 3.* Methods of solving linear, simultaneous, quadratic, cubic, quartic, transcendental, and algebraic equations of higher degrees than the fourth for real roots, as well as methods for complex roots. Prerequisites: Theory of Equations, or consultation with the Head of the Department.

813. INTRODUCTION TO ALGEBRAIC THEORY. (MATH 813 ALGB THRY) (3-0) *Credit 3.* Theory of linear transformations by use of orthogonal unitary, and hermetian matrices. Linear dependence, covariants, invariants, and eliminants.

823. FINITE DIFFERENCES. (MATH 823 FINIT DIF) (3-0) *Credit 3.* Difference formulas, symbolic operators, finite integration, Bernoulli polynomials, interpolation, approximate integration, Beta and Gamma functions, and simple difference equations.

833. NUMBER THEORY. (MATH 833 NUMBER) (3-0) *Credit 3.* Solutions of linear congruences, the Pell equation and its solution by partial fraction expansion. Use of continued fractions to represent certain important constants.

853. CALCULUS OF VARIATIONS. (MATH 853 VARIATIONS) (3-0) *Credit 3.* The concept of maximizing an integral to determine a curve; Euler's equation, parametric equations, and Hamiltonian Principles, and applications to practical problems.

863. REAL VARIABLES. (MATH 863 VARIABLES) (3-0) *Credit 3.* Introduction to point sets, rigorous approach to the concept of function and limit, the Riemann integral, the Lebesgue integral, and some of their generalizations.

873. PROBABILITY. (MATH 873 PROBABLY) (3-0) *Credit 3.* Theory of permutations, combinations, distributions, repeated trial, hitting a target, and discussion of the probability integral.

893. COMPLEX VARIABLES. (MATH 893 COMPL VAR) (3-0) *Credit 3.* Rational functions of a complex variable, conformal mapping, Cauchy-Riemann equations, analytic continuation, residues and applications.

Mathematics 433: FOUNDATIONS OF MATHEMATICS. (3-0) *Credit 3.* II. Fundamental definitions, algebraic systems, one-dimensional geometry, and topics in topology.

MUSIC

The College offers courses leading to the degree of Master of Arts with a major in Music. This degree is open to persons holding a Bachelor of Music or Bachelor of Science or Arts with concentration in music from an institution of recognized standing. These degrees presented as entrance requirements in the graduate department must represent an amount of work equivalent to that prescribed in the School of Arts and Sciences at Prairie View A. & M. College.

Candidates for the master's degree may major in theory, piano, voice or music education.

MUSIC EDUCATION

Requirements:

12 to 15 hours—30 hours in all subjects

1. Courses in the field:

Courses in general education or psychology; or
English Literature, Language or History as well as the music courses.
Thesis: A written literary work involving original research.

2. Applied Music (6 hours minimum)

Continuation of one's applied instrument.

3. Minor Cognates: Any one:—

Aural Theory

Written Theory

Music Literature

Any non-musical field of study for which the student has the requisite preparation in his bachelor's degree.

683. THE TEACHING OF MUSIC LITERATURE. (MUSC 683 TCHG LIT) (3-0) *Credit 3*. Problems in the presentation of music appreciation to high school students.

753. THE TEACHING OF VOCAL AND INSTRUMENTAL MUSIC IN THE ELEMENTARY SCHOOL. (MUSC 753 ELEM SCH) (3-0) *Credit 3*. Organization and administration of rhythm bands and small instrumental groups in the elementary school, and of choral groups.

773. PROBLEMS IN TEACHING SIGHT-SINGING AND EAR TRAINING. (MUSIC 773 SGHT SING) (3-0) *Credit 3*. Students must audit first-year courses and engage in practice teaching plus one hour of theory and one hour of lecture.

873. TEACHING OF VOCAL MUSIC IN THE HIGH SCHOOL. (MUSC RGC H S VOCAL) (3-0) *Credit 3*. Organization and administration of (a cappella) choirs, boys' chorus or glee clubs, girls' chorus or glee clubs, and voice training classes.

893. THE TEACHING OF INSTRUMENTAL MUSIC IN THE HIGH SCHOOL. (MUSC 893 H S INSTRM) (3-0) *Credit 3*. Organization and administration of bands and orchestras in the junior and senior high schools.

943. DRILL AND BAND FORMATION IN THE HIGH SCHOOL. (MUSC 943 H S BAND) (3-0) *Credit 3*. Signals, formations, maneuvers for the Marching Band; band shows and paratomes.

963. PIANO CLASS TEACHING. (MUSC 963 PIANO MTH) (3-0) *Credit 3*. Methods of teaching piano in groups of 10 to 30 students in the elementary and high schools.

973. SEMINAR IN MUSIC EDUCATION. (MUSC 973 SEMINAR) (3-0) *Credit 3*. Current philosophy of education; the place of music in the curriculum; review and criticism of music curricula, and evaluation of materials and methods of the various types of music schools existing in America; special study of some problems associated with that aspect of music teaching in which interested.

THEORY

12 to 15 hours—30 hours total for degree

1. Thesis: A written literary work involving original research, or an arrangement of a work, or an original work for full symphony orchestra.
2. Student must include 953, 783, and 793 or 763.
3. Applied Music: (6 hours)
Continuation of one's applied instrument
4. Minor cognate: Any one:—
School Music
Applied Music
Music Literature
Any non-musical field of study for which the student has the requisite preparation in his bachelor's degree.

Twelve to fifteen hours (30 hours total in all subjects)

653. ADVANCED SCORE READING. (MUSC 653 SCORE RDG) (3-0) *Credit 3*. Transposition and study of various clefs for instruments and voices; ranges of instruments; introduction to the playing of vocal and instrumental scores since the 16th century; practice in sight reading and studying such scores.

673. DICTATION AND SIGHT-SINGING. (MUSC 673 DICTATION) (3-0) *Credit 3*. Advanced courses in aural theory theory.

693. ANALYSIS OF FORM. (MUSC 693 ANAL FORM) (3-0) *Credit 3*. Practical analysis of intermediate and larger forms; eighteenth and nineteenth century harmony as illustrated in the works of Haydn, Mozart, Beethoven, Brahms, Franck, etc.

763. ADVANCED ORCHESTRATION. (MUSC 763 ADV ORCH) (3-0) *Credit 3*. Scoring for full symphony orchestra.

783. CONTRAPUNTAL AND CHROMATIC DICTATION. (MUSC 783 DICTATION) (3-0) *Credit 3*. Dictation in two and three-part counterpoint, and four-part chromatic harmony.

793. CHROMATIC AND MODERN HARMONY. (MUSC 793 MOD HARM) (3-0) *Credit 3.* Harmonic materials and technique from creative and analytical angles; harmonic idiom on the period from the late nineteenth century to the present.

833. ADVANCED ORCHESTRAL CONDUCTING. (MUSC 833 CONDUCTING) (3-0) *Credit 3.* Conducting from chamber music and classical symphonic scores; conducting from Romantic and Modern scores. Examination of school music materials and classical symphonic scores. Interpretation of the larger forms of instrumental music.

953. ADVANCED ANALYTICAL HARMONY. (MUSC 953 ANAL HARM) (3-0) *Credit 3.* Harmonic analysis of Chorales of Bach; piano sonatas of Beethoven, violin sonatas of Brahms, and symphonic works of Mozart, Beethoven, Wagner and Franck.

PIANO

Requirements:

Undergraduate recital already given.

1. Three complete concertos
2. Material for two programs
3. Public performance of a concerto; chamber ensemble, and one recital program piano.
4. Must have two sequences in minor cognates as:

Aural Theory

Written Theory

Music Literature

Music Education or non-music subjects for which the student has adequate preparation. Also if desired, applied music other than

Four hours of daily practice; two one-hour lessons, one-hour studio class each week, if possible. Three hours each semester.

12 to 15 hours credit required (In Piano alone, 30 hours total for degree)

MUSIC 613. PIANO. (MUSC 613 PIANO) (3-0) *Credit 3.* Three concertos of contrasting type (Mozart, Beethoven, Brahms, Schumann, Chopin, Liszt, Tschaiakowsky, Rachmaninoff, etc.)

MUSIC 623. PIANO. (MUSC 623 PIANO) (3-0) *Credit 3.* Sufficient material for two programs including three or four major compositions of the classical and romantic school. These programs should also include a varied selection of the representative modern compositions.

Bach—Italian Concerto toccatos, transcription by Tausig, Busoni, Liszt, etc., Chromatic Fantasy and Fugue.

Beethoven—A sonata of the grade of difficulty of Op. 53, 57, 109, 110, 111, or Chopin Sonata, and an earlier sonata; or one of Mozart, or a modern one.

MUSIC 713. PIANO (MUSC 713 PIANO) (3-0) *Credit 3.* Romantic Composers—Schumann—(Etude Symphoniques); Franck—(Prel., Choral and Fugue); Brahms-Handel—(Variations and Fugue); Liszt—(Sonata, etc.)

MUSIC 723. PIANO (MUSC 723 PIANO) (3-0) *Credit 3.* Modern Composers—Debussy, Ravel, Scriabin, etc., Contemporary Moderns including American Composers.

VOICE

Requirements:

Undergraduate recital already given.

1. Two complete roles appropriate to the voice
2. Two complete oratorio roles
3. Public performance with orchestra (an aria); one recital (artist's).

Three hours of daily practice; 2 one-hour lessons; one-hour studio class if possible each week. Three hours credit each semester.

12 to 15 hours credit required in voice alone (30 hours total for degree)

VOICE 613. (MUSC 613) *Credit 3.* A minimum of 6 songs in each of the four languages (in addition to the undergraduate degree)—English, French, German and Italian.

VOICE 623. (MUSC 623 VOICE) *Credit 3.* Four arias (Languages not specified).

VOICE 713. (MUSC 713 VOICE) *Credit 3.* Romantic Composers—Schumann; Schubert, Wagner, Liszt, etc.

VOICE 723. (MUSC 723 VOICE) *Credit 3.* Modern Composers—Debussy; Rachmanioff; etc., Contemporary writers including American Composers.

DEPARTMENT OF

PHYSICAL EDUCATION AND HEALTH

REQUIREMENTS FOR MASTER OF SCIENCE DEGREE IN PHYSICAL EDUCATION

Students without undergraduate major or minor in Physical Education will be required to complete additional courses designed to give them competence in the areas of subject matter that are basic to this field. A demonstration of skill in teaching a wide variety of Physical Education activities is required. Courses listed below are prerequisite courses:

I. BASIC SCIENCE:

A. Minimum

1. Zoology (or its equivalent)
2. Anatomy
3. Physiology

II. HEALTH EDUCATION COURSES:

A. Minimum (choice of two)

1. Personal Hygiene
2. Principles of Health Education
3. Methods of Health Education
4. Health Education

III. TECHNICAL TRAINING IN PHYSICAL EDUCATION

1. Organization and Administration of Physical Education .. 3 hours
2. Methods and Materials in Physical Education 3 hours
3. Kinesiology 3 hours
4. Care and Prevention of Athletic Injuries 2 hours
5. Minor Games and Sports 2 hours
6. Tests and Measurements in Physical Education..... 3 hours
7. Adaptive Physical Education 3 hours
8. Coaching 2 hours
9. Modern Dance 3 hours

PHYSICAL AND HEALTH EDUCATION

Prerequisites for a graduate major will ordinarily consist of not less than 30 semester hours of undergraduate credits in the chosen field or in some related field. A graduate minor will ordinarily be based upon not less than 12 semester hours of undergraduate work.

If the transcript of the undergraduate record of a student does not meet the above qualifications, additional satisfactory undergraduate work will be required before the student is admitted to graduate status.

It should be clearly understood that admission to the graduate school does not imply admission to candidacy for a degree.

Courses for which graduate credit may be obtained are numbered above 500. Courses numbered from 500 to 599 are for graduates and undergraduates.

Graduate courses required for a major in physical education:

613. Individual Physical Education or 763 Physical Education Curriculum ..	3 hrs.
653. Administrative Problems in Physical Education	3 hrs.
623. Physiology of Muscular Exercise	3 hrs.
633. Tests and Measurements in Physical Education	3 hrs.
703. Seminar I—Techniques of Research in Physical Education	3 hrs.
713. Seminar II—Thesis	3 hrs.
733. Mechanical Analysis of Motor Skills	3 hrs.
753. Scientific Foundations of Physical Education	3 hrs.

GRADUATE MINOR IN PHYSICAL EDUCATION

Students without an undergraduate major or minor in Physical Education will be required to complete additional courses. See the list of courses prerequisite for a graduate major in physical education.

Students who have satisfied undergraduate requirements will be required to take the following courses:

- 633. Tests and Measurements in Physical Education
- 653. Administrative Problems in Physical Education
- 753. Scientific Foundations of Physical Education
- 753. Physical Education Curriculum

DESCRIPTION OF COURSES

613. **INDIVIDUAL PHYSICAL EDUCATION.** (P E 613 INDIV P E) (3-0) *Credit 3.* I or II. Making a Physical Education program meet the needs of handicapped individuals; fundamental principles in the selection and adoption of activities in corrective procedure; abnormal physical conditions that come to the care or reports. Prerequisite: Physical Education 314 and 324.

623. **PHYSIOLOGY OF MUSCULAR EXERCISES.** (P E 623 MUSC EXER) (3-0) *Credit 3.* I or II. Affects of physical education activities on individual; general affects of exercise upon bodily functions and affects of special types of exercise upon bodily function.

633. **TESTS AND MEASUREMENTS.** (P E 633 TEST MEAS) (2-1) *Credit 3.* Tests available in the field for the various situation from elementary school to college. Use of various Anthropometric and strength tests instruments.

643. **CONDITIONING OF ATHLETES AND CARE OF ATHLETIC INJURIES.** (P E 643 INJURIES) (3-0) *Credit 3.* Conditioning athletes for the various sports; a practical course in first aid and the care of injuries in the athletic program.

653. **ADMINISTRATIVE PROBLEMS IN PHYSICAL EDUCATION.** (P E 653 ADM PROB) (3-0) *Credit 3.* I or II. Coordinations of the different phases of the program; administrative problems of physical education intramural and inter-collegiate athletics.

PE 703. **SEMINAR—TECHNIQUES OF RESEARCH IN PHYSICAL EDUCATION.** (P E 703 SEMINAR I) Techniques used in physical education research; historical, philosophical, descriptive (observation, questionnaire, interview, job analysis), experimental and comparative methods; methods of preparing bibliographies, of selecting and defining thesis problems. This course must be taken during the first semester of graduate work (*Credit 3.*)

PE 713. **SEMINAR II— THESIS.** (P E 713 SEMINAR) Guidance in thesis writing, analysis of data, presentation of thesis topics to seminar groups for discussion and criticism. To be taken after thesis data has been gathered or with the consent of the instructor. (*Credit 3.*)

PE 733. **MECHANICAL ANALYSIS OF MOTOR SKILLS.** (P E 733 MECH ANAL) Advanced kinesiological study; application to teaching methods and problems in sports, dance, body mechanics and conditioning. Prerequisite: Kinesiology. (*Credit 3.*)

753. **SCIENTIFIC FOUNDATION OF PHYSICAL EDUCATION.** (P E 753 FOUNDATN) (3-0) *Credit 3.* Principles taken from biology, sociology, psychology, anatomy and physiology basic to the teaching of physical education.

763. **PHYSICAL EDUCATION CURRICULUM.** (P E 763 CURRICULUM) (3-0) *Credit 3.* Study activities, aims, objectives and outcomes as they relate to courses of study and their construction; development of a course of study for the student's own particular situation.

REQUIREMENTS FOR A MINOR IN HEALTH EDUCATION

Prerequisites to a minor in Health Education

I. BASIC SCIENCE

A. Minimum: 4 hours

1. Zoology (or its equivalent) 4 hours

II. TECHNICAL TRAINING IN HEALTH EDUCATION

A. Minimum: 9 hours

1. Personal Hygiene 3 hours
2. Methods and Materials in Health Education 3 hours
3. Public School and Community Hygiene 3 hours

Students who have satisfied the above requirements may minor in Health Education by following the schedule below:

663. Health Care of Children 3 hours

673. Nutritional Aspects of Health Education 3 hours

863. Community Planning for Health 3 hours

693. Current Problems in Health Education 3 hours

663. HEALTH CARE OF CHILDREN. (P E HLTH CARE) (3-0) *Credit 3.* The needs of the child at home and school; responsibility of the teacher, physician, nurse and administrator in providing the child with health knowledge as well as hygienic environment.

763. NUTRITIONAL ASPECTS OF HEALTH EDUCATION. (P E 673 NUTRITION) (3-0) *Credit 3.* Essentials of an adequate diet; the food of persons of different ages; and the nutritive values of common food materials considered; special concern given regarding the relationship of nutrition and health education; materials from the various agencies, diet surveys and projects included in the course.

683. COMMUNITY PLANNING FOR HEALTH. (P E 863 COMM PLAN) (3-0) *Credit 3.* Acquaints the prospective teacher of health education with the fundamentals, habits and knowledge necessary to healthful living; and an overview of prominent health problems in the school and community.

Special attention also given to progressive teaching methods and use of modern teaching aids in health education.

693. CURRENT PROBLEMS IN HEALTH EDUCATION. (P E 593 CURR PROB) (3-0) *Credit 3.* Current problems of Health Education; health services, healthful school living, and health instruction.

MINOR IN RECREATION

Requirements for a Minor in Recreation

Prerequisites to a Minor in Recreation

Ed. 253. Arts and crafts (see department of Education for description) 3 hrs.

P.E. 373 Program Planning in Recreation 3 hrs.

P.E. 452 Youth Agencies 3 hrs.

Students who have satisfied the above requirements may minor in Recreation by following the schedule below:

P.E. 823. Camp Administration

Ed. 543. Principles and Philosophy of Counseling

P.E. 833. Recreation Administration

P.E. 843. Recreation Problems.

DESCRIPTION OF COURSES

P.E. 823. CAMP ADMINISTRATION. (P E 823 CAMP ADM) (3-0) *Credit 3.* Organization and administration of public and private camps; their program requirements and standards; equipment, camp sites, budgets and staff; actual camping experience.

ED. 543. PRINCIPLES AND PHILOSOPHY OF COUNSELING. (EDUC 543 COHNSELNG) (See department of Education for description.)

P.E. 833. RECREATION ADMINISTRATION. (P E 833 RECREATN) (3-0) Evaluation of programs, activities, and workers, analyses of individual, group, and community needs, determining community resources for recreational programs. Administrative experience by operation of the campus program.

P.E. 843. RECREATION PROBLEMS. (P E 843 REC PROB) (3-0) *Credit 3.* Current problems in recreation; the student's own local recreational problem.

POLITICAL SCIENCE

Students who concentrate their graduate studies in political science must elect Political Science 563 Bibliography and Methods in Political Science. Each student must also complete a master's thesis which has been prepared under the direction of and approved by the faculty of the Department of Political Science.

Prerequisites for a major in political science are: (1) an undergraduate major in political science, 30 semester hours of credit; or (2) undergraduate minor in political science, 18 semester hours; or (3) a major in social science with six semester hours in American Government. Those students who had an undergraduate major in political science may elect at least twenty semester hours in political science from four of the five fields listed below. Those who present a minor in political science will be required to elect 24 semester hours in four of the five fields required. Social Science majors will be required to present 24 semester hours in five fields of concentration. All other students desiring to major in political science will be required to complete thirty semester hours in the five fields of concentration.

Majors in political science are required to select courses from the following five fields of concentration: (1) Public Law; (2) Politics (3) Political Theory; (4) Public Administration; and (5) International Law and Relations. Programs of study should be constructed in consultation with an advisor from the faculty of the Department of Political Science.

DESCRIPTION OF COURSES

PUBLIC ADMINISTRATION

523-543. MUNICIPAL ADMINISTRATION AND POLITICS. (PoSc 523-543 MUNICIPAL ADM POL) (3-0) *Credit 3*. An examination of the organization, planning and problems of municipal administration and government; operation of the policy making process at the municipal level.

753-453. PUBLIC PERSONNEL ADMINISTRATION. (PoSc 753-453 PUBL PERS) (3-0) *Credit 3*. Development and problems of the public service; recruitment, examination, placement, remuneration, morale, retirement, loyalty and responsibility.

POLITICS

503. SOCIAL LEGISLATION. (PoSc 503 LEG PROCS) (3-0) *Credit 3*. Origins, enactment, and administration of national welfare programs since 1930.

513-343. PROPAGANDA PUBLIC OPINION AND PRESSURE GROUPS. (PoSc 513-343 PROPAGANDA) (3-0) *Credit 3*. Functions and techniques of pressure groups; the nature, role and identification of public opinion and propaganda.

723. SEMINAR IN POLITICAL PARTIES AND ELECTION PROBLEMS. (PoSc 723 SEM POL PAR AND ELECT PROBS) (3-0) *Credit 3*. Selected electoral problems, Negro suffrage; prospects of development of two-party system in the South; non-voting; party finance; presidential electoral reform; presidential nominating politics.

743. PROBLEMS IN AMERICAN GOVERNMENT. (PoSc 743 PROBS AM GOVT) (3-0) *Credit 3*. Selected American governmental problems. Executive-legislative relations; legislative reorganization; reapportionment; lobbying; intergovernmental relations; legislative process.

PUBLIC LAW

603-403. ADMINISTRATIVE LAW. (PoSc 603-403 ADM LAW) (3-0) *Credit 3*. The law made by the law controlling the operations and personnel of the federal administrative system.

633-413. AMERICAN CONSTITUTIONAL LAW. (Po Sc 633-413 CONST LAW) (3-0) *Credit 3*. Basic principles of the American constitutional system; judicial interpretation and application of those principles in construing powers of government and the rights of persons.

653-423. THE CONSTITUTION AND PRIVATE RIGHTS. (Po Sc 653-423 RIGHTS) (3-0) *Credit 3*. Rights and duties of United States citizenship; crucial issues of individual freedom, subversion, loyalty and governmental authority as adjudicated by federal courts.

POLITICAL THEORY

563-223. BIBLIOGRAPHY AND METHODS IN POLITICAL SCIENCE. PoSc 563-223 BIBL METH) (3-0) *Credit 3*. The discipline, its authorities and its methodology; use of public documents and other source materials. (Required of all major in political science.) (Formerly Political Science 363).

603-303. ANCIENT AND MEDIEVAL POLITICAL THEORY (PoSc 603-303 POL THRY) (3-0) *Credit 3*. Political theories of the Greek, Roman and medieval European thinkers; special attention to Plato, Aristotle, Cicero, St. Augustine, John of Salisbury, St. Thomas Aquinas, and Dante.

613-313. MODERN POLITICAL THEORY. (PoSc 613-313 MOD THRY) (3-0) *Credit 3*. Political Theories from the Reformation to the present; special attention to Machiavelli, Bodin, Hobbes, Montesquieu, Locke, Rousseau, Jefferson, The Mills, Hegel, Marx and the socialist theorists.

703. SEMINAR IN AMERICAN POLITICAL THOUGHT. (PoSc 703 AM THOUGHT) (3-0) *Credit 3*. The theoretical adaptations and modifications of historic democratic concepts of government by leading American theorists.

INTERNATIONAL LAW AND RELATIONS

593. INTERNATIONAL ORGANIZATION. (PoSc 593-393 INTL ORGN) (3-0) *Credit 3*. Development of international organization; major problems of United Nations.

623. INTERNATIONAL LAW. (PoSc 623 INTL LAW) (3-0) *Credit 3*. The nature, content, development and operation of the law of the international community.

633-433. SEMINAR IN AMERICAN FOREIGN POLICY. (PoSc 633-433 FOR POLICY) (3-0) (3-0) *Credit 3*. Analytical and historical study of the content of American foreign policy; governmental machinery and political processes in its formulation.

693-493. POLITICS OF THE FAR EAST. (PoSc 693-943 POL EAST) (3-0) *Credit 3*. International implications of the domestic and foreign policies of countries of the Near, Middle and Far East; reference to China, Japan, India, Egypt, Turkey, Iran, Indo-China, Phillipines and Indonesia.

SUMMARY OF GRADUATE CATALOG MODIFICATIONS

CHANGES IN INTRODUCTORY POLICY STATEMENT

1. Requirement that Political Science 563, Bibliography and Methods in Political Science, be taken first semester of residence deleted
2. Requirement of master's thesis
3. Five rather than six fields of the discipline included

COURSES ADDED

1. Pol. Sci. 753. Public Personnel Administration
2. Pol. Sci. 513. Propaganda, Public Opinion and Pressure Groups
3. Pol. Sci. 743. Problems in American Government
4. Pol. Sci. 603. Administrative Law
5. Pol. Sci. 603. Ancient and Medieval Political Theory
6. Pol. Sci. 613. Modern Political Thought

COURSES DELETED

1. Pol. Sci. 513. American Local Rural Government
2. Pol. Sci. 583. Seminar in Public Administration
3. Pol. Sci. 613. Public International Law
5. Pol. Sci. 713. Seminar in Colonial Government and Problems of Imperialism
5. Pol. Sci. 743. Seminar in Comparative Government and Administration

COURSES ALTERED AS TO NUMBER, TITLE, OR COURSE DESCRIPTION

1. Pol. Sci. 503. Seminar in International Organization (Number changed to Pol. Sci. 593 (393), International Organization, and description revised)
2. Pol. Sci. 703. Seminar in Political Theory (Changed as to title—Seminar in American Political Thought—and course description)
3. Pol. Sci. 563. Bibliography and Methods of Research (Title changed to Bibliography and Methods in Political Science and course description revised)
4. Pol. Sci. 503. Seminar in International Organization (Number changed to 593 and title changed to International Organization)
5. Pol. Sci. 533. American Foreign Relations (Numbered to 633 and title changed to Seminar in American Foreign Policy)
6. Pol. Sci. 623. Public International Law (Title change to International Law and description revised)
7. Pol. Sci. 523. Municipal Administration (Title changed to Municipal Administration and Politics and course description revised)
8. Pol. Sci. 603. American Constitutional Law (Number changed to 653 and title changed to The Constitution and Private Rights)
9. Pol. Sci. 703. Seminar in Political Theory (Title changed to Seminar in American Political Thought and course description revised)
10. Pol. Sci. 733. Seminar in Government and Politics of the Far East (Number and title changed to 693 and respectively, Politics of the Far East, description revised)
11. Pol. Sci. 573. Social Legislation (Number changed to 503 and description revised)

SOCIOLOGY

Students seeking a Master's degree in Sociology should consider the following objectives and requirements:

1. A development of knowledge sufficient to make community surveys necessary for the formulation of programs of community organization.
2. A development of interest and ability of the student in the field of scientific sociology.
3. The development of an appreciation for the ability to interpret native and folk culture of the Nation and the Southwest.
4. The development of the ability to interpret mass behavior so as to make such interpretation functional in leadership.

REQUIREMENTS

Students who major in Sociology must present a minimum of 9 semester hours in undergraduate Sociology with substantial credits in History, Political Science or Economics. Students who have had fewer than 18 hours will be required to complete additional undergraduate hours in Sociology before receiving a Master's Degree.

Students who minor in Sociology should present a minimum of 9 undergraduate hours in any of the Social Sciences.

403. INTRODUCTION TO SOCIAL CASE WORK. (SOC 403 CASE WORK) (3-0) *Credit 3.* I and II. Presents the point of view of the social case worker regarding human relationships, and appreciation of needs and problems causing individuals to seek help of social

agencies and some understanding of the basic process of social case work practices; broad cultural as well as practical value to students going into social work, as teaching (especially visiting teaching), medicine, and related professions.

423. INTRODUCTION TO SOCIAL GROUP WORK. (SOC 423 GROUP WRK) (3-0) *Credit 3*. I or II. Fundamentals of professional group work. Deals specifically with group process and behavior, interpersonal relations, the contribution of allied fields, leadership programs, and agencies as a background for employment, in-service training, or professional education.

503. INTRODUCTION TO SOCIAL WELFARE. (SOC 503 SOC WELF) (3-0) *Credit 3* I or II. Historical development of social work; fields of specialization; functions of agencies; job opportunities; and contributions of outstanding leaders. Prerequisite: Nine hours of sociology.

513. SOCIAL THEORY. (SOC 513 SOC THRY) (3-0) *Credit 3*. I. Historical development of theories of social science; the process by which sociology and the various social sciences came into systematic bodies of knowledge. Prerequisite: Twelve hours of sociology.

543. URBAN SOCIOLOGY. (SOC 543 URBAN) (3-0) *Credit 3*. I. Considers the city and its hinterland as a sociological entity; urban neighborhoods, population groupings and movements, social processes, trends, and problems are treated in the light of historical, ecological and social factors.

563. SOCIAL RESEARCH. (SOC 563 RESEARCH) (3-0) *Credit 3*. II. A study of the various methods of social investigation, such as the social survey, the case study methods, historical, statistical and ecological techniques. Emphasis is placed on the collection, analysis and interpretation of different types of information in connection with special problems of social research. Students are required to complete an individual piece of social investigation.

573. SOCIAL STATISTICS. (SOC 573 SOC STAT) (3-0) *Credit 3*. II. Techniques of calculating values common to statistical analysis; simple measures of central tendencies through correlation and regression; speed and accuracy on calculating machine emphasized.

583. ANTHROPOLOGY. (SOC 583 ANTHROPGY) (3-0) *Credit 3*. I or II. A study of the origin and development of human culture. Special emphasis is placed upon schools of culture and contemporary culture. Prerequisite: Nine hours of Sociology.

593. SOCIOLOGY SEMINAR. (SOC 593 SEMINAR) (3-0) *Credit 3*. I or II. For seniors and graduate students desiring to do independent research or study in fields not covered by current offerings. A staff member supervises the work of each student.

603. PROBLEMS OF CHILD WELFARE. (SOC 603 CHLD WELF) (3-0) *Credit 3*. I or II. A study of child welfare movements and contemporary children's agencies and their services. Includes programs for improving the home and for substitute care, safeguarding health, employment protection, delinquency prevention, and other needs of children and youth.

643. MODERN SOCIAL PROBLEMS. (3-0) *Credit 3*. II. Analysis of processes of personal, family, and community disorganization, methods and measures of social reform. Prerequisite: Six hours of Sociology.

673. ADVANCED SOCIAL STATISTICS. (SOC 673 ADV STAT) (3-0) *Credit 3*. II. Deductive and inductive statistical methods in which sampling, probability, multiple and partial correlation, variance, and special population techniques are emphasized. Prerequisite: Sociology 573.

693. PSYCHIATRIC ASPECTS OF SOCIAL WORK. (SOC 693 PSYCHIATR) (3-0) *Credit 3* II. The influence of modern psychiatry upon social work practices; development and functioning of the emotional life of the individual and dynamics of behavior. Prerequisite: 12 hours of Sociology or Social Service.

733. CRIMINOLOGY. (SOC 733 CRIMINLGY) (3-0) *Credit 3*. I. Nature, extent and causes of crime; various schools of criminology, individualization of criminal treatment, and modern techniques of criminal investigation. Prerequisites: Sociology 213 and 223.

803. COMPARATIVE CULTURES AND INTERNATIONAL RELATIONS. (SOC 803 COMP CULT) (3-0) *Credit 3*. I and II. A course designed to (a) introduce the student to the various culture areas of the world and to point up the similarities and differences between these cultures; (b) point up the effects of social change occasioned by culture

contacts; (c) investigate the cultural causes of conflict in international relations, with some attention to possible solutions to some of these problems.

Approach will be both anthropological and political, and will consider both the cultures of Europe, Africa, Asia, the Middle East and Latin America, and the relations of the European States of the United States to those areas. Particular attention will be paid to the rise of nationalism in Africa and Asia. Prerequisites: Undergraduate major or minor in Sociology, the Social Studies, Political Science, History, or Anthropology, or substantial preparation with superior grades in the aforementioned fields.

SCHOOL OF ENGINEERING

The School of Engineering offers major graduate work leading to the Master of Science degrees in the field of Architectural Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering, and minor graduate work for students majoring in other departments.

Prerequisite to graduate work in these fields is the completion of a four-year curriculum from a College or University of recognized standing, substantially equivalent to that required of the undergraduates in the School of Engineering. Students desiring to do graduate work who do not have the necessary prerequisites will be required to make up all deficiencies as directed by the Dean of the School of Engineering before they will be permitted to begin graduate courses.

For advanced work in the School, good library facilities and laboratory equipment are provided to carry on the work suggested. Certain research problems may be made available in cooperation with other departments of the College.

CIVIL ENGINEERING

503. EARTH MASONRY STRUCTURES. (C E 503 STRUCTS) (2-3) *Credit 3. I, II.* Design and construction of dams, retaining walls, abutments and piers, culverts, grain elevators and bins.

513. PUBLIC HEALTH ENGINEERING. (C E 513 PUBL HLTH) (3-0) *Credit 3.* Design of water purification works and principles of sanitation.

533. REINFORCED CONCRETE DESIGN. (C E 533 CONC DSGN) (2-3) *Credit 3. I.* Theories of action of beams, slabs, arches, footings, retaining walls, and columns of reinforced concrete; codes and specifications and their influence on design; rigid frames and effect of continuity.

543. ADVANCED STRENGTH OF MATERIALS. (C E 543 STRENGTH) (3-0) *Credit 3. I, II.* Special problems met in engineering, limitations of the flexure and torsion formulas, unsymmetrical bending, curved beams, combined stresses, thin tubes, thick hollow cylinders, flat plates and localized stresses.

563. STATICALLY INDETERMINATE STRUCTURES. (C E 563 STRUCTS) (1-6) *Credit 3. II.* Outer forces, reactions, moments and shears for fixed and moving loads, the use of influence lines, the determination of deflections by methods of moment areas, elastic loads, virtual work and Williot diagrams, methods of solution for stresses in statically indeterminate structures by virtual work, slope deflection, and moment distribution; continuous beams, building frames and arches. Prerequisite: Civil Engineering 353.

743. STRUCTURAL THEORIES AND DESIGN. (C E 743 THRY DSGN) (2-3) *Credit 3. II.* Statically indeterminate trusses, continuous trusses; steel arches; secondary trusses; suspension bridges; long span roofs; skeleton steel buildings and space structures.

763. WATER POWER ENGINEERING. (C E 763 WATR POWR) (2-3) *Credit 3. II.* Estimates of water power from steam flow data; theory and practice of hydraulic turbines; elements of design of dam, waterway and powerhouse; cost and value of water power.

773. RESEARCH IN CIVIL ENGINEERING. (C E 773 RESEARCH) *Maximum credit 9 hours.* Original investigation or advanced study in some field related to the practice of Civil Engineering.

ARCHITECTURE

ELECTRICAL ENGINEERING

513. ADVANCED COMMUNICATION CIRCUIT ANALYSIS. (E E 513 CIRC ANAL) (3-0) *Credit 3.* Theorems and properties of communication networks in steady-state and transient conditions.

533. ULTRA-HIGH FREQUENCIES. (E E 533 U H FREQ) (3-0) *Credit 3.* I, II. Radio transmission and reception, including ultra-high frequency techniques.

543. ELECTRIC POWER GENERATION. (E E 543 ELEC POWER) (3-0) *Credit 3.* I, II. Economics and technique of electric power generation. Effect of load curve on costs; thermal efficiency and commercial economy of various heat cycles; general layout of the generating station; division of load among generating units; by-products generations.

743. ADVANCED ALTERNATING-CURRENT MACHINERY. (E E 743 A C MACH) (3-0) *Credit 3.* I, II. Analysis of more intricate electrical problems met in the operation of alternating-current machinery.

763. ELECTRICAL ENGINEERING RESEARCH. (E E 763 RESEARCH) (3-0) *Credit 3.* I, II. Original investigation of special problems in the field of electrical engineering; problem selected by the student with the approval of the Department.

GENERAL ENGINEERING

513. ADVANCED SHOP PRACTICE. (G E 513 ADV SHOP) (0-9) *Credit 3.* I. Heat treatment, machine tool work, welding, jig, fixtures, pattern making, and any shopwork that may be of special interest to student. All assignments must be approved by the Dean of the School of Engineering.

523. SURVEY OF INDUSTRIAL PRODUCTS. (G E 523 SURV PROD) (1-6) *Credit 3.* I and II. Survey of the design methods used in industry, methods of presentation, production methods, and client designer relations. Prerequisites: General Engineering 122 and Architecture 212.

723. GRAPHICS OF FORMULAS. (G E 723 FORMULAS) (3-0) *Credit 3.* Simple empirical equations; curve tracing and fitting; diagramming of formulas; the construction of nomographic or alignment charts, interpolation, numerical and graphical integration and differentiation, and special slide rules.

562. ADVANCED DESCRIPTIVE GEOMETRY. (G E 562 DESC GEOM) (1-5) *Credit 2.* I, II. Graphical representation and the application of plane and space curves; advanced problems in single curved and doubled surfaces including the convolute and their developments; fundamentals of perspective and other pictorial means of representation.

MECHANICAL ENGINEERING

503. REFRIGERATION. (M E 503 REFRIGRTN) (3-0) *Credit 3.* I or II. The application of thermodynamics to problems of refrigeration; types of refrigerating machines and plants, refrigerants, icemaking, cold storage, cooling of air liquids and solids, construction details of commercial and household refrigerating plants and their economic operation.

523. FLOW OF FLUID AND HEAT TRANSFER. (M E 523 FLUIDS) (3-0) *Credit 3.* I or II. Review of first and second laws of thermodynamics, compressors, refrigeration cycles. The design of apparatus for heat transfer by conduction, convection, and radiation, with particular reference to heat exchanges, air preheaters, economizers, evaporators, boilers and condensers.

703. ADVANCED POWER PLANTS. (M E 703 POWR PLNT) (3-0) *Credit 3.* I or II. Modern power plants; the design and installation of high-pressure boilers, economizers,

air preheater, modern fuel burning furnaces, and automatic combustion controls; various steam cycles and types of auxiliary drive; their effect on station heat balance; discussion of deaerators, evaporators, condensers, heaters, etc., including turbine and machinery foundations and layouts.

713. ADVANCED ENGINEERING THERMODYNAMICS. (M E 713 THERMODYN) (3-0) *Credit 3. I, II.* Review of basic concepts and laws. Equations of state and thermodynamic properties of gases, vapors, and mixtures. Thermodynamic functions and their differential relations. Analysis of thermodynamic cycles with critical examination of concepts of efficiency, availability, and other loss measurements. Thermodynamic equilibrium, supersaturation and supercooling, and combustion.

723. ADVANCED MACHINE DESIGN. (M E 723 MACH DSGN) (3-0) *Credit 3. I or II.* The advanced phases of machine design including advanced statics, vibration, dynamics and stress analysis applied to machines. Material selection, force and shrink fits, brakes, clutches, lubrication theory and practice, gear and flywheel design. Design practice and machine layout.

733. DYNAMICS OF MACHINERY. (M E 733 DYNAMICS) (3-0) *Credit 3. II.* Advanced dynamics of machinery; inertia effects, torque characteristics, flywheel design and the balancing of multiple cylinder engines and compressors; critical speed and the design of turbine drums.

793. RESEARCH IN MECHANICAL ENGINEERING. (M E 793 RESEARCH) *Maximum credit 9 hours.* Original investigation or advanced study in the field of Mechanical Engineering.

SCHOOL OF HOME ECONOMICS

Students desiring to major in Home Economics on the graduate level must present undergraduate subject matter credits in the following areas: the social sciences, the physical sciences, biological sciences, art, and education which shall be satisfactory to the adviser under whose direction, the major work is to be done. In addition adequate preparation in undergraduate work in Home Economics is necessary.

Majors may be taken in Home Economics Education and General Home Economics. Minors may be taken in Education, Administration and Supervision, Home Economics Education, and General Home Economics.

Twenty (20) semester hours or more are required for a major, and ten (10) semester hours or more are required for a minor for the Master's Degree. Consult the Dean or major professor for additional information.

For the general requirements for admission to candidacy, residence, course requirements, transfer of credit, quality of work, thesis, and application for the Master's Degree, apply in the School of Home Economics. The student is urged to refer to the graduate bulletin for all desired information.

GENERAL HOME ECONOMICS COURSES

513. STUDIES IN HOME MANAGEMENT. (3-0) *Credit 3. I and II.* A review of management studies, trends in the field and research related to management.

533. HOME FURNISHING WORKSHOP. (3-0) *Credit 3. I and II.* Appropriate interior decorations, proper arrangement of furniture and equipment for all rooms according to their location in the house. Experience in making slip covers, draperies and lampshades.

553. FAMILY LIFE PROBLEMS. (3-0) *Credit 3. I or II.* Ways different families achieve their purposes with resources available. Management procedures for families on various income levels. Individual problems according to needs of students enrolled.

563. CONSUMER ECONOMICS. (3-0) *Credit 3. I and II.* Family budgets, marketing, price control and other problems of the consumer.

583. METHODS AND TECHNIQUES OF CHILD STUDY. (3-0) *Credit 3.* I or II. Open to seniors and graduate students. Modern methods and suitable techniques for studying children. Experimentation by various methods of studying children.

703. SEMINAR IN NUTRITION. (3-0) *Credit 3.* I and II. Review and interpretation of the literature of field, emphasizing recent advances and involving individual assignments and reports.

713. PROBLEMS IN COSTUME DESIGN. (0-6) *Credit 3.* Draping, pattern making and design for students with adequate background.

733. SEMINAR IN FOODS. (3-0) *Credit 3.* I and II. Reviews and interpretations in the field of foods and experimental food preparation, involving individual assignments and oral and written reports.

753. CLOTHING SEMINAR. (3-0) *Credit 3.* I and II. Aspect of clothing which directly affect the consumer.

763. PROBLEMS IN HOME ECONOMICS. (3-0) *Credit 3.* I and II. Work in the field of major interest. Reports, discussion and term papers.

773. ADVANCED CLOTHING FOR GRADUATE STUDENTS. (3-0) *Credit 3.* Advanced problems in garment construction; selection, design and construction of suitable clothing for both children and adults.

803. CHILD DEVELOPMENT CURRICULUM. (3-0) *Credit 3.* I or II. Designed to explain the modern curriculum of the nursery school, kindergarten and elementary school. Emphasis on methods and materials in various subject areas.

HE EDUCATION 843. TECHNIQUES IN EDUCATIONAL RESEARCH (HE EDU 843 RESEARCH) (3-0) *Credit 3.* Research in home economics education, sources of information and form in preparation of research reports.

883. PERSONAL AND FAMILY FINANCE. (3-0) *Credit 3.* I or II. General problems of individual and family on handling of money. Especially planned for students with limited undergraduate background experience.

900. PRINCIPLES OF HUMAN NUTRITION. (3-0) *Credit 3.* Application of Nutrition to individual problems.

903. ORGANIZATION AND MANAGEMENT. (3-0) *Credit 3.* Management for Institutional feeding—personnel, marketing, preparation, service and sanitation.

913. PROBLEMS OF YOUTH. (3-0) *Credit 3.* Problems concerned with youth during adolescent years. Some attention given to problem cases, as found in Home and Family Life classes.

993. NUTRITION AND DIET THERAPY. (3-0) *Credit 3.* Planning diets for various diseases and conditions. Some experience in use of facilities and work with formula.

HOME ECONOMICS EDUCATION

303. RESEARCH. (3-0) *Credit 0-3.* I or II. Thesis involving extensive study of chosen problems.

503. METHODS AND MATERIALS IN EXTENDED PROGRAMS. (3-0) *Credit 3.* I or II. A study of aims and values of home and summer experiences and club work; consideration of special problems, present trends; methods of promotion; selected and organization of subject matter.

523. RESEARCH PROBLEMS. (3-0) *Credit 3.* I and II. Methods used in collection, treatment and interpretation of data in the field of Home Economics. (Formerly called "Organization and Presentation.")

543. ADVANCED METHODS. (3-0) *Credit 3.* I and II. Newer trends in teaching Home Economics.

593. HOME ECONOMICS CURRICULUM. (3-0) *Credit 3.* I and II. The objectives of home economics in high schools; recent surveys and other methods used in determining content of curricula.

643. ADULT EDUCATION. (3-0) *Credit 3.* I or II. Objectives of adult education planning program; teaching procedures; and discussion of special problems. Special reports and bibliographies.

723. MEASUREMENT. (3-0) *Credit 3.* I and II. Home Economics subject matter tests, scales, construction and evaluation of objective devices.

743. STATISTICAL TECHNIQUES. (3-0) *Credit 3.* I and II. Methods of interpretation and utilization of data.

793. SUPERVISION. (3-0) *Credit 3.* I and II. Principles of supervision as applied to homemaking and Home Economics teaching and learning.

DIVISION OF INDUSTRIAL EDUCATION

In the Division of Industrial Education, advance work is offered leading to the Degree of Master of Science and Master of Education in the field of Industrial Education.

Prerequisite to graduate work in these fields, is the completion of a four-year curriculum from a College or University of recognized standing, substantially equivalent to that required of undergraduates in the Division of Industrial Education. Students desiring to do graduate work who do not have the necessary prerequisites will be required to make up all deficiencies as directed by the Director of Industrial Education before they will be permitted to begin graduate courses.

To qualify for the Master's Degree with a major in Industrial Education at least fifteen (15) semester hours of the total required must be in courses offered to graduate students only. Also, all students will be required to take a course in Industrial Education 763.—Research and Thesis Writing. Two-thirds of the work should be in the major field of Industrial Education, and one-third should be in a minor field chosen with the advice and approval of the Director of Industrial Education.

For advanced work in the School, good library facilities and laboratory equipment are provided to carry out the work suggested. Certain research problems may be made available in cooperation with other departments of the College.

AUDIO-VISUAL EDUCATION

503. UTILIZATION OF AUDIO-VISUAL MATERIALS. (2-3) *Credit 3.* I and II. Practical experience in the use of audio-visual aids, construction and development of various audio-visual aids and devices, sources of audio-visual aids; selection, evaluation and techniques, slides, film strips, opaque projectors, etc.

513. ADMINISTRATION AND SUPERVISION OF AUDIO-VISUAL EDUCATION (3-0) *Credit 3.* I. Emphasis on the supervision of budget and planning of an audio-visual program—for teachers appointed as audio-visual coordinators in their schools, as well as for principals, classroom teachers and students planning a teaching career.

523. PREPARATION OF GRAPHIC MATERIALS. (1-6) *Credit 3.* II. Emphasis on the construction of audio-visual materials for classroom teaching. Basic production techniques of audio-visual material for various teaching areas.

543. LABORATORY IN AUDIO-VISUAL AIDS. (1-6) *Credit 3.* II. Practical experience in the mechanical manipulation of the various audio-visual aids and devices. Includes mechanical theory of aids.

INDUSTRIAL EDUCATION

513. CURRICULUM CONSTRUCTION AND COURSE MAKING IN INDUSTRIAL EDUCATION. (3-0) *Credit 3.* I. Principles of curriculum construction and course making; study of curriculum concepts as they have prevailed in modern education; comparative study

of Industrial Education curricula as used throughout leading high schools; analytical technique in curriculum construction; course making and syllabus construction.

523. TESTS AND MEASUREMENTS IN INDUSTRIAL EDUCATION. (3-0) *Credit 3*. II. Sources of instructional testing and evaluating materials; construction and use of test and evaluating devices; administering, scoring, recording and interpreting tests, progress charts, diagnosis of difficulties, analysis of teaching problems as related to evaluation.

533. INSTRUCTIONAL METHODS IN INDUSTRIAL EDUCATION. (3-0) *Credit 3*. I. Study of methods devices, techniques as applied to teaching industrial subjects; analysis and evaluation of student learning difficulties and teaching responsibilities in industrial classes; also study of the nature, preparation and use of instruction sheets.

542-3. TRADE AND JOB ANALYSIS. (2-0) (3-0) *Credit 2 or 3*. II. Analysis technique as it has been developed by various leaders in Industrial Education; job analysis for the purpose of determining the content of training for an occupation; related content analysis for determining what should be taught as classroom material; analysis of a trade, industry or industrial plant for determining the general outline of a program of trade or industrial training.

563. THE GENERAL SHOP. (3-0) *Credit 3*. II. The general shop organization, its contribution to attainment of cardinal objectives of the modern high school, current practices as to type of shops, equipment, instructional materials and procedures.

583. INDUSTRIAL ARTS FOR THE ELEMENTARY SCHOOL. (2-0) *Credit 2*. I and II. A course designed for teachers, supervisors, principals of elementary schools. Fundamental concepts, philosophies of Industrial Arts in the elementary school; function and scope, organization, administration, activities and methods of teaching Industrial Arts on the elementary level.

603. WORKSHOPS AND INSTITUTES IN INDUSTRIAL EDUCATION. *Credit 3*. I and II. A study of the development of solutions for problems in Industrial Education.

- A. Cosmetology Institute
- B. Industrial Arts Teacher Workshop
- C. Vocational-Industrial Teachers Workshop
- D. Administrators Workshop

712-3. ADMINISTRATION AND SUPERVISION OF INDUSTRIAL ARTS EDUCATION. (2-3) (3-0) *Credit 2 or 3*. I. How to organize, supervise and administer functioning programs of Industrial Arts; the duties of a supervisor and director of Industrial Arts; special problems of supervision and administration of Industrial Arts; relationships to local, state and federal educational authorities, correlating Industrial Arts with other phases of education.

722-3. ADMINISTRATION AND SUPERVISION OF VOCATIONAL-INDUSTRIAL EDUCATION. (2-0) (3-0) *Credit 2 or 3*. II. The administration and supervision of Vocational-Industrial Education in all day, part-time and evening programs, apprenticeship, school-industry programs, vocational rehabilitation; relation of federal to state, state to local each to the other; study of the legal administrative and supervisory aspects of Vocational-Industrial Education as it operates under the Smith-Hughes and George Barden Act; also, the State Plan for Vocational Education.

732-3. PHILOSOPHY OF INDUSTRIAL EDUCATION. (3-0) (3-0) *Credit 2 or 3*. I. Fundamental concepts of progressive Industrial Education; principles, beliefs, and assumptions in regard to Industrial Education; its objectives and relationship to other phases of education; its justification in the total scheme of modern education.

743. THE HISTORY OF INDUSTRIAL EDUCATION. (3-0) *Credit 3*. II. A survey of the early movements, experiments and writings concerning leaders of the United States and European countries. Intensive study of developments in Industrial Education since 1850. A comparative study of leaders, movements, institutions and literature in the field of Industrial Education.

753. PRACTICUM IN INDUSTRIAL EDUCATION. *Maximum credit 6 hours*. Development of current problems as reflected through the merging of practical experience with theoretical and scientific concepts.

763. RESEARCH AND THESIS WRITING. (3-0) *Credit 3*. I and II. Required of all majors in Industrial Education. Methods and techniques of research writing and reporting. Designed especially for students who are to write thesis or lesser reports.

783. PROBLEMS IN INDUSTRIAL EDUCATION. (3-0) *Credit 3.* I and II. Conferences and advisement in selection and preparation of an acceptable term paper or essay. Prerequisite: I. E. 763.

792-4. THESIS IN INDUSTRIAL EDUCATION. (2-0) (4-0) *Credit 2 or 4.* Conferences and advisement in relationship to the selection and preparation of an acceptable thesis for the Master of Science Degree. Prerequisite I. E. 763.

MASTERS' DEGREES CONFERRED

MASTER OF ARTS 1955-1956

BROWN, TOMMIE LOLA *Major*—Business Education *Minor*—Economics

THESIS: *The Effect of Automation on Job Opportunities*

CLAY, LARUTHA *Major*—English *Minor*—Education

THESIS: *A Critical Analysis of Eugene O'Neill's Treatment of the Negro Character in Four of His Plays*

DOWNES, BESSYE LUISE *Major*—English *Minor*—Education

THESIS: *A Study of Cynicism in Selected Novels of Ernest Hemingway Including Reactions of Critics*

FRAZIER, LUCILE E. *Major*—English *Minor*—Education

THESIS: *Biblical Aspects and Puritan Theology in John Milton's Major Poems, "Paradise Lost" and "Paradise Regained"*

FREEMAN, MARCUS ANTONIO *Major*—History *Minor*—Administration

THESIS: *Taxes and Slavery in Texas, 1845-1860*

HICKS, ROY EDWARD *Major*—Voice *Minor*—Music Education

THESIS: *(Graduate Recital in lieu of Thesis)*

HILL, GLADYS LLOYD *Major*—Economics *Minor*—Education

THESIS: *Our General Banking System; A Lesson in Money Management*

IRVING, BOBBIE JOE *Major*—Voice *Minor*—Music Theory

THESIS: *(Graduate Recital in lieu of Thesis)*

LOVE, PEGGY RUTH *Major*—Business Education *Minor*—Economics

THESIS: *The Problem of Economic Instability*

OWENS, ADDIE PEARL *Major*—English *Minor*—Elementary Education

THESIS: *Alexander Pope; Origins of Personal Literary Criticisms Found in Selected Works*

SHELTON, EMMA C. *Major*—English *Minor*—Elementary Education

THESIS: *The Concept of God and Immortality in Selected Poems of Tennyson with Special Emphasis on "In Memoriam"*

STEWART, GERALDINE CORNELIA *Major*—Music Education *Minor*—Music Theory

THESIS: *Procedures for Developing Some Music Activities for Elementary Grades*

WILLIAMS, JAMES RUSSELL *Major*—Music *Minor*—Music Education

THESIS: *(Graduate recital in lieu of Thesis)*

YOUNG, BETTYE JEANNE *Major*—Music Education *Minor*—Elementary Education

THESIS: *Musical Experiences in Auditory Training*

MASTER OF EDUCATION

ALEXANDER, YVETTA YOUNG *Major*—Administration *Minor*—Elementary Education

ALLEN, LEONARD GERTRUDE *Major*—Elementary Education *Minor*—Health Education

ANDERSON, CECIL KELLEY *Major*—Elementary Education *Minor*—Administration

ANDERSON, CLAUDIA *Major*—Elementary Education *Minor*—Health Education

ANDERSON, JUANITA LOVE *Major*—Elementary Education *Minor*—Administration and Supervision

ANTOINE, GERTIE MAE *Major*—Elementary Education *Minor*—Physical Education

ARNOLD, OBZENA E. *Major*—Elementary Education *Minor*—Supervision

BARLOW, DORA M. *Major*—Elementary Education *Minor*—Administration

BARROW, LOTTIE RAY *Major*—Home Economics Education *Minor*—Elementary Education

BARTON, VASHTI *Major*—Elementary Education *Minor*—Music and Physical Education

BENNETT, RUTH ELLA *Major*—Elementary Education *Minor*—Health Education

BENSON, LULA J. *Major*—Elementary Education *Minor*—Administration

BENTON, ODIS E. *Major*—Elementary Education *Minor*—Health Education

BERRY, ALZENA LOVE *Major*—Elementary Education *Minor*—Physical Education

BLOCKER, WILMA LEE *Major*—Home Economics Education *Minor*—Elementary Education

BOONE, LUCILLE K. *Major*—Elementary Education *Minor*—Health Education
 BRAILSFORD, VALREE EUGENE *Major*—Administration *Minor*—Supervision
 BRANCH, BEATRICE KEYS *Major*—Elementary Education *Minor*—Physical Education
 BRENT, MABLEEN *Major*—Elementary Education *Minor*—Health Education
 BROOKS, WILHELMINA WHITING *Major*—Elementary Education *Minor*—Physical Education
 CALDWELL, ANITA JEWELL *Major*—Elementary Education *Minor*—Home Economics Education
 CANTON, LEACHIE ELIZABETH *Major*—Elementary Education *Minor*—Supervision
 CHAMPION, BERNICE B. *Major*—Elementary Education *Minor*—Health Education
 CHOICE, MARTHOLEAN *Major*—Elementary Education *Minor*—Health Education
 CLEAVER, DOROTHY JUANITA *Major*—Elementary Education *Minor*—Special Education
 CONNER, ALPEARL SADBERRY *Major*—Home Economics Education *Minor*—Elementary Education
 CONNOR, MAXINE *Major*—Elementary Education *Minor*—Health Education
 CONNALLY, DOROTHY B. *Major*—Home Economics Education *Minor*—Elementary Education
 COLLINS, CHARLINE LUCILE *Major*—Administration *Minor*—Elementary Education
 CRAWFORD, JACK HOWELL *Major*—Elementary Education *Minor*—Administration and Art Education
 CRECY, MARY LEE *Major*—Elementary Education *Minor*—Health Education
 CRISP, ADA LORENE *Major*—Elementary Education *Minor*—Administration
 DARDEN, MYRTLE *Major*—Elementary Education *Minor*—Administration
 DAVIS, HELEN C. BAKER *Major*—Elementary Education *Minor*—Health Education
 DAVIS, RUBY POLK *Major*—Elementary Education *Minor*—Health Education
 DEVAL, JESSIE JOYCE *Major*—Elementary Education *Minor*—Health Education
 DICKSON, LUCILLE CATHERYN *Major*—Elementary Education *Minor*—Special Education
 DUNCAN, DOROTHY DELORES *Major*—Elementary Education *Minor*—Physical Education
 EDWARDS, DARLENE *Major*—Elementary Education *Minor*—Physical Education
 ENGLISH, CORDELIA A. *Major*—Elementary Education *Minor*—Health Education
 FITZGERALD, DOROTHY COOK *Major*—Elementary Education *Minor*—Home Economics Education
 FITZGERALD, WILLIE L. *Major*—Administration *Minor*—Agriculture Education
 FORD, LEONA *Major*—Elementary Education *Minor*—Administration
 FRANCIS, HILDA BOULDIN *Major*—Elementary Education *Minor*—Health Education
 FRANCIS, VIOLA B. *Major*—Elementary Education *Minor*—Physical Education
 FRIDAY, HORTENSE JEANNETTE *Major*—Elementary Education *Minor*—Home Economics Education
 GARRETT, ALMA J. McDONALD *Major*—Elementary Education *Minor*—Physical Education
 GILES, MARGARET BURNIM *Major*—Home Economics Education *Minor*—Elementary Education
 GILES, RUBY LEE *Major*—Home Economics Education *Minor*—General Home Economics
 GRAY, WILMA OSCAR, SR. *Major*—Administration *Minor*—Education
 HACKNEY, OLIVIA *Major*—Elementary Education *Minor*—Administration and Supervision
 HALL, WILLARD EDWARD *Major*—Administration *Minor*—Mathematics
 HECTOR, MINTY L. *Major*—Elementary Education *Minor*—Health Education
 HENDERSON, ELNORA JENKINS *Major*—Home Economics Education *Minor*—Elementary Education
 HENRY MINNIE O. *Major*—Elementary Education *Minor*—Health Education
 HENRY, NETTIE E. *Major*—Elementary Education *Minor*—Health Education
 HICKS, GEORGE PRESTON *Major*—Administration *Minor*—Elementary Education
 HILL, CARRIE N. *Major*—Elementary Education *Minor*—Health Education
 HILLIARD, MOLLIE M. KEMP *Major*—Elementary Education *Minor*—Health Education
 HODGE, JULIA *Major*—Elementary Education *Minor*—Health Education
 HOLIDAY, CORDELIA S. *Major*—Elementary Education *Minor*—Health Education
 HOLLIS, IDA MAE *Major*—Elementary Education *Minor*—Home Economics Education
 JACKSON, EDITH C. SMITH *Major*—Elementary Education *Minor*—Health Education
 JACKSON, SARAH MAE *Major*—Elementary Education *Minor*—Health Education
 JOHNSON, DOROTHY FRAZIER *Major*—Elementary Education *Minor*—Administration
 JOHNSON, GEORGIA RENE SHAW *Major*—Administration *Minor*—Elementary Education
 JOHNSON, NAPOLEON *Major*—Elementary Education *Minor*—Health Education
 JOHNSON, VADA MAE *Major*—Elementary Education *Minor*—Physical Education
 JONES, ALVA LOIS *Major*—Home Economics Education *Minor*—General Home Economics
 JONES, EARL HERMAN *Major*—Administration *Minor*—Elementary Education
 JONES, PATSY L. *Major*—Home Economics Education *Minor*—Elementary Education
 KEATON, LEOLA M. *Major*—Elementary Education *Minor*—Supervision
 KING, WILLEOLA *Major*—Elementary Education *Minor*—Industrial Education
 KING, DOROTHY L. *Major*—Elementary Education *Minor*—Supervision
 LEWIS, MAGGIE NICKERSON *Major*—Elementary Education *Minor*—Supervision

LEWIS, OMEGA BARNWELL *Major*—Elementary Education *Minor*—Physical Education
 LOUDD, JOHNNIE ALEXANDER *Major*—Administration *Minor*—Elementary Education
 LYDAY, GLORIA LOUISE *Major*—Elementary Education *Minor*—Health Education
 LYNN, EARTHA MAE *Major*—Elementary Education *Minor*—Health Education
 McDOW, EULALIA *Major*—Elementary Education *Minor*—Health Education
 McGEE, RUTH MARY *Major*—Elementary Education *Minor*—Physical Education
 McKNIGHT, GEORGIA MARTHA *Major*—Elementary Education *Minor*—Business Education
 MANUEL, OPHELIA LAWRENCE *Major*—Elementary Education *Minor*—Physical Education
 MARTIN, H. EUNELL SADBERRY *Major*—Elementary Education *Minor*—Health Education
 MASON, GEORGE WILLIAM *Major*—Administration *Minor*—Elementary Education
 MASSEY, WILLIE HENRY *Major*—Administration *Minor*—Health Education
 MATHIS, EDELL MANUAL *Major*—Administration *Minor*—Elementary Education
 MILLER, EFFIE MARIE *Major*—Home Economics Education *Minor*—Elementary Education
 MOSLEY, CEOLA LAVERN *Major*—Elementary Education *Minor*—Health Education
 NATHAN, CORDELIA LEWIS *Major*—Elementary Education *Minor*—Health Education
 ORMAN, BILLIE EUGENE *Major*—Administration *Minor*—Elementary Education
 OWENS, THAY MYRTLE *Major*—Home Economics Education *Minor*—General Home Economics
 PETERSON, ATOY F. *Major*—Elementary Education *Minor*—Supervision
 PHEGANS, LESSIE LOUVERA *Major*—Elementary Education *Minor*—Administration
 PHOENIX, ETHEL GATES *Major*—Supervision *Minor*—Elementary Education
 PITTMAN, PAUL MITCHELL *Major*—Administration *Minor*—Elementary Education
 POLK, JESSE B. *Major*—Administration *Minor*—Agriculture Economics
 POLK, MATTHEW BRANCH *Major*—Administration *Minor*—Elementary Education
 POLLARD, FRANKIE BROWN *Major*—Administration *Minor*—Elementary Education
 POWELL, NELLIE G. *Major*—Home Economics Education *Minor*—Extension Education
 PRYOR, TOMMIE LEE *Major*—Elementary Education *Minor*—Health Education
 RHODES, JAMES JOSEPH *Major*—Elementary Education *Minor*—Administration
 RICHARDSON, JAMES ARMSTEAD *Major*—Administration *Minor*—Agricultural Economics
 ROBINSON, MAURINE *Major*—Home Economics *Minor*—Elementary Education
 ROSS, MIRIAM A. *Major*—Elementary Education *Minor*—Administration
 SADBERRY, GLADYS RUTH *Major*—Elementary Education *Minor*—Health Education
 SALONE, JEWELENE ROGERS *Major*—Elementary Education *Minor*—Health Education
 SAMPSON, JUANITA IDELL *Major*—Elementary Education *Minor*—Health Education
 SAMUEL, MILLER F. *Major*—Administration *Minor*—Agricultural Education
 SCOTT, THELMA D. *Major*—Home Economics Education *Minor*—Extension Education
 SHELBY, LAURA L. *Major*—Elementary Education *Minor*—Health Education
 SHIPMAN, ETHEL LEE *Major*—Elementary Education *Minor*—Home Economics
 SIMMONS, ZELMA LEE *Major*—Elementary Education *Minor*—Health Education
 SMILEY, ETTA H. *Major*—Elementary Education *Minor*—Health Education
 SMITH, HEARDIE M. *Major*—Elementary Education *Minor*—Home Economics
 SMITH, LENA LOLA *Major*—Elementary Education *Minor*—Administration
 SMITH, MAGGIE L. BRYANT *Major*—Elementary Education *Minor*—Health Education
 SNEED, BERNICE LOFTON *Major*—Elementary Education *Minor*—Health Education
 SPENCER, BESSIE MAE *Major*—Home Economics Education *Minor*—General Home Economics
 STEWARD, VERA L. DANIELS *Major*—Elementary Education *Minor*—Health Education
 TAYLOR, LYTLE LOUIS *Major*—Administration *Minor*—Elementary Education
 TEELE, FLORAZELLE SWAYZE *Major*—Elementary Education *Minor*—Supervision
 WALKER, MATTIE JEWEL *Major*—Elementary Education *Minor*—Health Education
 WALTON, LOIS HAZEL *Major*—Elementary Education *Minor*—Health Education
 WATSON, LILLIAN SNELGRO *Major*—Elementary Education *Minor*—Health Education
 WHITFIELD, LOLA MAE *Major*—Elementary Education *Minor*—Health Education
 WILLIAMS, ERMA B. MILLER *Major*—Elementary Education *Minor*—Health Education
 WILSON, PEGGY JO *Major*—Elementary Education *Minor*—Administration
 WILSON, VENORA B. *Major*—Elementary Education *Minor*—Special Education
 WINFIELD, MARCELLENE CLARK *Major*—Elementary Education *Minor*—Physical Education
 WRIGHT, ARTIEMESIE C. *Major*—Elementary Education *Minor*—Supervision
 WYNN, MOLLIE M. *Major*—Elementary Education *Minor*—Administration and Supervision
 YOUNG, CORNELIUS *Major*—Administration *Minor*—Elementary Education

MASTER OF SCIENCE

- ALEXANDER, ROSCOE *Major—Agricultural Economics Minor—Agricultural Education*
 THESIS: *Farm Tenancy and Its Influence on the Social and Economic Standards of Farmers in Leon County, Texas*
- ALLEN, JOHN W. *Major—Industrial Education Minor—Administration and Supervision*
 THESIS: *The Status of Industrial Education in the Public High Schools for Negroes in Texas*
- ALTON, ANNA B. DAVIS *Major—Home Economics Minor—Elementary Education*
 THESIS: *Provisions for Off Campus Student Teaching for Home Economics in Some Teacher-Training Institutions*
- ARNOLD, HELEN SMOOT *Major—Elementary Education Minor—Administration*
 THESIS: *Factors Associated with Absenteeism at Prairie View Elementary School*
- BROWN, GUS HENRY *Major—Industrial Education Minor—Physical Education*
 THESIS: *A Study of Relations of Vocational Interest to Intelligence, Mental Abilities, Curriculum Offerings and Occupational Opportunities of the Ninth Grade in Gibbons High School, Paris, Texas*
- BROWNE, REGINALD OSBY *Major—Agricultural Education Minor—Administration*
 THESIS: *The Role of the Vocational Agriculture Teacher in a Vocational Guidance Program in the A. M. Story High School, Palestine, Texas*
- CALDWELL, AZEE *Major—Agricultural Economics Minor—Administration*
 THESIS: *A Survey of the Conservation Practices of Fifty Negro Farmers in Lavaca County, Texas*
- CARR, WILBURN CULLEN *Major—Mathematics Minor—Education*
 THESIS: *A Representation of Quadratic Irrationals by Means of Continued Fractions*
- CHASE, SYLVESTER EVERTON *Major—Extension Education Minor—Agricultural Education*
 THESIS: *A Study of Recommended Practices for Small, Average, and Large Size Farms in Colorado County, Texas with a Proposed Agricultural Extension Program for this Area*
- CRAWFORD, MORRIS J. *Major—Agricultural Economics Minor—*
 THESIS: *An Historical Study of the Lower Colorado River Authority and Its Effect on the Farming Programs in Travis County, Texas*
- CRAWFORD, THERMAN C. *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *A Proposed Program of Vocational Agriculture in the Dixie Community, Smith County, Texas*
- CURRY, BISHOP BENJAMIN, JR. *Major—Agricultural Economics Minor—Administration*
 THESIS: *The Use of Agricultural Credit Facilities by Fifty Negro Farmers of Hopkins County, Texas*
- CURVEY, DOROTHY JEAN *Major—Physical Education Minor—Elementary Education*
 THESIS: *A Proposed Physical Education Program for Girls for Setegast High School, Houston, Texas*
- DERRY, DOLPHUS JAMES *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *A Plan to Increase Participation in Vocational Agriculture Classes in Area III*
- DORSEY, JEANETTE *Major—Elementary Education Minor—Health Education*
 THESIS: *Relationship Between Number Work and First Grade Children's Social Development*
- DYKES, GEORGE ETHYLN *Major—Administration Minor—Supervision*
 THESIS: *Social Adjustment Problems of Six-year Old Public School Beginners: An Exploratory Study*
- GARRETT, A. D. *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *A Study of the Factors Affecting the Average Daily Attendance and Causing Drop-Outs in the Vocational Agriculture Department in the C. H. Daniel High School, Center, Texas*
- FAVORS, NAOMA L. *Major—Elementary Education Minor—Supervision*
 THESIS: *A Proposed Guide to Citizenship Through Student Government for N. W. Horlee School, Dallas, Texas*
- GUIDKY, ARREADER PLEANA *Major—Guidance Minor—Special Education*
 THESIS: *A Survey of the Methodology for Evaluating the Counseling Outcomes*
- HARDEWAY, ARISTA LUCILLE *Major—Supervision Minor—Elementary Education*
 THESIS: *An Analysis of the Supervisory Program for Language Arts in the H. S. Thompson Elementary School, Dallas, Texas*
- HARDEWAY, WHEELER *Major—Supervision Minor—Administration*
 THESIS: *A Suggested Program of Pupil Personnel Accounting Practices for the Dunbar High School in Mineral Wells, Texas*
- HARPER, McNOBLE *Major—Agricultural Education Minor—Administration*
 THESIS: *A Study of the Sociological Effect of the Agricultural Situation in the Rambo Community, McLeod, Texas During the Period 1905-1955*
- HAYES, LUTHER TALIAFERRO *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *Some Empirical Practices Among Negro Farmers in Marion County, Texas and Their Implications for Vocational Agriculture*
- HESTER, WILLA A. *Major—Education Minor—English*
 THESIS: *The Utilization of Available Facilities for the Improvement of Living Conditions in Rose Hill Community, Jasper County, Mississippi*
- HILL, BOOKER T. *Major—Agricultural Economics Minor—Administration*
 THESIS: *An Economic Study of the Farming System of Fifty Farmers of Rusk County, Texas*

- JONES, MARION TANIRICE Major—Physical Education Minor—Health Education
 THESIS: *Criteria for the Evaluation of Health, Physical Education and Athletics at I. M. Terrell High School of Fort Worth, Texas*
- JEFFERSON, CALVIN B. Major—Agricultural Economics Minor—Elementary Education
 THESIS: *Tenancy as it Affects the Negro*
- JONES, WILLIE EDWARD Major—Agricultural Economics Minor—Administration
 THESIS: *Marketing of Tomatoes in Gregg County, Texas*
- LEVY, JULIA MARY Major—Home Economics Education Minor—Elementary Education
 THESIS: *Responsibilities Assumed by Some Junior High Schools in Purchase and Care of Their Clothing*
- LILLY, DOUGLAS P. Major—Extension Education Minor—Agricultural Education
 THESIS: *A Follow-Up Study of the Occupation Pursuits of Participants in 4-H Club Work in Oklahoma County, Oklahoma From 1940-55*
- LOUDD, CARRIE JENKINS Major—Extension Education Minor—Administration
 THESIS: *An Appraisal of the Effectiveness of 4-H Club Work with Recommendations for Improving the Program of Grimes County, Texas*
- LYONS, MAURICE EUGENE Major—Agricultural Education Minor—Administration
 THESIS: *The Effect of Motion Pictures on Learning in Anderson County, Texas Based on a Survey of One Hundred and Twenty High School Students*
- MCCLELLAN, MYRTLE THOMAS Major—Home Economics Education Minor—General Home Economics
 THESIS: *A Survey of the Housing Need of Selected Homemakers in the Patronage Age of Bragg Morris High School, Lindale, Texas*
- MCCLELLAN, VAN BUREN Major—Agricultural Education Minor—Administration
 THESIS: *The Influence of Technical Agricultural Agencies on Farm Operators in Winona, Smith County, Texas*
- MCKNIGHT, GLENDA LEE Major—Physical Education Minor—Elementary Education
 THESIS: *Proposed Plan for Grading and Evaluating of High School Girls Physical Education Program*
- MEADERIS, ROBERT LEE Major—Physical Education Minor—Health Education
 THESIS: *Flexibility of Athletes and Non-Athletes in George Washington Carver High School, McGregor, Texas*
- MERCER, GEORGE, JR. Major—Biology Minor—Administration
 THESIS: *Observations on the Stages of Development of *Balaninus (Curculio) Larva to Adult**
- MILLER, JOSEPH LEE Major—Agricultural Economics Minor—Agricultural Education
 THESIS: *An Economic Study of Broiler Production in Walker County, Texas*
- MOORE, THERESA DEBRUHL Major—Elementary Education Minor—Health Education
 THESIS: *A Diagnostic Study and Remedial Treatment of the Most Frequent Difficulties in Arithmetic Among Seventh Grade Pupils of Booker T. Washington Elementary School, Galveston, Texas*
- PALMER, HATTIE DELORES Major—Biology Minor—Health Education
 THESIS: *The Effect of Emulsion of Four Species of Acorn on the Germination of Radish Seeds*
- PHILLIPS, CECIL AUGUSTUS Major—Physical Education Minor—Health Education
 THESIS: *A Philosophical Study of the Pros and Cons of Little League Baseball for Boys*
- PRICE, EDWARD LEON Major—Physical Education Minor—Health Education
 THESIS: *A Proposed System for the Purchase Care of Athletic Equipment*
- PROCTOR, ELIZA JANE Major—Supervision Minor—Elementary Education
 THESIS: *A Suggested Program for Utilizing Community Resources in Instruction in the Woodland Elementary School, Mexia, Texas*
- ROBERTS, LEE LOUIS Major—Mathematics Minor—Physical Education
 THESIS: *Some Classifications of Several Types of Transformations*
- ROBINSON, JOE N. Major—Agricultural Engineering Minor—Agricultural Economics
 THESIS: *A Study and Calibration of Submerged Weir*
- ROBINSON, MARVIN RODNEY Major—Agricultural Economics Minor—Agricultural Education
 THESIS: *A Study of the Use of Credit Resources by Negro-Farm Families of Shelby County, Texas*
- ROGERS, OLAND G. Major—Biology Minor—Health Education
 THESIS: *A Classification of Frogs and Inhabiting Helminths Found in Camp County, Texas*
- ROSS, SHELLY ROCKINGHAM Major—Biology Minor—Education
 THESIS: *Spermatogenesis in the Mole Cricket*
- SCOTT, ALTON EUGENE Major—Agricultural Economics Minor—Administration
 THESIS: *The Marketing of Farm Products in Fall County, Texas*
- SINGLETARY, WILLIE LAVACA Major—Agricultural Engineering Minor—Administration
 THESIS: *A Study of Farm Water Supply and Uses in the Southeast Section of East Texas*
- SMITH, DORA LEE Major—Home Economics Education Minor—Administration
 THESIS: *A Study of Home Experiences in Meal Planning and Preparation of Foods of Carver High School Homemaking Girls in Lockhart, Texas*

- SMITH, GEORGE LEE, JR. *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *A Historical Study of 4-H Club Work in Texas*
- SPATES, CLIFFORD CULLEN *Major—Physical Education Minor—Health Education*
 THESIS: *A Proposed Program of Physical Education for Boys at Dunbar High School*
- SPENCER, MYRTLE BLEDSOE *Major—Home Economics Education Minor—General Home Economics*
 THESIS: *A Program of Parental Education in the Public Schools of Tyler, Texas*
- TAYLOR, FANNIE JACKSON *Major—Extension Education Minor—Home Economics*
 THESIS: *A Study of 4-H Clubs in Brazos County with Recommendations for Meeting in the Needs of Youth in A Democracy in Brazos County, Texas*
- THOMAS, GEORGIANA A. *Major—Extension Education Minor—Elementary Education*
 THESIS: *A Proposed Plan to Improve Farm and Family Living Based on a Survey of Fifty Farm Families in Fort Bend County, Texas*
- TYLER, FINUS ODELL *Major—Agricultural Education Minor—Agricultural Economics*
 THESIS: *A Proposed Supervised Farming Program for the Agricultural Students of the Austin County High School*
- WARE, LIONEL ALVIN *Major—Mathematics Minor—Education*
 THESIS: *Solutions of Certain Systems of Linear Differential Equations*
- WASHINGTON, EDDIE PANNELL *Major—Extension Education Minor—Home Economics Education*
 THESIS: *A Study of the Home Management Program of Forty Negro Families in Washington County, Texas*
- WASHINGTON, THOMAS JEFFERSON *Major—Mathematics Minor—Administration*
 THESIS: *Properties and Applications of Rational Functions*
- WELLS, JOHN ANNA *Major—Elementary Education Minor—Health Education*
 THESIS: *Enriching or Extending the Classroom Environment by Educational Travel*
- WHEELER, ELISHA EARL *Major—Extension Education Minor—Agricultural Education*
 THESIS: *A Survey to Evaluate Certain Proposed Types of Leader Training Activities by Negro Rural Community Leaders in Union County, Arkansas*
- WILLIAMS, EXIE VERNICE *Major—Mathematics Minor—Education*
 THESIS: *Finite Summation of Series*

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27	28	29	30	31	24	25	26	27	28	24	25	26	27	28	29	30	28	29	30
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MAY							JUNE							JULY							AUGUST						
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SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
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JANUARY							FEBRUARY							MARCH							APRIL						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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MAY							JUNE							JULY							AUGUST						
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SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
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