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**SEPTEMBER 1958**

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**Announcements  
For 1958-1959**

**Nashville, Tennessee**

# **BULLETIN**

**TENNESSEE  
AGRICULTURAL AND INDUSTRIAL  
STATE UNIVERSITY**

## **ANNOUNCEMENTS**

**1958 - 59**

**VOLUME XLVI**

**NUMBER 2**

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**NASHVILLE, TENNESSEE**

**SEPTEMBER, 1958**

## ACADEMIC YEAR 1958-59

### Fall Quarter 1958-59

September 15, Monday.....Faculty Meeting (10:00 a.m.)  
 September 16-21, Tuesday-Sunday.....Freshman Week Program  
 September 17-18, Wednesday-Thursday.....Registration for Upper Classmen  
 September 19, Friday.....Registration for Freshmen  
 September 20, Saturday.....General Registration  
 September 22, Monday.....Classes Begin  
 September 29, Monday.....Opening Convocation  
 October 23-24, Thursday-Friday.....Mid-Term Examinations  
 November 27-29, Thursday-Saturday.....Thanksgiving Holidays  
 December 3-6, Wednesday-Saturday.....Examinations, Fall Quarter

### Winter Quarter 1958-59

December 8, Monday.....Registration, Winter Quarter  
 December 9, Tuesday.....Classes Begin  
 December 20, Saturday (12:00 noon).....Christmas Recess Begins  
 January 5, Monday.....Classes Resume  
 January 29-30, Thursday-Friday.....Mid-Term Examinations  
 March 9-12, Monday-Thursday.....Examinations, Winter Quarter  
 March 13-14, Friday-Saturday.....Spring Recess

### Spring Quarter 1959

March 16, Monday.....Registration, Spring Quarter  
 March 17, Tuesday.....Classes Begin  
 April 22-23, Wednesday-Thursday.....Mid-Term Examinations  
 May 25-28, Monday-Thursday.....Examinations, Spring Quarter  
 May 29, Friday.....University Day  
 May 31, Sunday.....Baccalaureate  
 June 1, Monday.....Commencement

## SUMMER SESSION 1959

### First Term

June 8, Monday.....Registration  
 June 9, Tuesday.....Classes Begin  
 July 9-10, Thursday-Friday.....Examinations, First Six Weeks

### Second Term

July 11-13, Saturday-Monday.....Registration  
 July 14, Tuesday.....Classes Begin  
 August 13-14, Thursday-Friday.....Examinations, Second Six Weeks  
 August 9, Sunday.....Baccalaureate-Commencement Exercises

● CALENDAR FOR 1958 ●			
<b>JANUARY</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>APRIL</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	<b>JULY</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>OCTOBER</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
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● CALENDAR FOR 1959 ●			
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● CALENDAR FOR 1960 ●			
<b>JANUARY</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>APRIL</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>JULY</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>OCTOBER</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
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## ACADEMIC ORGANIZATION OF THE UNIVERSITY

### GRADUATE SCHOOL

Department of Administration, Curriculum, and Instruction  
Department of Agricultural Education  
Department of Animal Science  
Department of Biology  
Department of Business: Business Education - Major  
Business Administration - Minor  
Department of Chemistry  
Department of English  
Department of Health and Physical Education  
Department of Modern Foreign Languages  
Department of Plant Science  
Department of Psychology  
Department of Science Education  
Department of Social Sciences: History

### SCHOOL OF AGRICULTURE AND HOME ECONOMICS

Department of Agricultural Education  
Department of Animal Science  
Department of Home Economics  
Department of Plant Science

### SCHOOL OF ARTS AND SCIENCES

Department of Biology  
Department of Chemistry  
Department of English  
Department of Modern Foreign Languages  
Department of Physics and Mathematics  
Department of Science Education  
Department of Social Sciences  
Department of Speech and Drama

### SCHOOL OF EDUCATION

Department of Administration, Curriculum, and Instruction  
Department of Art and Music Education  
Department of Business  
Department of Health and Physical Education  
Department of Psychology

### SCHOOL OF ENGINEERING

Department of Architectural Engineering  
Department of Civil Engineering  
Department of Electrical Engineering  
Department of Industrial Education  
Department of Mechanical Engineering

### DEPARTMENT OF AIR SCIENCE

(Reserve Officers' Training Corps)

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### ACCREDITATION

Tennessee Agricultural and Industrial State University is accredited by the Southern Association of Colleges and Secondary Schools, The National Council for Accreditation of Teacher Education, The American Association of Schools of Social Administration, and the Teachers College Association of Extension and Field Services.

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\*Deceased  
 \*\*On Leave  
 \*\*\*Resigned

## THE UNIVERSITY

### Historical Statement

Agricultural and Industrial State Normal School at Nashville was opened on June 19, 1912, under an act of the General Assembly of 1909, which authorized the establishment of the State Normal Schools of Tennessee.

In 1922, the institution was raised to the status of a four-year teachers college and was empowered to grant the bachelor's degree. The first degrees were granted in June, 1924. During the same year, the institution became known as the Agricultural and Industrial State Normal College; and in 1927, "Normal" was dropped from the name of the College.

The General Assembly of 1941 authorized the State Board of Education to upgrade substantially the educational program of the College which included the establishment of graduate studies leading to the master's degree. Graduate curricula were first offered in several branches of teacher education. The first master's degree was awarded by the College in June, 1944.

In August, 1951 the institution was granted university status by approval of the State Board of Education. The reorganization of the institution's educational program included the establishment of the Graduate School, the School of Arts and Sciences, the School of Education, and the School of Engineering. Provisions were also made for adding schools later, respectively in agriculture, business and home economics.

The University is supported from State and Federal funds; the latter in accordance with the Morrill and other Federal Acts which provide funds for land grant institutions.

### Purposes of the University

As a public institution of higher education, the University is obligated to provide training in the intellectual and technical skills and to perform educational services in terms of the needs that the people of Tennessee have envisioned for themselves. The immediate objectives of the University are:

- I. To offer as complete a program of work as possible in the fields of general and applied knowledge as commonly represented by schools of arts and sciences, agriculture, business, education, engineering, home economics, and graduate studies in all of these fields.
- II. To offer adequate opportunity for the education of citizens who may make maximum contributions toward the development of the human and natural resources of Tennessee and elsewhere.
- III. To develop leadership in all branches of the educational programs and services provided by the University.
- IV. To perform all of the services and functions set forth for land-grant institutions.

## The Campus

The University is located in northwest Nashville, with the central campus on Centennial Boulevard at 35th Avenue. Its campus, farm lands and pastures occupy 450 acres of scenic rolling grounds and fertile fields extending to the southwest banks of the Cumberland River.

The central campus consists of more than thirty permanent modern buildings in a landscape design that rivals the most beautiful campuses in the South.

### MAJOR BUILDINGS AND EQUIPMENT

*The Administration Building* is located on the south campus near Centennial Boulevard between 35th and 36th Avenues. It contains the chief administrative offices, some instructional staff offices, classrooms, the general auditorium, which accommodates approximately one thousand persons, the Little Theatre for student productions in drama, the bookstore, a branch of the U.S. Post Office, a swimming pool, and a gymnasium.

*The Martha M. Brown Memorial Library*, erected in 1927 and enlarged and modernized in 1950, is located near the center of the main campus on the north side of Centennial Boulevard. The present structure has a total capacity of 120,000 volumes and provides special rooms and facilities for undergraduate and graduate studies, conference and seminar rooms, lounges and other accommodations for the faculty and staff.

*The Harned Hall of Science*, erected in 1927, is located on the north campus, east of the library. It provides classrooms, lecture auditoriums, modernly equipped laboratories, staff offices and other facilities for instruction and research in biology, chemistry, physics, mathematics, and the general science studies.

*The Jim Nance McCord Building*, erected in 1950, is located on the south side of the campus at Centennial Boulevard and 35th Avenue. Its modern laboratories contain equipment for instruction and research in mechanics, combustion, electronics, foundry, hydraulics, building and construction, and civil engineering. Other accommodations include a lecture auditorium, classrooms, and offices.

*The Industrial Building* is located on the south side of the campus at Centennial Boulevard and 35th Avenue. It contains a variety of modernly equipped laboratories, shops, and classrooms for metal work, plumbing, welding, refrigeration, radio, electricity, and business. Several instructional staff offices and the office of the adviser to veteran students are also located in this building.

*The Mechanical Engineering Building*, erected in 1950, is situated on the northwest campus. It contains a modern heating plant, laboratories and offices for instruction in stationary engineering.

*The Vocational Shops Building*, located on the north side of the campus, contains shops for auto and aerial mechanics and facilities for flight instruction.

*The Jane E. Elliott Building* is located west of the University library on the north campus. The building contains the cafeteria, laboratories, lecture rooms, work rooms and studios for the fine arts and crafts, home economics, business education and administration, music, nursery school, and the office of Public Relations and Alumni Affairs.

*The W. W. Lawson Agricultural Building*, erected in 1956, is located on the north side of the campus adjacent to the University agricultural laboratories. This building contains classrooms and laboratories equipped for teaching and research in scientific agriculture.

*The Agricultural Laboratories and Experimental Units* include the modern dairy barn, stock pavilions, farm shops, animal shelters, a modern walking horse barn, agronomy experimental plots, and a greenhouse.

*The Frank A. Young Poultry Plant*, erected in 1951 at the cost of \$104,000, is located on the southwest side of the main campus. It consists of eighteen

major and minor buildings, with ranges for various kinds of poultry, including water fowl. The Plant has the most modern equipment for teaching and experimental work in incubation, brooding, laying, nutrition, genetics, disease diagnosis and control, and poultry grading and marketing.

*The Henry Arthur Kean Hall*, erected in 1951 at the cost of \$1,500,000, is located on the south side of the campus at Centennial Boulevard and 33rd Avenue. This modern structure contains a gymnasium with a seating capacity of 4,500; health and physical education classrooms and laboratories; staff offices; and facilities for indoor intramural sports, staff and student recreation, and physical therapy.

*The William J. Hale Field House and Stadium* are located on the northeast campus at Centennial Boulevard and 33rd Avenue. The Field House is a modern stone structure which contains accommodations for visiting athletes and offices and classrooms for the Air Force ROTC unit. The Stadium is equipped for night games and has a seating capacity of 6,000. The turf provides for several kinds of athletic events including football, baseball, and major and minor track sports.

*The Temporary General Classroom Building* was constructed to accommodate the increased student class loads during and immediately following the war years. It also contains instructional staff offices.

*The Student Health Service Building*, located west of the women students' dormitories, has facilities for complete examination and limited treatment for students. It contains two wards for the accommodation of six women and six men students respectively.

*Hale Hall*, located west of the University library, is a modern three-story fire proof residence hall for women students.

*Wilson Hall*, located north of Hale Hall, accommodates women students.

*East Dormitory*, located on the northeast part of the campus, accommodates women students.

*Edna Rose Hankal Hall*, erected in 1957, is located on the north side of the campus. It is a modern three-story residence hall for women students. The building is equipped with modern conveniences for comfortable and wholesome living.

*Clement Hall*, erected in 1957, is located on the southeast side of the campus. This residence hall is a three-story building providing conveniences for modern living.

*Veterans' Hall* consists of two units of temporary buildings for the housing of men.

*The President's Home* is a modern colonial type residence located north of Harned Hall.

*The Alumni Building*, located on the southeast campus, presently contains accommodations for faculty families and guest rooms for alumni and official visitors to the University.

*Veteran Teachers Apartments* are located on the south side of the campus for temporary accommodations of a limited number of faculty families.

*Faculty Women's Residence Hall*, located on the north campus, is a modern three-story building for the accommodation of single faculty women.

*The Education Building*, erected in 1958, is located on the south side of the campus at Centennial Boulevard and 35th Avenue. It is a modern three-story air conditioned building equipped with classroom and special laboratories; Business Education, Health and Physical Education and Music Education in Education; Industrial Arts Education in Engineering; and Agricultural Education and Home Economics Education in Agriculture and Home Economics.

*The Faculty Cottages* include four modern homes on the north side of the campus and nine homes adjacent to the central campus on 28th Avenue, North.

*The Recreation Hall*, located on the northwest side of the campus, contains second-floor apartments for faculty families and a recreation center for students on the first floor.

## ORGANIZATION OF INSTRUCTIONAL SERVICES OF THE UNIVERSITY

### The Undergraduate Program

Undergraduate majors leading to the bachelor's degree may be pursued as follows:

**AGRICULTURE AND HOME ECONOMICS:** Agricultural Education, Animal Science, Biochemistry, Foods and Nutrition, Home Economics Education, and Plant Science.

**ARTS AND SCIENCES:** Biology, Chemistry, English, History, Mathematics, Physics, Political Science, Romance Languages, Science Education, Social Administration, Speech and Drama, and Sociology.

**EDUCATION:** Business Administration, Business Education, Elementary Education, Health and Physical Education, Music Education, and Psychology.

**ENGINEERING:** Architectural Engineering, Civil Engineering, Electrical Engineering, Industrial Arts Education, and Mechanical Engineering.

Areas of endorsement for secondary school certification are as follows:

**AGRICULTURE AND HOME ECONOMICS:** Home Economics Education and Agricultural Education.

**ARTS AND SCIENCES:** English, History, Mathematics, Political Science, Romance Languages, Science Education, Speech and Drama, and Sociology.

**EDUCATION:** Business Education, Health and Physical Education, and Music Education.

**ENGINEERING:** Industrial Arts Education.

Two and three year professional curricula are offered toward preparation for the study of medicine, dentistry, nursing, and clinical laboratory technology.

Courses in Air Science are offered in connection with the Air Force Reserved Officers' Training Corps program at the University.

### The Graduate Program

Graduate majors leading to the master's degree may be pursued as follows: Administration and Supervision, Agricultural Education, Animal Science, Business Education, Chemistry, Elementary Education, English, Health and Physical Education, History, Plant Science, Psychology, Romance Language, Secondary School Instruction, Science Education, and Zoology.

## STUDENT PERSONNEL SERVICES

The Student Personnel Services program aims to assist the student in developing the skills, attitudes, understandings, and insights which will assure full expression of his powers as a whole, dynamic person. Emphasis is on university relationships and experiences complementing formal instruction.

Reaching the interest, needs, and purposes of all students for superior educational, social, vocational, and cultural orientation, adjustment, and growth involves the supplemental and coordinate planning of numerous university officials, faculty and staff members; among them are the Dean of Students, the Associate Dean of Students, the Dean of Men, the Dean of Women, the Registrar, the Director of Student Health Service, the Deans of Schools and Heads of Departments, the Director of the Placement Bureau, Director of Veterans Affairs, Director of Housing, Directors of Residence Halls, Director of Food Service, Director of Off-Campus Housing, supporting counselors such as major advisers, advisers to foreign students; directors of university agencies and organizations affecting the welfare of students; committees such as the Guidance Committee, the Freshman Week Committee, Social Committee, the Decorum Committee, the Faculty Advisory Committee; and consultant specialists in medicine, psychiatry, psychology, social work, community relations, and vocational choice and placement.

## THE DEAN OF STUDENTS

The Dean of Students is the officer of the University charged with the supervision and coordination of all Student Personnel Services.

## COUNSELING AND GUIDANCE

Upon being admitted to the University, each student is assigned by the Registrar on the basis of the student's choice of school to the Dean of that School, who refers the student to the head of the major department for guidance. The department head assigns every student majoring in the department to a teacher in the department known as the major adviser.

The responsibility for the selection of courses rests, in the final analysis, upon the student; and it is not the province of the adviser to refuse approval of the course which the student is entitled to elect. Similarly, it is the primary duty of the student to pursue courses in their proper order to meet the requirements for graduation. When the student registers for each quarter, he is required to consult his adviser concerning his choice of studies and must obtain written approval of the adviser on all schedules to be pursued. The student is urged, further, to confer with his adviser frequently, at least monthly, during each quarter.

Major advisers counsel students not only in curricular or educational matters but give attention to varied personal and inter-personal problems of students—health, financial adjustment, social adjustment, vocational choice and proposed after-college adjustment to life.

Major advisers who counsel freshman students assist the students with innumerable matters such as adaptation to new ideas, how to study, health and emotional adjustment, budgeting time and money, extraclass activities, and residence hall and home relationships.

In solving specific problems, the Dean of Students assists students individually and in groups directly and by referral to responsible offices listed in the Student Personnel Services Directory and/or appropriate on-campus or off-campus sources of assistance.

Tests and inventories are available for use with all students. These include tests of mental ability, aptitude and achievement, personality, and vocational inventories.

## UNIVERSITY COUNSELORS

University Counselors are sophomores, juniors, and seniors who, because of their leadership ability, have been chosen to assist with the orientation of freshmen and other phases of the university guidance program. The University Counselors include two groups: the Senior Counselors, who have had more than one year's experience as student counselors, and the Junior Counselors, who have had less than a year's experience as student counselors.

## FRESHMAN WEEK

All freshmen are expected to be at the University the week preceding the beginning of instruction in September and to remain throughout the week. The week is devoted to lectures and discussions on subjects of importance to new students, conferences with advisers and counselors, health examinations, interest inventories, tests of mental ability, aptitude and achievement, and registration and enrollment on classes.

### Freshman Placement Examinations

During Freshman Orientation Week, freshman students are given the following placement tests: mental ability, reading, English, mathematics, and an interest inventory. The tests are scored and processed in the University Testing Bureau, and the results for each student are reported on an individual profile chart showing the student's percentile rank on each test.

The student's adviser uses the profile chart as a basis for educational guidance. Students who show deficiencies in the above subject areas are given an opportunity to remove the deficiency. The English department and the mathematics department offer non-credit courses for freshman students who show a deficiency in English or mathematics.

## PSYCHO-EDUCATIONAL CLINIC

The Psycho-Educational Clinic, under the direction of the head of the department of psychology, offers educational guidance based on test results with particular emphasis on correcting reading difficulties.

**Children's Level:** (A series to public schools) Mental testing and diagnosis of learning disabilities, with recommendations for treatments.

**College Level:** Educational guidance based on mental testing, aptitude testing, and interest and personality inventories. Diagnosis of academic failure on the college level and counseling relative to removing the cause of failure.

**How to Study:** (Psychology 100) Non-credit course, required of psychology majors, open to other students interested in developing correct study habits.

Advanced psychology majors and graduate students in education may receive credit for supervised work in the Psycho-Educational Clinic.

## THE COMMUNICATIONS CLINIC

The Communications Clinic is a University center at which work in reading, writing, speaking and listening is integrated for the purpose of helping students to improve in their communication through language. The Clinic was established to supplement class work by providing for more specialized attention to individual problems of communication skills.

The Clinic is open to all students of the University. In addition to clinical experience for students who may be deficient in communication skill, much of the work of the Clinic is devoted to students who need additional training in language skills to assure maximum benefit from university experiences. A part of the writing program is designed for seniors and graduate students who require special counsel concerning research reports.

Students may remain in the Clinic as long as they show a need for improvement, and respond favorably to corrective procedures.

## THE STUDENT HANDBOOK

The student handbook is a means of facilitating communication among the members of the University. It serves as a source of necessary and useful information which will help the student understand his privileges, rights, and responsibilities pertaining to student affairs. The handbook contributes to the high level of cooperative and constructive relationships between students and the various departments of the University.

## LIVING ACCOMMODATIONS

### On-Campus

All residence halls provide opportunities for personal, social, and intellectual companionships and experiences in group living.

Housing facilities for women are provided in Hale Hall, Wilson Hall, Edna R. Hankal Hall and East Hall and for men in Clement Hall, Veterans Halls, and College Hill Housing Unit for University Men.

Rooms are furnished with twin beds or double decker beds, dressers, study tables, and straight chairs. Each student who has been approved for living in one of the residence halls should bring a pillow, pillow cases, sheets, bedspreads, blankets, two pairs of curtains, towels, dresser and table covers, and any other accessories which will make his room more comfortable and attractive.

### Off-Campus

There are a limited number of University-approved homes in the city where students may live. All off-campus housing is to be approved by the Office of the Supervisor of Off-Campus Housing.

Students who live in homes in the city are expected to maintain the same general standards required of students who live on the campus.

## CAFETERIA

The University Cafeteria serves three meals daily, Monday through Friday, and two meals daily on Saturday and Sunday. The meals are well balanced and excellently prepared and are served cafeteria style. Students who live on the campus are expected to purchase a "meal ticket" for each quarter in residence.

Those individuals taking meals in the University Cafeteria will be expected to take their meals during the regular meal hours.

Schedule of meal hours will be posted on residence hall bulletin boards.

## STUDENT HEALTH SERVICE

The University maintains a Health Service for students. This service includes a physical examination of all entering students, a follow-up of examinations, and regularly scheduled medical and dental clinics. The Student Health Center offers twenty-four hour service with facilities for hospitalization of students confined by illness. These services are provided by a staff of physicians and registered nurses.

## RECREATION

Recreation facilities include the lake areas on the southwest campus, a recreation center, indoor and outdoor swimming pools, an athletic field equipped for night activities, a gymnasium, a bridle path, Tennessee walking horses and American saddle horses.

In addition to the above, Kean Hall provides the following facilities: archery range, six badminton courts, basketball courts, boxing and wrestling room, bowling alleys, dancing studio, deck tennis, gymnasium, indoor play fields, inside handball court, recreation rooms, three shuffleboard courts, five volleyball courts, and a tennis court.

## STUDENT ORGANIZATIONS AND ACTIVITIES

A well balanced program of activities is available to students at the University. Cultural, social and recreational activities are sponsored, particularly by the Lyceum, Social and Athletic Committees, the Student Councils, Department of Speech and Drama, and Department of Art and Music Education. Outstanding concert artists, speakers, orchestras, and dramatic productions are brought to the campus.

Intelligent and active participation in a reasonable number of extra-class activities provides opportunity for leadership, cooperation, and fellowship as well as the development of desirable skills, attitudes, appreciation and modes of behavior.

### Student Government

The Student Council, the key student organization, shares with the administration in planning and regulating student affairs. It appoints student representatives to University committees, stimulates student participation in campus life and recommends student organizations to the administration for official recognition.

### Student Publications

THE METER, a monthly publication of the student body, endeavors to keep students informed of the activities of the University and provides opportunity for the expression of student ideas and opinions.

THE TENNESSEAN is the University yearbook.

### Athletic Organizations

Varsity and intramural athletics are promoted. (See Department of Health and Physical Education.) The "T" Club is composed of men and women students who have won the University Letter in a major sport. The Women's

Athletic Association is open to all women students of the University who meet the requirements of the association.

#### Class Organizations

University classes (Sophomore, Junior, and Senior) organize in the spring quarter. The incoming Freshman class is organized in the fall quarter. At the meetings throughout the year, plans are made for social and other class programs. In the fall quarters, students in the Graduate School organize the Graduate Club.

#### Departmental Organizations

Departmental organizations at the University include:

*AFROTC Drill Team ("Tiger Jets")*. For outstanding cadets who possess desirable leadership potential.

*AFROTC Society*. A social organization open to all enrolled cadets.

*American Chemical Society*, Student Affiliate Chapter. For majors in Chemistry.

*American Society of Agronomy*. For majors in Agriculture.

*Angel Flight*. An organization of female students who promote interest in the activities of the AFROTC Program.

*Arnold Air Society*. A national AFROTC organization for outstanding cadets enrolled in the AFROTC Course.

*Association for Childhood Education International*. For Elementary Education majors.

*Biology Club*. For Biology majors.

*Future Business Leaders of America*. For Business Administration majors.

*Future Teachers of America*. For Education majors.

*Hepermots*. For Health, Physical Education and Recreation majors.

*History Study Club*. For History majors.

*Home Economics Club*. For Home Economics majors.

*Industrial Arts Club*. For Industrial Education majors.

*Les Amis de la France*. For students of French.

*Los Buenos Vecinos*. For students of Spanish.

*Mathematics Club*. For majors and minors in Mathematics.

*Music Education National Conference, Chapter 381*. National organization for majors in Music.

*National Technical Society*. For Engineering majors.

*New Farmers of America*. For Agriculture majors.

*Psychology Club*. For Psychology majors.

*Social Science Club*. For Political Science, Sociology, and Social Administration majors.

*Student Affiliate Chapter of American Chemical Society*. For Chemistry majors.

*Town Hall*. For all students. An organization dedicated to the discussion of current public issues.

*TSU Aero Tigers*. For Aviation Education majors.

*Women's Intramural Board*.

*Women's Athletic Association*.

#### Departmental Publications

The departmental student publications include:

*The Bio-Log*, published monthly by the Biology Club.

*The Test Tube*, published monthly by the Student Affiliate Chapter—American Chemical Society.

*Weekly Bulletin*, published by the AFROTC.

#### Fraternities and Sororities

The following national social Greek letter fraternities have chapters at the university: Alpha Phi Alpha, Kappa Alpha Psi, Omega Psi Phi, Phi Beta Sigma. Their respective pledge clubs are the Sphinx Club, Scrollers Club, Lampados Club, and Crescent Club.

The following national Greek letter sororities have chapters at the University: Alpha Kappa Alpha, Delta Sigma Theta, Sigma Gamma Rho, Zeta Phi Beta. Their respective pledge clubs are the Ivy Leaf Club, Pyramid Club, Aurora Club, and Archonian Club.

#### The Inter-Fraternity Council

The Inter-Fraternity Council exists at the University to promote greater understanding and cooperation among the fraternities and sororities; to serve as an instrument through which the fraternities and sororities and the general administration of the University may cooperate in aiding the organization to maintain high standards of intellectual and social achievement; to formulate and recommend actions of the Council; and to administer, under the jurisdiction of the Student Council, such regulations as are deemed necessary for the common interest of all fraternities and sororities.

#### Religious Organizations and Activities

The University is a public supported institution and teaches no creed in its classrooms. However, several religious organizations and activities are on the campus for the purpose of helping students recognize the resources of religion and practice a desirable philosophy of life. The religious organizations and activities of the University include the Student Christian Association, Baptist Student Union, Canterbury Club, Clericus, Newman Club, Methodist Student Movement, Inter-Faith Council, Sunday School, Quiet Hour, Sunday Morning Worship Service, Westminster Fellowship, and Religious Emphasis Week.

#### Residence Hall Organizations

The students in each residence hall are organized in a Residence Hall Council. These organizations regulate, as far as possible, all matters pertaining to problems and privileges of the residents.

#### Speech and Dramatic Organizations

The Speech and Dramatic organizations of the University include:

*Children's Theatre*. Open to campus and community children.

*Literary Guild*. Open to all students.

*Laboratory Players*. Open to all students, under direction of Speech and Drama majors.

*TSU Players' Guild*. Open to all students.

*Youth Theatre*. Open to campus and community youth.

#### Musical Organizations

Musical organizations at the University include:

*A Cappella Choir*. For Music majors.

*Meistersingers*. Open to all students.

*String Club*. Open to all students and faculty members.

*University Marching and Concert Bands*. Open to students of Music.

#### Student Employment

The University attempts to provide part-time employment for a limited number of students who establish needs for financial assistance, and who, by their scholarship records, appear capable of making satisfactory grades as work-aid students.

Inasmuch as the first year is one of general adjustment to university life and studies, entering freshman students are advised not to seek employment on the campus or in the city.

Students who desire part-time work may apply at the Office of Student Work-Aid.

Students who are interested in obtaining part-time employment in the city may make inquiries at the University Placement Bureau.

The University may deny a student the privilege of working if such employment jeopardizes the welfare of the student or the University in any manner.

### NATIONAL HONOR SOCIETIES

The National Honor Societies of the University include:

*Alpha Kappa Mu Honor Society, Phi Beta Tau Chapter.* An organization open to students of Junior Class standing or above with a cumulative average of 3.3 or above.

*Beta Kappa Chi Scientific Society, Xi Chapter.* An organization for outstanding students and scholars in natural sciences and mathematics.

*Gamma Theta Upsilon Geography Fraternity, Alpha Beta Chapter.* An organization for outstanding students and scholars in geography.

*Kappa Delta Pi Honor Society, Zeta Chi Chapter.* An organization for outstanding students and scholars in education.

*Phi Mu Alpha Sinfonia, Eta Xi Chapter.* Music fraternity open to outstanding students in the Department of Music.

*Pi Omega Pi Fraternity, Beta Psi Chapter.* An organization for outstanding students interested in teaching business subjects.

*Sigma Delta Pi, Gamma Eta Chapter.* An organization for outstanding students in Spanish.

*Sigma Rho Sigma, Gamma Chapter.* An organization for future social science teachers.

*Theta Alpha Phi, Epsilon Chapter.* An organization for outstanding students in drama.

*Pi Delta Phi, Beta Omicron Chapter.* An organization for outstanding students in French.

### HONORS, SCHOLARSHIPS AND AWARDS

*Air Force Awards* are presented annually to distinguished cadets.

*Alumni Scholarship Awards and Gifts* are made annually by various chapters over the United States and reunion classes.

*Athletic Awards* are presented annually to those active in intercollegiate sports and to those sponsoring athletic events.

*Departmental Awards and Departmental Club Awards* are presented annually by Business Education, Home Economics, Industrial Education, History Study Club, Literary Guild, Mathematics Club, Music Department, Student Affiliate Chapter of the American Chemical Society, and the Tennessee State Players' Guild.

*Fraternity and Sorority Scholarship and Achievement Awards* are made annually by Alpha Kappa Alpha Sorority, Alpha Phi Alpha Fraternity, Delta Sigma Theta Sorority, Phi Beta Sigma Fraternity, Sigma Gamma Rho Sorority, and Zeta Phi Beta Sorority.

*Honor Roll.* Students who earn a quality point average of 3.25 (B plus) or above in all subjects and who pursue a minimum of 12 quarter credit hours in the regular curriculum shall be placed on the University Honor Roll for that quarter.

*Masonic Scholarships.* The Most Worshipful Prince Hall Grand Lodge of Free and Accepted Masons of Tennessee and its jurisdictions give five annual scholarships to the students of the University under the following categories: (1) the highest ranking freshman students, (2) students of unusual ability and promise, (3) sons and daughters of living Masons, (4) sons and daughters

of deceased Masons and (5) students of the University who are Tennessee Prince Hall Masons.

*The National Honor Societies* present awards annually to members elected during the year: Alpha Kappa Mu, Beta Kappa Chi, Gamma Theta Upsilon, Kappa Delta Pi, Pi Delta Phi, Sigma Delta Pi, Sigma Rho Sigma, Pi Omega Pi, and Theta Alpha Phi.

*Special Awards and Trophies* presented annually include the G. S. Hamilton Award, the Hamilton High School Award, the Laura M. Averitte Award, the Susie O. Bryant Trophy, and the United Business Education Association Smead Award.

Student Council members are presented awards annually.

University Counselors who are graduating seniors and who have served at least two years as University Counselors assisting with the Freshman Orientation Program and the general University Guidance Program receive awards.

*Who's Who in American Universities and Colleges.* Recognition in "Who's Who in American Universities and Colleges" is given students classified as juniors, seniors, and graduates who are outstanding in scholarship, leadership, educational and extra-curricular activities, general citizenship, and service to the University.

### PLACEMENT BUREAU

The Placement Bureau assists special students, seniors, and alumni in securing positions for which they are qualified, offers follow-up and counseling services and arranges interviews between prospective employees and employers. Students are also assisted in obtaining part-time employment.

The Placement Bureau maintains permanent personnel records, including recommendations and ratings of the graduates. These records serve as the source of information which is frequently requested from the University. Mailing forms, including scholastic achievements, background, work experience, faculty recommendations, and other pertinent information are compiled and sent to a prospective employer at the request of the graduate, a faculty member, or the employer.

Graduating seniors and graduate students are required to register with the Placement Bureau which is located in Room 211, Administration Building. The services of the Placement Bureau are free to employers, students, and alumni of the University.

### THE BUREAU OF PUBLIC RELATIONS AND ALUMNI AFFAIRS

The Bureau of Public Relations and Alumni Affairs has a twofold purpose: First, to effect creative expression and accurate interpretation of University policies and activities to its many publics; and second, to serve as a liaison agency for the Alumni Association and the University. The Bureau makes use of all forms of communication media: local and national press, radio, television, news-reels and other channels.

The Director of the Bureau is also the Coordinator of Alumni Affairs. In this capacity a major responsibility of the Director and the staff is to maintain contact with the thousands of alumni through the Alumni Association, to keep them informed of the University's progress, and to determine the impact that the alumni are making upon the American culture.

### GENERAL INFORMATION AND REQUIREMENTS

#### Quarterly Fees

#### Tuition:

Residents of Tennessee .....	\$00.00
Non-Residents of Tennessee .....	55.00

Composite Fee	
Undergraduate .....	55.00
Graduate .....	65.00
Part-time students:	
Undergraduate, under 12 hours (each credit hr.) .....	5.00
Graduate, under 9 hours (each credit hr.) .....	6.00
Board (in cafeteria) .....	96.60
Room (in dormitories)	
New dormitories .....	45.00
All other dormitories .....	37.50

Fees for piano courses are \$7.00 each quarter and Organ courses, \$20.00 each quarter. These fees are stated in the course descriptions. Freshmen engineering students should add \$24.50 for drawing instruments.

#### Payment of Fees

Regular fees, including tuition, board and room, maintenance, and laboratory are paid on the quarterly or term basis. These fees must be paid at the time of registration in the fall, winter, spring, and each summer term. Students who do not live on the campus must pay full \$55.00.

Exceptions to this regulation are: A Tennessee student who rooms in one of the new dormitories and boards in the cafeteria, may make a down payment of \$102.20, with monthly payments of \$47.20. The total amount for this student is \$196.60 (per quarter). An out-of-state student who rooms in one of the new dormitories and boards in the cafeteria may make a down payment of \$157.20 with monthly payments of \$47.20. The total amount for this student is \$251.60 (per quarter).

A Tennessee student who rooms in other dormitories and boards in the cafeteria may make a down payment of \$99.70, with monthly payments of \$47.20. The total amount for this student is \$189.10 (per quarter). An out-of-state student who rooms in other dormitories and boards in the cafeteria may make a down payment of \$154.70, with monthly payments of \$47.20. The total amount for this student is \$244.10 (per quarter).

#### Sending of Money

The University advises against the sending of cash money through the mail. In case the money is misplaced through the mails the University assumes no responsibility for the loss. All letters containing payments to the University should be addressed to the office of the Bursar, Tennessee A. and I. State University.

Personal checks are not accepted in the payment of regular fees, room reservation fees, and transcript fees. If the check is certified then it becomes acceptable along with other certified remittances (American Express, United States Postal Money Order, Cashiers' Check, Bank Money Order and Travelers Cheque).

#### ROOM RESERVATIONS

A \$10.00 room reservation fee is required. Room reservation fees are not refundable. This fee is forfeited if the room is not taken; it is applied on expenses if the room is taken. The room reservation fee should be paid only after the applicant has been officially notified of his acceptance by the office of the Registrar, indicating that a room has been reserved.

#### EXPLANATION OF FEES

Tuition Fees: Students who are residents of Tennessee are not required to pay a tuition fee. Students who are not residents of Tennessee are required to pay a tuition fee of \$55.00 per quarter.

Composite Fees: All undergraduate students are required to pay \$55.00 per quarter for composite fees. Graduate students pay \$65.00 per quarter for this fee.

#### Special Fees

*Transcript Fees:* A student may secure an official transcript of his record by the payment of a fee of \$1.00. The first transcript issued and all other requests require the transcript fee of \$1.00 as prescribed by the University. No transcript will be issued for a student whose university account is delinquent. All in-state and out-of-state forms for certification to be filled in by the Office of the Registrar require the usual transcript fee of \$1.00.

*Graduation Fees:* A diploma fee of \$15.00 shall be paid before one is eligible to receive a degree from the University.

*Music Fees:* Piano or Voice, one lesson weekly, \$7.00 per quarter; two lessons weekly, \$14.00 per quarter. Organ, one lesson weekly, \$20.00 per quarter.

*Class Audit Fees:* A student who is not regularly enrolled may audit courses upon the payment of a fee of \$5.00 per quarter for each course audited.

*Late Registration:* Students who register after the last regular registration day in any registration period are late. A late registration fee (\$5.00) will be assessed beginning the third day after the close of regular registration.

*Class Absences before and after Holidays:* A penalty of \$5.00 is charged for non-attendance at the last meeting of any class before a holiday or the first meeting of any class after a holiday.

*Dropping a Course:* A fee of \$1.00 is charged for each course dropped later than the Saturday following the close of "Late Registration."

#### DEGREES OFFERED

The University offers two undergraduate degrees, namely; Bachelor of Science and Bachelor of Arts; and three graduate degrees, namely: Master of Arts, Master of Education, and Master of Science.

#### ADMISSION

##### Procedures

All communications regarding admission, credit hours, transfers of credits, and advance standing should be addressed to the Registrar of the University. Applications should be filed for the ensuing school year at or near the close of the current year in order to allow sufficient time for the action of the Registrar. The application form and other directions will be sent from the Office of the Registrar upon request. These should be filled out and mailed promptly. Transcripts of records from all high schools and colleges previously attended, together with all other required information, must be on file in the Office of the Registrar before registration is completed. All applicants must receive official notice from the Office of the Registrar that they have been approved for admission before presenting themselves for registration.

#### GENERAL REQUIREMENTS

1. The applicant must be at least 16 years of age.
2. The applicant must furnish satisfactory evidence of good moral character, health and personality.
3. The applicant must file an official application form with the Office of the Registrar.
4. The official transcript of all high school credits and a small photograph must be filed in the Office of the Registrar before the applicant may be officially admitted to the freshman class; and all high school and college transcripts must be filed for admission to advanced standing.
5. If a period of more than ninety days (one regular quarter) has elapsed between graduation from high school and the date of entering the University, the applicant will be required to submit a notarized statement as to whether or not he attended another college or university during this time.

6. A college student whose education has been interrupted for more than ninety days (one regular quarter) must present a notarized statement as to whether or not he has attended another college or university during this time.
7. All required data must be filed in the Office of the Registrar for consideration for admission.
8. All students, except those who seek admission with advanced standing, must take an aptitude test, the English placement test, a health examination, and the special tests required by the department in which the major is to be pursued.
9. All new students must attend the orientation period at the University one week prior to official registration unless given special permission by the Registrar.

### REQUIREMENTS FOR ADMISSION

Applicants meeting the following requirements are eligible for admission by the following methods:

#### Admission by Transcript

Applicants who present a transcript of credits showing graduation from an approved high school or twelve units from a senior high school are admitted. Students who do not present one unit in American History will be required to enroll for the course.

#### Accepted by High School Equivalency Examination

Veterans of the armed services who entered service before high school graduation, and civilians 21 years of age or older, who may have discontinued high school before graduation may be admitted to college by taking the G. E. D. High School Equivalency Examination), and earning a score that qualifies the student for a high school diploma in the State of Tennessee. The average score of 50 for civilians or an average score of 45 for veterans with no score on a single test less than 35 is required.

#### Admission with Advanced Standing from Accredited Institutions

Students who have attended other accredited colleges or universities may apply for admission to Tennessee A. and I. State University with advanced standing by fulfilling the following requirements:

1. An official record of transcripts from all high schools, colleges, or universities previously attended must be placed on file in the Office of the Registrar, whether or not the applicant wishes to receive credit for such work.
2. The courses presented for advanced credits must be substantially equivalent to those afforded at Tennessee A. and I. State University.
3. A student who has failed in his work at another institution and is not entitled to continue there will not be admitted to the University.
4. The applicant must have been cleared of all financial obligations and granted honorable dismissal from the last institution attended.
5. Students who have attended other colleges or universities cannot be admitted unless they present a scholastic grade average of "C" based on the grading system of Tennessee A. and I. State University.
6. Students who have attended other colleges or universities cannot be admitted as freshmen solely on the basis of their preparatory school records.
7. A student who fails to present credits from all colleges which he has attended prior to registration must forfeit the right to later claims of such credits after admission.

#### Admission with Advanced Standing from Non-Accredited Colleges

Students who desire to enter Tennessee A. and I. State University from non-accredited colleges are to register under the following stipulations:

- A. Admitted on probation for the first 48 hours credit.
- B. Credit for work done prior to entering Tennessee A. and I. State University be granted as:
  1. Full credit if work at Tennessee A. and I. State University is 3.00 or above.
  2. Three-fourths credit if work at Tennessee A. and I. State University is below 3.00 or not less than 2.50.
  3. Half credit if work at Tennessee A. and I. State University is below 2.50 but not less than 2.00.
  4. No credit if work at Tennessee A. and I. State University is below 2.00.

#### Admission with Special Adult Student Standing

Applicants who do not meet requirements for full admission to the University and who are adult citizens of Tennessee may be admitted to the University by giving satisfactory evidence that they are prepared to take the courses advantageously that are open to them. Such courses shall be confined generally to the freshmen level, and will not grant credit toward candidacy for a degree. Applicants for admission on the above schedule are required to present to the Registrar in advance of their coming to the University a detailed statement on their preparation and plans for study at the University.

This status will not be granted to recent high school graduates, nor to graduates of accredited schools, except in unusual cases.

#### Admission to the Graduate School

Requirement for admission to the Graduate School at the University are outlined on page 43.

#### Readmission to the University

A student in good standing with the University whose attendance has been interrupted for one quarter or more must apply for readmission and submit a notarized statement to the effect that no other college has been attended. Re-entrance applications will be sent from the Office of the Registrar upon request.

Re-entering applicants must receive notice of approval before arriving at the University.

A student whose attendance at the University has been interrupted one quarter or more while on scholarship probation (see Scholarship Standards page 37 must in addition to making application for readmission, satisfy the Registrar that his or her scholarship will be raised at least to the minimum passing standards of the University. Such a student will be readmitted on probationary status, and will be accorded the privilege of removing the probation.

A student who has been Dropped Permanently—"Low Scholarship" may not be readmitted to the University.

### CLASSIFICATION OF STUDENTS

All students of the University must be classified in one of the following categories:

- Freshmen: Those who have passed less than 48 quarter hours.
- Sophomores: Those who have passed at least 48 quarter hours but less than 96 quarter hours.
- Juniors: Those who have completed more than 96 quarter hours but less than 144 quarter hours and have an average of "C" (2.00) in all work taken.
- Seniors: Those who have completed 144 quarter hours or more and have an average of "C" in all work taken.

Specials: (a) Those who meet entrance requirements and wish to pursue particular studies will not qualify for a bachelor's degree. Such students may be admitted with the permission of the Registrar. (b) Those who are twenty-one years of age and who have not completed four years of high school work may enroll in such courses as they are prepared to take.

Unclassified: Those whose records are transferred from a non-accredited college.

Graduate Students: Those who have received college degrees from accredited institutions and who have been admitted to the Graduate School.

A quarter hour: One hour of recitation once a week for twelve weeks equals one quarter hour.

A "C" average: Twice the number of quality points as the number of credit hours received.

## REGISTRATION

### The Regular Registration Period

All students are expected to register and pay their fees before the day designated on the University Calendar for classes to begin. Sufficient time is allowed during registration for the student to consult with the major adviser and to complete all procedures necessary for admission to classes. Written directions for registration procedures, and the necessary registration forms, will be handed beginning freshmen and other new students during the orientation period. Other students will receive written directions and registration forms when they present themselves for registration.

### Late Registration

Students who register after the last regular registration day in any registration period are late. A late registration fee (\$5.00) will be assessed beginning the third day after the close of regular registration.

Students who register after the last regular registration day in any registration period for course requirements as those who register on time. For late registrants, the teacher may: 1) make extra hour assignments for the class periods missed, 2) give "make-up" assignments without specific designated hours, or 3) expect the student to complete all course requirements without making special assignments.

### Resident Address and Name

The local and permanent resident addresses must be printed legibly in ink and in full on all registration forms that require them. Any change in either address should be reported to the Office of the Registrar without delay. Forms for the change of address or a change of name may be obtained from the Office of the Registrar.

### Physical Examination

All entering freshmen and new students are required to take a physical examination under the supervision of the University and student health service staff. Appointment for the examination must be made at registration.

### Completion of Registration

Registration is complete when:

1. All forms have been filled out and the two schedule cards, permit, and envelope have been stamped by the preliminary checker.
2. All fees have been paid and assessment card, a schedule card, and the permit have been stamped by the Bursar and returned to the student.
3. The schedule card and the permit have been stamped by the Final Checker.
4. A photograph has been taken as a part of registration.
5. The physical examination has been completed.

### Class Loads

*Normal and Minimum Class Loads:* The normal class load for each quarter is one-twelfth (1/12) of the total number of quarter hours required for gradu-

ation in any particular curriculum and the minimum class load is 12.0 quarter hours. One and a third quarter hours of required physical education or one quarter hour of choir, but not both, may be added to the normal load.

A maximum of fifteen (15) quarter hours may be pursued per quarter by graduate students.

A minimum of twelve (12) quarter hours per quarter is allowed for a regularly enrolled student. A student may pursue less than twelve (12) quarter hours per quarter only by special approval of the Registrar.

*Probationary Student Class Loads:* A student who incurs scholarship probation in any quarter (see scholarship standards, page 37) will be allowed to carry a maximum of 14 or a minimum of 12 quarter hours.

*Adding Courses:* A student may add courses within ten calendar days after the first scheduled meeting of the class. To add a course, the student must secure a course card and obtain the signature of approval from the teacher of the course involved and the major adviser. This approval must be executed on the official add form which may be obtained from the Office of the Registrar.

*Dropping Courses:* A student is permitted with proper execution of the drop form to drop a twelve weeks' course within the first four weeks of the course.

The student is permitted with proper execution of the drop form to drop a six weeks' course within the first two weeks of the course.

A fee of \$1.00 is charged for each course dropped later than the Saturday following the close of "Late Registration."

*Change of Major Field:* In order to change from one major to another, the student must obtain the official "Change of Major Form" from the Office of the Registrar and complete it with the signatures of the adviser of the program to be taken, the adviser of the program to be discontinued, and the Registrar. All records of the student must be transferred from the former to the new adviser.

## CLASS ADMISSION AND ATTENDANCE

### Admission

A student must attend class beginning with the first class meeting; however, he is not officially enrolled until he presents the teacher a schedule card which has been stamped by the Bursar.

### Class Auditors

Regularly enrolled students may enter classes as auditors with the approval of the major adviser and the teacher of the course. The regular registration procedure is followed in registering for a class to be audited. The faculty member issuing the card shall indicate "Audit—No Credit." A regularly enrolled student pays a fee of \$1.00 for each course audited.

Persons other than regularly enrolled students may be permitted to audit classes only with the consent of the Registrar and with the approval of the teacher of the course. Such persons shall follow the regular registration procedure and pay \$5.00 for each course to be audited.

Auditors are not under obligations of regular attendance, class preparation, recitation, or examination; nor do they receive credit. At the end of the quarter, the "audit" course card will be marked "No Credit Audit" by the teacher and returned to the Office of the Registrar.

### Class Attendance

It is a regulation of the University that teachers keep accurate records of all class attendance. Regular and punctual attendance is required. Therefore, the student's attendance record becomes an important part of his personnel data.

A student who fails to attend class regularly and on time may be asked to discontinue the course and receive a grade of "Failure," or, may receive a penalty grade for non-attendance and tardiness, regardless of the quality of performance while in attendance.

## ABSENCES

A student knowing that he or she will be absent from classes will make advance arrangements with the respective teachers for the absence.

The student who absents himself from class is under obligation to perform all requirements of each course in which he is registered, regardless of the cause or causes of absences.

Any student knowing he must be absent from class during final examination will notify his instructor and the Office of the Dean of the School, who reports such cases to the Dean of the Faculty. When a student has absented himself from class the total number of times the class meets per week, he is to be reported to the Dean of the School, who reports such cases to the Dean of the Faculty.

*An official excuse:* An official excuse is identified as absence granted by the University for which the University is responsible. All official excuses for absences from classes must be approved by the Dean of the Faculty of the University.

### Class Absences before and after Holidays

A student who fails to attend the last meeting of each class before a holiday or the first meeting of each class following a holiday shall incur three absences for each class not attended, and will be assessed a penalty of \$5.00 for one or more class absences incurred the day before and/or after a holiday.

### Tardiness and Leaving Classes

The student is expected to begin class on time and remain during the full class period. Tardiness in attending class and leaving class before the end of the period constitute delinquencies, except when granted by the teacher.

A student who is late to class and/or leaves the class before the end of the specified class period without reasonable cause may be marked absent for the entire period at the discretion of the teacher.

## GRADING SYSTEM

Course grades for undergraduate and graduate students are awarded as follows:

"A" (Excellent)	4 quality points per quarter hour
"B" (Good)	3 quality points per quarter hour
"C" (Average)	2 quality points per quarter hour
"D" (Poor)	1 quality point per quarter hour
"F" (Failure)	minus 1 quality point per quarter hour
"I" (Incomplete)	0 quality point per quarter hour
"W" (Withdrawal)	0 quality point per quarter hour
"S" (Satisfactory in non-credit courses)	0 quality point per quarter hour
"U" (Unsatisfactory in non-credit courses)	0 quality point per quarter hour

"I" is given to a student whose recitation is satisfactory but whose grades are withheld on account of failure to complete some required portion of the course, examination, laboratory, shop, or parallel exercises. The incomplete "I" grade will be changed to a grade of "F" if not removed within one calendar year.

"W" is recorded for the student who officially withdraws from the entire University.

"F" is given to a student who fails to do a passing quality of work or fails to remove a grade of "I" within the period of one calendar year.

"S" is given to a student who gives satisfactory performance in a non-credit course.

"U" is given to a student who gives unsatisfactory performance in a non-credit course.

"Dropped"—a student is listed as having "dropped" a course only if he has followed the established procedure and has cleared through the Office of the Registrar.

## SCHOLARSHIP STANDARDS

All undergraduate students of the University are expected to maintain twice the number of quality points as the number of credit hours received.

A minimum average of "C" is required for graduation in all bachelor's degree programs.

The following penalties for low scholarship are enforced at the end of each spring quarter:

Quarter	Required Quality Point Average
End of 1st	1.5
End of 2nd	1.5
End of 3rd	1.5

At the end of the first, second, or third quarters, a student whose average is less than 1.5 will be placed on probation. A student who is on probation cannot carry more than 14.0 quarter hours nor less than 12.0 quarter hours. The 1.5 average will remain in effect until the student earns 48.0 quarter hours and sophomore classification.\*

End of 4th	1.8
End of 5th	1.8
End of 6th	1.8

At the end of the fourth, fifth, and sixth quarters, a student whose average is less than 1.8 will be placed on probation. The 1.8 average will remain in effect until the student earns 96.0 quarter hours and junior classification.\*

End of 7th	1.9
End of 8th	1.9
End of 9th	1.9

At the end of the seventh, eighth, and ninth quarters, a student whose average is less than 1.9 will be placed on probation. The 1.9 average will remain in effect until the student earns 144.0 quarter hours and senior classification.\*

End of 10th	2.0
End of 11th	2.0
End of 12th	2.0

\*Exception: School of Engineering

### Removal of Deficiency Grades

*Grades of Incomplete.* "Incomplete" is a temporary grade which must be removed from the student's permanent record within one calendar year from the date the grade was awarded. If all requirements of a course in which the "I" was awarded are not met within one year, the grade "I" will be changed to a grade of "Failure" "F". The student is responsible for initiating all necessary steps to remove the deficiency grade:

1. Inquire in the Office of the Registrar regarding the course in which the grade of "I" has been awarded.
2. Pay to the Bursar's Office the fee of \$1.00.
3. Secure from the Office of the Registrar the replacement grade card.
4. Take the replacement grade card to the teacher of the course in which the "I" was earned.
5. The replacement grade card must be filed in the Office of the Registrar in person by the teacher of the course after it has been properly filled in (name of student, grade awarded, credit hours which the course carries, title of the course, major adviser's signature, and instructor's signature).

## EXAMINATIONS

### Regular Examinations

Examinations are required in all courses. Final examinations are held for a two-hour period at the end of each quarter, and at the end of each summer term.

### Absence from Final Examination

Absence from the final examination will be indicated by a mark of (x). If the student's grades are of passing quality up to, but not including, the final examination, he shall receive a grade of "Incomplete" "I" for the course; if, however, the performance is of failing quality up to the final examination, a grade of "Failure" "F" will be awarded.

A senior who has received a grade on Incomplete in any subject must remove the incomplete grade three weeks prior to commencement.

### Issuance of Grades

After the close of each quarter, the grades of the student will be sent to the parents or guardians and to the major adviser. The student may obtain a copy of the grade report by presenting his assessment card at the Office of the Registrar.

At the beginning of the senior year, a photostatic copy of the student's entire record will be sent to the major adviser.

The student may obtain a copy of his transcript by paying the required fee of \$1.00.

### Transcripts

To be official, a transcript must bear the seal of the University. Official transcripts are not given to students or alumni, but are mailed directly to the institution or persons considering the applicant for admission or employment.

### Withdrawal from the University

To withdraw from the University, the student must make application on forms provided by the Office of the Dean of the Faculty. The responsibility of filing for official withdrawal from the University rests with the student.

## REQUIREMENTS FOR A BACHELOR'S DEGREE

A bachelor's degree is conferred on a student who satisfactorily completes a curriculum in one of the schools. Each candidate for a bachelor's degree must meet the general requirements of the University:

1. The minimum University requirement for graduation is 192 quarter hours with a minimum average of "C".
2. A minimum of 66 quarter hours must be completed in 300 and 400 level courses.
3. The number of quarter hours per quarter should be 1/12 of the total number of hours required for graduation.
4. A minimum of 36 quarter hours must be offered for a major with a minimum of 15 quarter hours in courses on the 300 and 400 levels.
5. Six quarters of required Health and Physical Education. (This requirement is waived for veterans).
6. Nine quarter hours of English.
7. Three quarter hours of Mathematics.
8. Nine quarter hours of American History for all students who do not present a year of American History on their high school transcripts.
9. Nine quarter hours of Social Studies.
10. Two years of basic Air Force ROTC (for male students).
11. Any departmental requirements.
12. A Junior English Test.
13. A Senior Project.

14. All candidates for the bachelor's degree must spend the senior year, or its equivalent (the last forty-eight quarter hours offered for the degree and the last nine months), in residence at this University.
15. Transfer students must spend at least one academic year in residence at the University and earn while in residence not less than forty-eight quarter hours of credit.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITH TEACHING CERTIFICATE\*\*

General Education Core (Both Elem. and Secondary).....	60-66 qr. hrs.*
Professional Education Core (Both Elementary and Secondary).....	36 qr. hrs.
Area of Endorsement .....	18-54 qr. hrs.*
Other Hours.....	To total the quarter hour required by the University and departmental requirements.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITHOUT TEACHING CERTIFICATE IN THE SCHOOLS OF EDUCATION AND ARTS AND SCIENCES

Liberal Education Core.....	57 qr. hrs.
Major Field Core.....	36 qr. hrs.
Major Field Related Core.....	Qr. Hrs. as required by the department
Elective Core.....	Qr. Hrs. as required by the department

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE WITHOUT TEACHING CERTIFICATE IN THE SCHOOL OF ENGINEERING

Two Year Common Curriculum.....	121 qr. hrs.
Engineering Major Curriculum.....	Qr. Hrs. as required by the department

## REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

To qualify for the Bachelor of Arts degree, the student must (1) fulfill the general requirements for a bachelor's degree as described on page 38, and (2) pursue the following liberal arts courses:

English 101, 102, 103.....	9 qr. hrs.
World Literature 211, 212, 213.....	9 qr. hrs.
Foreign Language (9-27 hours) .....	18 qr. hrs.
Social Science .....	12 qr. hrs.
Natural Science .....	12 qr. hrs.
Mathematics .....	9 qr. hrs.
Philosophy, Music, Art, Drama.....	6 qr. hrs.
(combination of any two courses)	

and (3) complete a major program of studies in one of the following subjects: Biology, Chemistry, History, Mathematics, Sociology, Social Administration, Speech and Drama, English, Modern Foreign Languages, Geography, Physics, Political Science, Psychology.

### The Junior English Test

Candidates for the bachelor's degree are required to pass a test in the use of simple expository English. The test is administered in the Junior year during the third week of February and the third week of the first summer term.

\*Minimum quarter hours requirements.  
\*\*Home Economics Education and Agriculture Education excluded (course content and the curriculum are determined by the State Board of Vocational Education).

Those who fail the test shall be required by the University to pursue further work until a satisfactory proficiency in English is demonstrated.

All undergraduate transfer students, regardless of classification, are required to pass the test before graduation.

#### The Senior Project

All candidates for a bachelor's degree must complete a senior project. The project may be a literature or laboratory investigation, a collection or a compilation. The outcome of the project must be written in the form of a junior thesis of not less than one thousand, nor more than three thousand words. It must be typewritten and organized according to the approved style used by the University.

#### Teacher Certification

Several curricula at the University leading to the bachelor's degree make provisions for the training of teachers in the major field of specialization. A student may waive certification requirement by submitting a signed affidavit that he does not wish to qualify for a certificate.

#### Degrees With Honors

The degree of Bachelor of Science or Bachelor of Arts with honors is awarded with distinction or with high distinction. To be graduated with distinction, the student must earn an average of at least 3.25. To be graduated with high distinction, the student's average must be not less than 3.50.

#### Application for Bachelor's Degree

1. A candidate for a degree must file with the Office of the Registrar "Senior Status Forms" six months prior to the date of graduation. This must be approved by the candidate's major adviser, department head, Dean of the School, and the Registrar.
2. Forms for an "Application for Diploma" may be obtained by request at the Office of the Registrar and must be filed in triplicate in the Office of the Bursar after the signatures of the major adviser and Dean of the School are obtained.
3. The diploma fee must be paid and all accounts cleared at least two months prior to the date of graduation.
4. A clearance from the Placement Bureau must be filed with the Office of the Registrar two months prior to the date of graduation.

### PROVISIONS FOR GRADUATE AND PROFESSIONAL EDUCATION FOR TENNESSEE STUDENTS

#### Veterinary Medicine

Under authority of Chapter 82, Public Acts of 1949, the State of Tennessee has entered into a contract, through the Board of Control of the Southern Regional Council on Education, with the Tuskegee Institute whereby Tuskegee agrees to enroll two qualified Freshmen students from the State of Tennessee each year who will pursue courses in Veterinary Medicine. A list of persons who are qualified and eligible for admittance to Tuskegee will be submitted to Tuskegee Institute by the President of Tennessee A. and I. State University. Therefore, persons who are interested in taking courses in Veterinary Medicine should write to President W. S. Davis, Tennessee A. and I. State University.

#### Medical and Dental Training

Under authority of Chapter 82, Public Acts of 1949, the State of Tennessee has entered into an agreement with Meharry Medical College, through the Board of Control for the Southern Regional Council on Education, whereby Meharry Medical College agrees to provide a quota of twelve places in the School of

Medicine at the Meharry Medical College and five places in the School of Dentistry at the Meharry Medical College for students from the State of Tennessee to be selected from applicants certified by the Commissioner of Education. Persons who are citizens of the State of Tennessee and who wish to pursue courses in medicine or dentistry should apply to the Meharry Medical College for entrance in the School of Medicine or the School of Dentistry.

#### Level Designation of Courses

All courses in 100 are freshman courses; all in 200 are sophomore courses; all in 300 are junior courses; all in 400 are senior courses; and all in 500 graduate courses.

Undergraduate courses that allow graduate credit are limited in most departments, and such courses are clearly designated for "undergraduate and graduate" credit.

### INFORMATION FOR VETERANS

#### Eligibility for Training

The new G. I. Bill for veterans who have served in the Armed Forces since June 27, 1950 is known as Public Law No. 550.

To be eligible, a veteran must be out of active service and must meet the following requirements: (1) he must have been discharged under conditions other than dishonorable; (2) he must have had active military duty since June 27, 1950; (3) he must have had at least 90 days' total service, unless discharged sooner for an actual service-incurred disability.

#### Admission

All veterans who are entering the University as new students must file an application one month prior to date of registration.

In order to expedite time in receiving subsistence checks, veterans are advised to contact their local Veterans Administration at the earliest possible date after discharge to apply for educational benefits. If the veteran is eligible for training, he will receive a certificate of Eligibility, which he is advised to bring to the Office of Veterans' Affairs on the day of registration. Delay in submitting this certificate will cause a delay in receiving subsistence checks.

Final decisions on admission are made by the Registrar of the University. Veterans applying for college courses must have on file necessary scholastic records before applications may be approved. Approved applicants will be notified prior to date of registration.

#### Payment of Bills and Fees

Regular fees, including tuition, board and room, maintenance, and supplies are paid by the veteran on the same basis as other students. These fees must be paid at the time of registration.

#### Class Load

A veteran must be registered for at least 14 quarter hours to be in full-time training and entitled to full education and training allowance.

A Public Law 550 veteran may be entered for a period longer than the normal school year and if he attends a summer session, a separate enrollment form must be submitted.

#### Change of Program

Public Law 550 does not permit more than one change of program in any case. If a course of training is discontinued for misconduct, neglect, or lack of application, the veteran may not be provided any additional educational benefits.

#### Class Attendance and Decorum

Veterans' training, conduct and progress must at all times, both on and off the campus, be maintained in a satisfactory manner, conforming to the ideals of the University.

Veterans are required by the Veterans Administration to attend classes regularly. All absences must be reported to the Office of Veterans' Affairs, whether the absence is because of illness or for some other good reason. When a veteran is absent three days in any thirty-day period without notice to the Office of Veterans' Affairs, the office is required on the third day to notify the Veterans Administration.

All veterans interested in entering Tennessee A. and I. State University should address all inquiries to:

Office of Veterans' Affairs  
101 Industrial Building  
Tennessee A. and I. State University  
Nashville 8, Tennessee

#### SUMMER QUARTER

*General Program.* The Summer Quarter is conducted principally for advanced undergraduates, special in-service, and graduate students. Several special workshops and institutes are conducted for in-service teachers, supervisors, and administrators.

The Summer Quarter is divided into two six-weeks terms. Three lecture courses offering a total of 9 credit hours, or two lecture courses and one laboratory course offering 10 credit hours, may be taken during one term, but the total for both terms may not exceed 19 credit hours without special permission.

## THE GRADUATE SCHOOL

HUBERT B. CROUCH, Ph.D., *Dean*

The University offers studies in several fields leading to the Master of Arts, Master of Education, and Master of Science degrees. Major concentrations for the master's degree may be pursued in the following areas:

### Degrees and Fields

*Master of Arts.* Students who wish to pursue advanced studies in the liberal arts without specific preparation in the techniques of teaching are encouraged to select majors in the following fields of concentration:

English	Romance Languages
History	Zoology
Psychology	

Forty-five graduate credit hours, a reading knowledge of French or German\*, and a thesis, are required. Other requirements for the degree are stated in the descriptions of the respective major programs.

*Master of Education.* The Master of Education degree is designed primarily for the advanced training of elementary and secondary school teachers, and school administrators on these levels. Major concentrations may be selected in the following areas:

Administration and Supervision	Elementary Education
Agricultural Education	Health and Physical Education
Business Education	Secondary Education

Forty-eight graduate credit hours and a thesis are required. Other requirements for the degree are stated in the descriptions of the respective major programs.

*Master of Science.* The Master of Science degree program has a two-fold purpose: One is to train teachers who wish to become research scholars, and the other is to train specialists in the humanities, the social sciences, applied fields, and the natural sciences.

Major concentrations for this degree may be selected in the following areas:

Administration and Supervision	History
Agricultural Education	Plant Science
Animal Science	Psychology
Business Education	Science Education
Chemistry	Secondary Education
Elementary Education	Zoology
Health and Physical Education	

Forty-five graduate credit hours and a thesis are required. Major concentration requirements are listed in the departmental descriptions.

### Application

Applicants who have completed the requirements for the bachelor's degree, except those who plan to qualify for another bachelor's degree at the University, should apply for admission to the Graduate School. Application forms and other general information may be obtained from the Registrar of the University.

Application for admission to the Graduate School should be filed with the Registrar at least thirty days before the first enrollment. The application should be accompanied by complete official transcripts of all college records that are not already on file in the Office of the Registrar.

### Admission

*Admission of New Students.* Graduates of colleges or technical institutions of recognized standing, who have completed a normal four-year program of study for the bachelor's degree, may be admitted to the Graduate School. All applicants must present satisfactory records of scholarship, course backgrounds,

\*Another language may be substituted upon the approval of the Dean of the Graduate School and the Major Adviser.

dismissal status from the last institution attended, health, and character. Other minimum admission requirements are stated under the categories of admission.

Admission to the Graduate School does not imply admission to candidacy for the master's degree. A student may become a candidate for the master's degree only after meeting all requirements for regular status and after completing at least fifteen graduate credit hours in residence with an average of 3.00 quality points.

Admission to the Graduate School may be granted in four categories:

*Regular Status.* Applicants who have met all requirements for admission may be granted regular status. These requirements include, in addition to the general entrance qualifications, (1) graduation from a fully accredited four-year college with the bachelor's degree, (2) an undergraduate average of at least 2.50 (C+) quality points, (3) an adequate undergraduate prerequisite course background in the field of the graduate concentration, (4) an average of at least 3.00 quality points in the prerequisite undergraduate field, and (5) an acceptable score on the Graduate Record Examination, or on a substitute examination approved by the Dean of the Graduate School.

*Provisional Status.* Applicants who are deficient in one or more requirements for regular status may be granted provisional status within certain limitations. Graduates of four-year colleges not fully accredited may be considered for admission, but graduates of colleges which have no accreditation may not be considered for admission. Enrollees from institutions not fully accredited are required to complete a minimum of fifteen prescribed undergraduate credit hours with minimum average of 3.00 quality points before they may become eligible to pursue courses for graduate credit.

*Applicants with undergraduate averages of less than 2.50 quality points, but not less than 2.00 quality points,* may be admitted provisionally; provided that the official record shows that significant progress was made in scholarship during the junior and senior years. Students in this category are required to complete a minimum of fifteen prescribed undergraduate credit hours with a minimum average of 3.00 quality points before they may become eligible to pursue courses for graduate credit.

*Applicants admitted with quality point or course deficiencies in the prerequisite undergraduate field* are required to remove these deficiencies by taking the appropriate undergraduate courses during the first two quarters of graduate study. Students with such deficiencies may enroll in courses for graduate credit along with the required undergraduate courses, provided that all prerequisites to each graduate credit course pursued have been satisfied.

All applicants, except special students, who have not had the *Graduate Record Examination* before enrollment into the Graduate School are given provisional status. Such students are required to take the Examination during the first quarter of enrollment in courses for graduate credit. Subsequent enrollment in graduate credit courses may be denied students who fail to take the examination on schedule. Poor performance on the Graduate Record Examination and in class work are regarded as sufficient reasons for dismissal from the Graduate School. A student who fails to achieve an acceptable score on the Examination and whose average is also below 3.00 quality points at the end of two full quarters of graduate study (30 credit hours) will be dropped from the Graduate School. A student who fails to achieve an acceptable score on the Graduate Record Examination, but whose graduate credit course performance is satisfactory may, upon the recommendation of his major adviser, be allowed to take a substitute comprehensive examination in the early part of the following quarter. Eligibility for continuation is based upon the student's achievement in this latter examination.

*Special Status.* College graduates who wish to pursue courses at the University and who do not plan to qualify for the master's degree are required to matriculate in the Graduate School as special students. Such applicants must have the necessary qualifications for course enrollments. Courses taken by special students may not at any time be included in the requirements for the master's degree.

## Registration

Graduate students are required to register each regular quarter and each term of the summer session in which they expect to earn credits, fulfill residence requirements, hold thesis conferences with advisers, use the facilities of the library and laboratories, and take the final oral examination. All registration procedures must be completed during the regular registration period as announced in the University Bulletin (Catalog Issue).

Before reporting for registration, each new student should confer with the head of the department in which he plans to study. A student admitted with provisional status should ascertain his specific deficiencies before attempting to enroll in courses. *Removal of undergraduate course deficiencies takes precedence over enrollment in graduate credit courses and the student is primarily responsible for enrollment in the proper courses.*

A student who has been approved for admission may obtain the registration materials at the Office of Registrar. After the permit to register has been obtained, the student proceeds as follows:

- (1) Fill in all preliminary information on cards in the kit.
- (2) Confer with the Graduate Curriculum Coordinator to outline a class schedule for the quarter.
- (3) Enter courses to be pursued on two copies of the Graduate School "trial schedule form" and on two official class cards.
- (4) Obtain approval of the Graduate Curriculum Coordinator.
- (5) Obtain the signature of the teacher of each course on the same forms, and obtain a class card for each course.
- (6) Obtain the signature of the Dean of the Graduate School on all schedule forms.
- (7) Veteran students are required to obtain approval of the Office of Veterans' Affairs.
- (8) Obtain the signature of the Director of Housing.
- (9) Get health examination appointment.
- (10) Report to the checker.
- (11) Pay fees in the Office of the Bursar.
- (12) Report to final checker.

*Physical Examination.* Each entering student is required to undergo a complete examination by the Health Service Staff of the University. The examination appointment is made during registration.

*Late Registration.* Special approval is required for late registration. A late registration fee of \$5.00 will be charged beginning the third day after the close of the regular registration period. Late registration does not excuse a student from responsibility for all assignments in each class.

## Advisement

Each graduate student is assigned a major adviser and a guidance committee. *However, the student is expected to assume full responsibility for observing all regulations as outlined in this Bulletin.*

Before enrolling in courses, new students should seek a conference with the Graduate Curriculum Coordinator of the major field to review the undergraduate record and to select a course schedule for the quarter. The Curriculum Coordinator usually acts as the major adviser until a permanent major adviser is appointed during the student's first quarter of enrollment.

The major adviser gives general supervision to the student's program of study, including the thesis problem of terminal project. All procedures which require official approval should be initiated with the major adviser for his approval. This includes the program of study, course selections, admission to candidacy, appointment of the guidance committee, the outline of the research problem for the thesis or the project investigation.

After the specific area of research or investigation has been determined, the major adviser will select two other staff members to serve with him as the student's Guidance Committee. The major adviser acts as chairman of the guidance committee.

Complete advisement records are maintained in the files of the Graduate School Office and in those of the respective major advisers. These records include a report of the Admissions Committee, a transcript of the undergraduate record, quarterly class schedules, the student's program of study, report on the Graduate Record Examination or the substitute examination, appointment of Guidance Committee, admission to candidacy, outline of thesis or project problem, quarterly grade reports, application for the degree, standing for the final oral examination, approval for graduation, and conference records.

#### Kinds of Courses and Credit Hour Limitations

*Regular Residence Courses.* Regular residence courses are offered only during the regular school day on the campus of the University. These courses normally meet as many different days during a week as credits allowed.

Candidates for the Master of Arts and the Master of Science degrees are required to complete a minimum of 36 graduate credit hours in regular residence courses. Candidates for the Master of Education degree are required to complete a minimum of 39 graduate credit hours in regular residence courses.

*Saturday and Evening Courses.* Special courses are conducted at the University for in-service workers on Saturday mornings and during week-day evenings. The Saturday classes meet three consecutive hours once each week, while the evening classes meet two evenings each week. A maximum of nine credit hours in Saturday and evening classes may be counted toward the master's degree.

*Workshop Courses.* As occasions demand and as conditions warrant, the University may conduct workshop courses for graduate credit. Such courses are conducted on the University campus. Not more than nine workshop credit hours may be counted toward the master's degree; nor may workshop courses be counted as time in residence.

*Graduate Work Done at Other Institutions.* Graduate work done in residence at another fully accredited institution and not used to fulfill the requirements for a degree may be offered in partial fulfillment of the requirements for the master's degree, provided it is approved by the department of the major and by the Dean of the Graduate School. A maximum of nine graduate credit hours may be transferred. Such credits expire six years from the date they were taken, and not from the date they were transferred. Transfer credits do not reduce the minimum residence requirement of one year.

*Undergraduate Courses for Graduate Credit.* A maximum of nine undergraduate credit hours taken in residence at the University may be included in the requirements for the master's degree. Only those undergraduate courses listed in the University Catalog Bulletin may allow graduate credit. Such courses are indicated by an asterisk\*. A graduate student is expected to complete extra assignments and earn superior grades in these courses in order to receive graduate credit.

*Undergraduate Students in Graduate Courses.* Graduate courses may not be taken for undergraduate credit. However, a student who is in his last quarter of undergraduate study (18 hours or less) at the University and who has maintained a minimum average of 3.00 quality points may, upon the recommendation of his major adviser and the approval of the Dean of the Graduate School, take a maximum of nine hours for graduate credit.

#### Admission to Candidacy

All students who plan to qualify for the master's degree at the University must be formally admitted to candidacy for that degree at least during the quarter preceding graduation. A student may be eligible for admission to candidacy who has met all requirements for regular status and who has completed a minimum of 15 graduate credit hours in regular residence courses with an average of at least 3.00 quality points.

#### Residence

All candidates for the master's degree must spend an equivalent of three full quarters of study in residence at the University.

A student who has completed all course requirements may enroll in Conference 600 and receive residence credit in proportion to the actual time spent at the University doing investigative work under supervision or in conferences with his major adviser and guidance committee.

#### Expiration of Credit

All requirements for the master's degree must be completed within six calendar years from the date of the award of the first grades in courses for graduate credit. Work completed beyond this limitation must be repeated in order to be included in the requirements for the master's degree.

#### Classes

The maximum graduate class load is 15 credit hours in non-laboratory courses. Consecutive terms of a summer session are regarded as a single quarter, and therefore the credit hours for the two terms may not exceed those allowed for a regular quarter. Not more than nine credit hours may be pursued in a six weeks period.

The graduate load limitations must be observed when any courses are taken for graduate credit. The total class load of a student may not exceed the maximum stated here when the student is registered concurrently in more than one institution or in more than one program of the University.

Student assistants and employees of the University are required to pursue reduced class loads. Student assistants may pursue a maximum of 12 credit hours in a regular quarter. Proportionately lighter loads may be required for students who work more than two clock hours per day.

#### Repeating Courses

Graduate credit courses may be repeated with the approval of the major adviser and the Dean of the Graduate School. Only the last grade awarded will be counted in the average. However, all grades previously earned in a course will remain a part of the permanent record.

A course taken for undergraduate credit may not be repeated for graduate credit.

#### Program of Study

Each student who plans to become a candidate for the master's degree is required to outline an approved program of study in conference with his major adviser. A copy of the program of study must be filed with the Chairman of the Graduate School before the student may apply for admission to candidacy for the degree.

The program should clearly indicate all requirements that the student is expected to complete for the degree, including all undergraduate prerequisite courses; all graduate courses; the departmental qualifying examination, if required; an English proficiency test, if required; and the foreign language requirement.

Any changes in the approved program will require the approval of the major adviser and the Dean of the Graduate School. The appropriate forms may be obtained from the Office of the Graduate School.

#### Scholarship Standards

Graduate students are expected to maintain a minimum average of B (3.00 quality points). Scholarship probation may be incurred when the average falls below 3.00 quality points at the end of any quarter before the final quarter of study. However, a student will be dropped from the Graduate School who fails to maintain a minimum average of 2.70 quality points after two full quarters of study in which at least 30 graduate credit hours have been earned. An average of 3.00 quality points must be attained at the completion of 45 graduate credit hours.

#### Numbering System of Courses

Formal graduate courses are numbered between 500 and 599 except certain conferences and projects. Conference 600 is a non-credit activity which gives the student official approval for using the facilities of the University after all credit courses have been completed, or after the student has been enrolled in Thesis Writing 512 or Project Writing 602 in a previous quarter. Undergraduate courses which offer graduate credit are numbered between 300 and 499.

#### Foreign Language Requirements

All candidates for the Master of Arts degree are required to pass a reading knowledge examination in a foreign language. The examination is administered in French, German or another foreign language may be substituted.

#### Application for Graduation

The application for graduation must be filed early in the student's last quarter of study. The application must be approved by the major adviser, the Dean of the Graduate School, the Bursar, and the Registrar before the final oral examination.

#### Final Oral Examination

Each candidate for all master's degrees must successfully pass a comprehensive final oral examination on the thesis or terminal project and in the field of graduate specialization. The examining committee shall be composed of seven members appointed by the Dean of the Graduate School, three of whom shall be the members of the student's guidance committee. All requirements for the degree must be completed at least 15 days before commencement.

#### Conferring of Degrees

Degrees are conferred at the University only at the end of the regular school year and at the end of the summer session. Candidates are required to attend the commencement exercises for the conferring of the degree. A degree may be awarded in *absentia* only in cases of extreme emergency as determined by the Dean of the Graduate School.

#### Thesis Requirements

After admission to candidacy is approved, the student in conference with his guidance committee outlines a plan for the proposed thesis. This plan should include the title of the research, significance of the study, limitations of the study, methods and procedures to be used for gathering data, and copies of all questionnaires and other data-gathering instruments. A copy of the thesis outline or research prospectus should be filed with the Dean of the Graduate School.

The general format of the thesis should be consistent with the standard practices in the several fields. The styles are outlined in *A GUIDE FOR WRITING THESES AND TERM REPORTS* by A. Dunn Jones, and *FORM AND STYLE IN THESIS WRITING* by W. G. Campbell.

Four copies of the thesis in its final form and seven copies of the abstract must be filed with the Dean of the Graduate School at least five days before the final oral examination. After all corrections have been made following the final oral examination, each copy of the thesis must be signed by the members of the student's guidance committee and by the Dean of the Graduate School.

The length of time required for writing a thesis depends upon the nature of the problem and upon the progress made by the student in collecting data, and organizing and writing the thesis. At least two quarters of work should be devoted to research and thesis writing.

A thesis problem is also subject to certain maximum time limitations depending upon the currency of the information on which the problem is based. Thus, a student who has incurred unusual delays in completing a thesis problem may be required to revise the problem or to select a new problem, if the problem is adjudged to be out-of-date.

All copies of the thesis and the abstract are deposited with the Dean of the Graduate School for binding and distribution. After binding, the original and first carbon copy are deposited in the University Library, the third is sent to the student, and the fourth copy becomes the property of the major department.

#### Terminal Project Requirements

Candidates for the Master of Education degree are required to complete the terminal project instead of a thesis.

The difference between a thesis and a terminal project is largely a matter of organization of the report and the extent of the investigation. The format of a project should contain a statement of the problem, an explanation of methods and procedures used for collecting data, analysis of data, and a summary and other appropriate conclusive statements.

The project shall be unique to the individual needs, interest, and experiences of the student. It may be a resource unit, a proposed curriculum, a major teaching unit involving procedures and methodology for the unit, a proposed course of study, etc. It may be purely descriptive in nature or it may be an analysis on data collected.

The project should represent an original study by the student, and it should be sufficiently broad in content to distinguish it from a term paper or a mere report on data collected.

Although the Project Writing 602 is the terminal course in the student's program, the actual investigation should be initiated at least in the beginning of the quarter in which the student expects to qualify for the master's degree.

Two typewritten copies of the project and seven copies of the abstract are required for the final oral examination. These copies should be filed with the Dean of the Graduate School at least five days before the final oral examination. Printers binding is optional.

#### Graduate Class Organization

Students of the Graduate School are organized as a class. The principal purposes of the organization are to deal with problems common to graduate students, sponsor social affairs, and to represent graduate students in student government. The organization holds a business meeting at the beginning of each quarter to plan its quarterly program. Each graduate student is expected to become active in the affairs of the organization.

#### Core Requirements for Majors in Education

Majors in the several areas of education are required to complete a core program which includes:

Course		Credit
Education	502 School Administration .....	3 hours
Education	511 Methods of Research .....	3 hours
Education	526 Philosophy of Education .....	3 hours
Psychology	502 Advanced Statistics .....	3 hours
Psychology	543 Advanced Educational Psychology .....	3 hours

All core courses must be taken in residence at the University.

The numbers in parentheses following the course numbers in this catalogue indicate credit hours.

*Notes*

## SCHOOL OF AGRICULTURE AND HOME ECONOMICS

MAJOR F. SPAULDING, Ph.D., *Dean*

The School of Agriculture and Home Economics offers instruction in the several general and specialized fields of agriculture and home economics. The curricula provide training for students who desire (1) to teach vocational agriculture and home economics in secondary schools, (2) to engage in agriculture and home economics extension, and (3) to pursue specialized work and research in agriculture and home economics.

The Bachelor degree is offered in Agricultural Education, Animal Science, Biochemistry, Foods and Nutrition, Home Economics Education, and Plant Science. A minimum of 198 quarter hours with a grade of "C" (2.00) is required for graduation, with not less than 66 quarter hours in 300 and 400 level courses.

The Master of Science degree is offered in Agricultural Education, Animal Science, and Plant Science.

### GENERAL CURRICULUM FOR FRESHMEN AND SOPHOMORES IN AGRICULTURE

Freshman Year Name of Course	Quarter			Sophomore Year Name of Course	Quarter		
	I	II	III		I	II	III
Agriculture				Agriculture			
111-12-13 . . . . .	1	1	1	201-2-3 . . . . .	1	1	1
Air Science I				Agricultural			
151-2-3 . . . . .	1	1	1	Economics 203.			3
Animal Husbandry				Agricultural			
102-3 . . . . .		3	3	Engineering 202-3		3	3
Chemistry				Agronomy			
111-12-13 . . . . .	4	4	4	201-2-3 . . . . .	3	3	3
English 101-2-3 . . . . .	3	3	3	Air Science II			
Mathematics				251-2-3 . . . . .	1	1	1
141-2-3 . . . . .	3	3	3	Animal			
Horticulture				Husbandry 201.	3		
101-3 . . . . .	3		3	Biology 101-2 . . . . .	4	4	
Physical Education				Agronomy 213 . . . . .			4
11-12-13 . . . . .	1/3	1/3	1/3	Speech 201-2 . . . . .	3	3	
Poultry				English 211 . . . . .			3
Husbandry				Physical Education			
101-2 . . . . .	3	3		20's to 50's . . . . .	1/3	1/3	1/3
				Electives . . . . .	3		
				Horticulture 212.		3	
	18 1/3	18 1/3	18 1/3		18 1/3	18 1/3	18 1/3

### COURSES IN AGRICULTURE

#### Undergraduate

111-12-13. *Agricultural Orientation.* (3) Designed to orient freshmen in agriculture to the life of the University and into the field of agriculture. Required of freshmen. One lecture.

201-2-3. *Technical Skills in Agriculture.* (3) Develops technical skills in the various phases of technical agriculture. Required of sophomores. One laboratory period.

303. *Family Food Supply.* (3) Deals with the production and preservation of the farm family food supply, including vegetables, fruits, dairy products and meats. Two lectures and one laboratory period.

Unit 6. *Animal Feeding.* A study of animal feeding with special emphasis on home-grown feeds and balanced rations.

## DEPARTMENT OF AGRICULTURAL EDUCATION

HENRY L. TAYLOR, Ph.D., *Head*

The Department of Agricultural Education is designed to prepare students to teach vocational agriculture in secondary schools of Tennessee. The degrees of Bachelor of Science and Master of Science are offered. To qualify for the B.S. degree in this curriculum and to teach vocational agriculture in Tennessee, a student must complete 205 quarter hours including all required courses, with 27 quarter hours in Agricultural Education and 9 hours in education and psychology. For a minor in Agricultural Education, a student must complete 18 quarter hours in the subject.

### CURRICULUM IN AGRICULTURAL EDUCATION

All freshmen and sophomore students take courses outlined in the general curriculum for freshmen and sophomores.

Junior Year Name of Course	Quarter			Senior Year Name of Course	Quarter		
	Hours	Credit	I II III		Hours	Credit	I II III
Agricultural Economics 301-2	3	3		Agricultural Economics 403			3
Agricultural Education 302-3		3	3	Agricultural Education 402-3; 412-22; 433, 450			15 6
Agricultural Engineering 303			3	Agricultural Engineering 401			3
Agronomy 301-2-3	3	3	3	Agronomy 401			3
Animal Husbandry 302			3	Animal Husbandry 331, 402	3		3
Animal Husbandry 311	3			Education 341	3		
Horticulture 403			3	History 201, 202	3		3
Horticulture 363			3	Political Science 313			3
Poultry Husbandry 302			3	Biology 241			4
Biochemistry 301	4			Horticulture 333			2
Psychology 242, 243	3		3				
	16	18	18		19	18	17

### COURSES IN AGRICULTURAL EDUCATION

#### Undergraduate

302. *Introduction to Teaching Vocational Agriculture.* (3) A discussion of the philosophy and administration of vocational education in agriculture from federal, state, and local points of view. Qualifications and duties of vocational agriculture teachers, definitions and examples of terms, determination of surveys to make, annual program of work, and course organizations emphasized.

303. *Planning Local Programs of Agricultural Education.* (3) Determining the local needs, use of advisory council, key farmers, procedures in planning the local program, including all-day classes, young and adult farmer classes, adult education, and N. F. A. programs.

402. *Material and Methods in Special Rural Education.* (3) A study of the factors which must be considered in determining what to teach and how to teach out-of-school rural youth and adults.

403. *Special Devices, Reports and Seminar.* (3) A study of the use of special devices to meet special situations. Reports to state and county authorities and means of carrying on publicity included.

412. *Materials and Methods in the Teaching of Agriculture in the Secondary Schools.* (3) A study of the factors to be considered in determining what to teach and how to teach secondary school students. Consideration given to the organization of course content based on the needs of the supervised farming program as revealed by an individual farm survey.

422. *Apprentice Teaching.* (6) A course in observation and practice teaching in departments of vocational agriculture in Tennessee. Done under the supervision of the teacher trainer and the critic teacher.

433. *Methods of Organizing and Directing Supervised Farming Programs.* (3) Designed to give students a broad concept of planning comprehensive supervised farming programs in Agriculture.

450. *Special Problems in Vocational Agriculture.* (3) Deals with specific problems that are confronting vocational agriculture teachers in getting farmers satisfactorily established on the farm. Each student is to present a problem and make recommendations for a solution, based on a critical study and analysis of the problem. A write-up in essay form required of all graduating seniors in the department.

### Graduate Courses

501. *Federal Relations to Education and Agriculture.* (3) A study of the history of vocational education in the United States. The philosophy of vocational education in agriculture, legislation, financing, planning and coordinating agricultural education with general education included.

502. *Educational Problems in Programs of Teachers of Vocational Agriculture.* (3) A critical study of the high school curricula offerings in agriculture. Experience given in enterprise analysis, course of study building, general program planning and summarizing. Problems in organization, administration and teaching the agricultural departments of secondary schools considered.

512. *Thesis Writing.* (3) Involves the actual writing of the thesis. Consideration given to form, statement of problems, collection of data, their use, and conclusions to be reached.

521. *Organization and Administration of Teacher Training in Vocational Agriculture.* (3) A study of the organization, philosophy, objectives and requirements for teacher training in vocational education in agriculture.

523. *Evaluation and Program Planning in Agricultural Education.* (3) Programs of vocational education in agriculture in local situations as a basis for elective program planning evaluated.

### COURSES IN AGRICULTURAL ECONOMICS

#### Undergraduate

203. *Agricultural Economics.* (3) A study of the historical perspective on present-day agriculture; adjustment of agriculture to natural and economic environment; principles of production and comparative advantage of crops and livestock on farms in Tennessee and the United States; land utilization, farm problems, and the government. Two lectures and one laboratory period.

301. *Agricultural Marketing.* (3) A study of the historical development of agricultural marketing; characteristics of consumer demand and the agricultural supply; channels and agencies of distribution; and the costs, functions, and services involved in marketing farm products. Two lectures and one laboratory period.

302. *Farm Management.* (3) A study of the operation of farming as a business; analysis of farm records and accounts; factors affecting profits and size of the farm business; and ways of getting started in farming. Two lectures and one laboratory period.

303. *Farm Organization and Management.* (3) A study of the factors involved in the organization and management of a farm; forms of tenure and leases; and planning the organization and management of a specific farm in Tennessee. Prerequisite: Agricultural Economics 302, or by permission of the instructor. Two lectures and one laboratory period.

311. *Farm Records and Accounts.* (3) A study of the principles and tech-

niques involved in keeping farm records and accounts; inventory, compiling analyzing and interpreting farm financial and operating statements. Two lectures and one laboratory period.

\*312. *Marketing Methods and Problems.* (3) A study of the methods and economic factors involved in the marketing of farm crops, poultry, eggs, livestock, and dairy products; marketing system and marketing costs; supply and demand; marketing cost reduction. Two lectures and one laboratory period. Prerequisite: Agricultural Marketing 301.

\*322. *Farmers' Cooperative.* (3) A study of the history and present status of farmers' cooperatives; what they have done and tried to do for farmers; their problems, finance, and control. Two lectures and one laboratory period.

323. *Land Economics.* (3) A study of the income, valuation, taxation, and classification of land with special emphasis upon the land in Tennessee. Consideration will be given to the economic principles of conservation; minerals and power resources. Two lectures and one laboratory period.

331. *Land Appraisal.* (3) A study of factors governing the utilization and price of land; the appraisal process and other factors affecting the land. Consideration will be given to deeds, mortgages, leases and project development. Two lectures and one laboratory period.

\*401. *Tabular and Graphic Presentation of Data.* (3) A study of the principles involved in the collection, tabulation and interpretation of agricultural data with special emphasis upon the construction and use of tables, charts, and graphs. Two lectures and one laboratory period.

402. *Agricultural Prices.* (3) Concerned with the analysis of prices and price movements of farm products and the relation of prices of farm products to other prices. Consideration given to agricultural outlook, production cycles, and price forecasts. Two lectures and one laboratory period.

403. *Agricultural Finance.* (3) A study of the kinds and sources of credit for farmers; costs, risks, and returns in agricultural finance. Two lectures and one laboratory period.

411. *Agricultural Policy and Programs.* (3) A study of the local, state, and federal agricultural policies and programs with emphasis on techniques and procedures.

413. *Farm Costs and Farm Labor.* (3) A study of unit costs; methods of measuring and reducing unit costs including equipment and building cost. Special attention given to farm labor and its effect upon farm organization and management as well as wages, hours, insurance and other problems. Two lectures and one laboratory period.

450. *Senior Project in Agricultural Economics Research.* (3) A study and discussion of senior projects on which students have been working (under direction) for at least one quarter.

451-52. *Special Problems in Agricultural Economics Research.* (6) A program designed to give first-hand experience to individuals who plan to engage in graduate study or governmental work. It deals with the construction of schedules; gathering, tabulating, and interpreting data. Field work is required. Prerequisite: Agricultural Economics 450.

\*Approved for graduate credit.

## DEPARTMENT OF ANIMAL SCIENCE

ROLAND NORMAN, Ph.D., *Head*

Courses in Animal Husbandry are designed to give instruction in the principles of livestock production and management, sanitation and health and processing and caring for animal products. Students are trained for the successful operation of livestock and poultry enterprises as owners, dairy farm operators, herd managers, market milk producers, extension livestock specialists and research workers.

### CURRICULUM IN ANIMAL HUSBANDRY

ROLAND NORMAN, *Coordinator*

A major in Animal Husbandry is offered leading to the degree of Bachelor of Science. To satisfy the requirements for the degree, the student must complete a minimum of 198 quarter hours. Not less than 36 hours must be completed in the major field, with a minimum of 15 hours in 300 and 400 level courses. Students who desire to minor in Animal Husbandry must complete a minimum of 18 quarter hours in the department.

Work leading to the degree of Master of Science is also offered.

### CURRICULUM IN ANIMAL HUSBANDRY

Freshman and sophomore students take courses outlined in the general curriculum for freshmen and sophomores.

Junior Year		Quarter			Senior Year		Quarter		
Name of Course		I	II	III	Name of Course		I	II	III
Chemistry 361	.....	4			English 321-322	.....	3	3	
Bio-chemistry 302-3	.....		4	4	Agromony 401-3	.....	3		3
Biology 311	.....			4	Agricultural Engineering 401	.....	3		
Biology 241	.....	4			Agricultural Economics 302	.....			3
Agricultural Economics 301-3	.....		3		Animal Husbandry 322	.....			3
Animal Husbandry 311-12-13	.....	3	3	3	Animal Husbandry 401-2-3	.....	3	3	3
Animal Husbandry 321	.....		3		Animal Husbandry 411-450	.....	3		3
Electives** (Soc. Sci.)	.....	3	3	3	Animal Husbandry 421-22-23	.....	1	1	1
					Electives **	.....		6	6
		17	16	17			16	19	16

### COURSES IN ANIMAL HUSBANDRY

#### Undergraduate

102. *Introductory Animal Husbandry.* (3) Devoted to the adaptation of the different classes of farm livestock to varying farm conditions and to the relationship of each class to the other in different farm plans. A careful study of correct type of livestock in relationship to economical production and market demands. Two lectures and one laboratory period.

103. *Livestock Management.* (3) Deals with the care and management of farm livestock, including dehorning, castrating, vaccination, parasite control, preparation for show and sale, and general feeding practices. Two lectures and one laboratory period.

\*\*Approved Social Science electives: Political Science 221, 313; Sociology 322, 393, 441; Approved Health or Personal Development electives: Health 301, 302; Psychology 211; Sociology 351, 463.

(All electives must be taken with the approval of the major adviser.)

201. *Introduction to Dairying*. (3) A study of the place of dairying in agriculture, utilization of dairy products, breeds of dairy cattle, composition of milk, processes of dairy manufacturing, herd management and the relationship of the farm to dairy herd operation. Two lectures and one laboratory period.

211. *Introduction to the Care and Riding of Light Horses*. (3) Designed for men and women of the University who are interested in horseback riding. Elementary principles in feeding, housing, training and riding light horses given; the proper care and adjustment of riding equipment also stressed. One lecture and two laboratory periods.

301. *Horse and Sheep Production*. (3) A study of the origin, importance, distribution, methods of production, and economic values of horses and sheep. Practice given in training, judging and grading. Two lectures and one laboratory period.

302. *Beef Cattle and Swine Production*. (3) Deals with the origin, development and status of beef cattle and swine industries, production, management practices and methods of marketing. Two lectures and one laboratory period.

303. *Animal Breeding*. (3) A study of the physiology of reproduction, heredity and environment, genetics of domestic animals, lethals, methods of selection with different classes of livestock and mating systems, and functions of the progeny test. Prerequisite: Biology 311. Three lectures.

311. *Feeds and Feeding*. (3) A study of the basic principles of feeding farm animals, feeding standards, balancing rations, composition and nutritive value of feeds. Two lectures and one laboratory period.

312. *Livestock Fitting and Judging*. (3) Designed to teach the principles and provide practices in training, fitting and judging livestock. One lecture and two laboratory periods.

313. *Diseases and Parasites*. (3) A study of the causes, symptoms and treatment of general diseases and parasites of livestock with special emphasis on sanitation. Prerequisite: Biology 241. Two lectures and one laboratory period.

321. *Swine Production*. (3) A study of the breeding, management, feeding and marketing of swine. Emphasis placed on both purebred and commercial production. Two lectures and one laboratory period.

322. *Beef Cattle Production*. (3) A study of the methods of producing, managing, feeding, fitting and marketing beef cattle. Two lectures and one laboratory period.

431. *Animal Science*. (3) A study of the feeding, breeding, hygiene and management of farm animals. Two lectures and one laboratory period.

\*401. *Market Milk*. (3) A study of the market milk industry, milk ordinances, city milk supply, milk procurement, transportation, grading, pasteurizing, cooling, bottling and distribution, milk plant organization and equipment. Prerequisite: Animal Husbandry 301. Two lectures and one laboratory period.

402. *Meat and Meat Products*. (3) A study of practices in butchering, cutting, processing and preserving farm meats. Two lectures and one laboratory period.

\*403. *Dairy Farm Operations*. (3) A study of general dairy farm operation, adaptation of the herd to available facilities, factors affecting production, balancing rations for dairy cattle, disease control, principles of modern dairy cattle breeding, arrangement and development of dairy farm buildings. Prerequisites: Animal Husbandry 201-311. Two lectures and one laboratory period.

411. *Technical Skills in Animal Husbandry*. (3) Aims to develop and improve the technical skills necessary for the successful production of farm animals and animal products. Three laboratory periods.

\*Approved for graduate credit.

421-22-23. *Seminar*. (3) Devoted to discussions of current literature and problems in animal husbandry. Required of seniors majoring in the department. One hour credit each quarter. One lecture.

450. *Senior Project*. (3) Required of all Animal Husbandry majors.

#### Graduate Courses

501. *Advanced Animal Feeding*. (3) Devoted to studies of recent developments in animal nutrition, experimental procedures and application in commercial feeding. Prerequisite: Animal Husbandry 311 or equivalent. Two lectures and one laboratory period.

502. *Animal Feeding Problems*. (3) The student is expected to conduct an original feeding trial with one class of farm animals for at least 60 days, record, interpret and present results in written form. One lecture and two laboratory periods.

503. *Animal Health*. (3) Devoted to a study of the health maintenance, sanitary practices and research in livestock diseases and parasites. Two lectures and one laboratory period.

511-12. *Research and Thesis Writing*. (6)

513. *Advanced Livestock Management*. (3) Provides an opportunity for the student to receive advanced training in the care and management of purebred herds, commercial herds, and herd development. Prerequisites: Animal Husbandry 103-303-311, or equivalents. Two lectures and one laboratory period.

521-22-23. *Animal Husbandry Seminar*. (3) Discussions of current literature in animal husbandry as presented in scientific journals.

531. *Advanced Animal Breeding*. (3) A study of the special problems in the field of animal genetics as applied to the breeding and improvement of farm animals. Two lectures and one laboratory period.

532. *Dairy Management*. (3) A study of the methods of management of commercial dairy plants, costs of operation, technical advances in processing and preserving dairy products. Two lectures and one laboratory period.

## CURRICULUM IN BIOCHEMISTRY

(Agricultural and Biological Chemistry)

ROBERT E. HURST, Coordinator

The Curriculum in Biochemistry has the following fourfold objective: (1) to offer courses for students in the several departments of agriculture and home economics, whose programs of study require such training; (2) to implement a program of training for majors in the department who seek to lay a foundation in agriculture and the appropriate sciences for future professional careers in agricultural chemistry, biological chemistry, and related fields; and (3) to provide instruction in biochemistry to students in other science departments.

Students majoring in biochemistry must complete a minimum of 198 quarter hours for the Bachelor of Science degree of which 63 quarter hours must be in 300- and 400-level courses. A minimum of 52 hours must be completed in chemistry and biochemistry, with not less than 28 hours in 300- and 400-level courses. Majors in biochemistry should select as a minor a combination of courses from related fields such as animal husbandry, poultry husbandry, foods and nutrition, and the biological sciences.

Students completing requirements for the Bachelor of Science degree in biochemistry should plan to pursue graduate study at least to the Master's degree. This additional training will prepare them for employment in laboratories of federal and state departments of agriculture, in agricultural experiment stations, with packing companies, food processing establishments, and other industries of this kind that employ technically trained staffs for control and research work.

Students who expect to pursue this curriculum must arrange with their major adviser to take Mathematics 161-2-3 instead of Mathematics 141-2-3 in the fresh-

man year of the General Curriculum, and Organic Chemistry 311, 312, 313 in the sophomore year.

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Animal Husbandry 311..	3			Biochemistry 402-3.....	4		4
Biochemistry 302-3.....		4	4	Biochemistry 411.....	4		
Chemistry 211-12-13.....	4	4	4	Biochemistry 450.....		3	
Electives (Soc. Sci. 9 hr.) .....	9-11	9	9	Biochemistry 423.....			1
				Biology 241.....	4		
				Physics 211-12-13.....	4	4	4
				Electives (Restricted) ..	6	7	7
	18	17	17		18	18	16

### COURSES IN BIOCHEMISTRY

#### Undergraduate

301. *General Agricultural Biochemistry.* (4) Introduces the student to the essentials of agricultural and biological chemistry as applied to animal and crop production. Prerequisites: Chemistry 111-12-13 and General Biology or Zoology and Botany. Required of agricultural education majors. Three lectures and recitations and two laboratory periods per week.

\*302-3. *Fundamentals of Biochemistry.* (8) An introductory study of the chemical nature of the constituents of protoplasm. A survey of mineral and organic foods and of nutritions. Required of majors in agricultural biochemistry and animal husbandry and poultry husbandry. Elected by students in other science fields. Prerequisites: General Chemistry, Organic Chemistry, and Biology or Zoology. Three lectures and two laboratory periods per week.

312. *Quantitative Agricultural Chemistry.* (4) Deals with certain aspects of quantitative chemistry as applied to agricultural and food analysis. Prerequisites: Chemistry 111-12-13. Required of majors in agronomy and horticulture. Two lectures and two laboratory periods per week.

313. *Physiological Chemistry.* (5) Presents the fundamentals of human physiological chemistry. Required of majors in foods and nutrition. Prerequisite: Chemistry 361. Three lectures and recitations, and two laboratory periods per week.

\*402-3. *General Biochemistry.* (8) A comprehensive study of the chemistry and biochemistry of carbohydrates, lipids, proteins, enzymes, vitamins and minerals important in the metabolism and nutrition of animals and plants. Required of biochemistry majors. Prerequisites: Chemistry 111, 112, 113, 211 12-13, 311-12-13; Biochemistry 302-3. Three lectures and two laboratory periods per week.

411. *Biochemical Analysis.* (4) Designed to familiarize the student with the principles and practices involved in the analysis of agricultural and food products and other biological materials. Prerequisites: Analytical and Organic Chemistry; and Biochemistry 302-3. One lecture and three laboratory periods per week.

\*423. *Seminar.* (1) A discussion by the students of biochemical literature understandable on the senior level. One meeting per week.

450. *Senior Project in Biochemistry.* (3) A special laboratory investigation is carried out under the direction of the instructor and the results are written up scientifically. Required of candidates for the bachelor's degree with majors in biochemistry. Hours arranged.

\*Approved for graduate credit.

### Graduate Courses

501. *Biochemistry of Animal Nutrition.* (4) Carbohydrates, lipids and proteins, and their metabolism; energy relationships in nutrition. Inorganic elements in nutrition and vitamins, and their requirements for different species. Laboratory work includes chemical and feeding experiment. Prerequisite: Biochemistry 303 or 403. Two lectures and two laboratory periods.

521. *Biochemical Seminar.* (1) Discussions of experimental techniques and research data in biochemistry and nutrition are presented by the students. Prerequisite: Biochemistry 303 or 403. One hour per week.

531-2-3. *Special Problems.* (2-6) Special laboratory problems in biochemistry and nutrition are completed, written up, and reported by the student. Prerequisite: Biochemistry 303 or 403.

### CURRICULUM IN POULTRY HUSBANDRY

The Curriculum in Poultry has been set up to prepare students for the successful operation of poultry enterprises, either as owners or managers; for extension and research work; and positions with the U. S. Department of Agriculture. Courses leading to the Bachelor of Science degree are offered.

To satisfy the requirements for a major in poultry husbandry leading to the Bachelor of Science degree, a student must complete a minimum of 198 quarter hours of which 61 quarter hours must be in 300-and 400-level courses. A minimum of 36 hours must be completed in poultry husbandry and closely related subjects, with not less than 15 hours in 300 and 400 courses. Eighteen hours in a minor field must also be completed. Guidance in determining courses to pursue will be provided by the student's major and minor advisers.

The poultry enterprise is equipped with laying, breeding, brooding, and nutritional study units. It has a flock of chickens of the two leading types, including four major breeds; turkeys, ducks, and geese. Modern incubators, refrigeration unit, killing and processing equipment, and a feed mixer are available for students in training. Adequate facilities are available for research in nutrition, breeding, hatch-ability, and disease. The entire laying flock is pedigree bred; sufficient record equipment and assistants in record-keeping enable the personnel to plan and carry out many demonstrations and researches that are useful to students.

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Poultry Husbandry 302..		3		Poultry Husbandry 450..			3
Poultry Husbandry 303...			3	Poultry Husbandry 402..		3	
Poultry Husbandry 342..		3		Poultry Husbandry 403..			3
Poultry Husbandry 343..			3	Poultry Husbandry 422..		3	
Biology 432.....	4			Poultry Husbandry 411-12-13 .....	3	3	3
Chemistry 361.....	4			English 322 .....		3	
Agricultural Economics 312.....		3		Biology 311.....	4		
Biochemistry 302-3.....		4	4	Biology 241.....	4		
Poultry Husbandry 321-22-23 .....	1	1	1	Electives .....	7	6	9
Electives (Soc. Sci. 9 hrs.).....	9	4	7				
	18	18	18		18	18	18

### COURSES IN POULTRY HUSBANDRY

#### Undergraduate

101. *Principles of Poultry Production.* (3) The principles and practices underlying reproduction and growth of the domestic fowl; also the study of

breeds, varieties, and types of poultry. Required of majors in Agriculture. Two lectures and one laboratory period.

102. *Principles and Practices of Incubation and Brooding.* (3) Designed to give the environmental factors affecting incubation, embryo development, operation of incubators, and methods of brooding. Required of majors in Agriculture. Two lectures and one laboratory period.

302. *Poultry Management.* (3) A detailed study of all phases of farm and commercial poultry that will include buying chicks, incubation, brooding, managing the growing flock, and handling the layers. Two lectures and one laboratory period.

303. *Processing Poultry Products.* (3) A detailed study of grades and classes of market poultry and eggs; methods of processing, storage, preservation; and problems in produce plant operations. Two lectures and one laboratory period.

321-22-23. *Technical Skills in Poultry Husbandry.* (3) Improves and develops the skills necessary for successful poultry production. Required of all majors and minors in Poultry Husbandry. Four laboratory hours.

342. *Hatchery Management.* (3) Includes the history, development, and operation of incubators. Also egg supply, hatchery records, and accounts, and the sale of chicks. Two lectures and one laboratory period.

343. *Turkey Management.* (3) The study of turkey breeds and breeding, principles of incubation and brooding poult, and turkey meat production. Two lectures and one laboratory period.

402. *Poultry Breeding.* (3) Information on the inheritance of viability, egg production, and other characteristics of economic importance, breeding records, and progeny testing. Three lectures.

403. *Poultry Hygiene and Sanitation.* (3) Designed to give the major principles underlying sanitation and disease prevention as applied to the poultry farm. Two lectures and one laboratory period.

411-12-13. *Special Problems in Poultry Husbandry.* (3-9) Each student will be required to make a study of some particular phase of poultry husbandry and write a report of his study and research. The work must comprise, in part, original investigation. A student must enroll in this course in order to do his senior project in the poultry department. Prerequisites: Poultry Husbandry 302, 303, 342, 343.

422. *Poultry Nutrition and Feeding.* (3) Designed to give the students the major principles of poultry nutrition, including the nutrients required by poultry and means of supplying these nutrients under practical feeding conditions. Poultry feedstuffs, ration formulation, and feeding practices considered. Two lectures and one laboratory period.

450. *Senior Project.* (3) Junior research is conducted in some phase of poultry.

#### Graduate

501-2. *Advanced Poultry Breeding.* (6) A study of the principles of genetics with emphasis on their application to the domestic fowl. Three lectures.

503. *Advanced Poultry Nutrition.* (3) History of nutrition, chemistry and physiology of nutrition and the nutritive requirements for growth, production, and other body functions of the domestic fowl. Two lectures and one laboratory period.

531. *Advanced Poultry Management.* (3) Deals with the influence of recent investigations in poultry husbandry as they affect methods of feeding, housing, breeding, care, and management of poultry. Two lectures and one laboratory period.

## DEPARTMENT OF PLANT SCIENCE

FRED E. WESTBROOKS, Ph.D., *Head*

The Department of Plant Science is a service area for the Division of Agriculture. Two curricula are offered with a major in Agronomy and one in Horticultural Science, for students who wish special training in the science of the special areas.

A major may be pursued in either area leading to the degree of Bachelor of Science. A minimum of 198 quarter hours is required for the B.S. degree. Not less than 36 hours must be completed in the curriculum of the student's choice with a minimum of 15 hours in 300 and 400 courses.

Graduate students may pursue studies in plant science leading to the Master of Science degree in Agronomy or Horticulture.

### CURRICULUM IN AGRONOMY

Freshman and sophomore students take courses outlined in the general curriculum for freshmen and sophomores.

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Agronomy 301-2-3.....	3	3	3	Agronomy 401-2-3.....	3	3	3
Agronomy 311-12-13....	1	1	1	Agricultural Economics 401 .....		3	
Chemistry 361.....	4			Animal Husbandry 402-3 .....		3	3
Biochemistry 312.....		4		Agronomy 450.....	3		
Animal Husbandry 302-311 .....		3	3	Agronomy 411-12-13....	1	1	1
Agricultural Economics 301-2-3 .....	3	3	3	Agronomy 322.....		3	
English 321-23.....	3		3	Agronomy 323.....			3
Horticulture 343.....			3	Horticulture 433.....			3
Biology 311.....	4			Electives .....	6	6	3
Horticulture 363.....			3				
Elective (Soc. Sci.)....		3					
		<hr/>	<hr/>			<hr/>	<hr/>
		18	17	19		16	16
						16	16

### Minor in Agronomy

Agronomy 301	Agronomy 401
Agronomy 302	Agronomy 402 or Biochemistry 312
Agronomy 303	Agronomy 403

### COURSES IN AGRONOMY

#### Undergraduate

201. *Field Crops.* (3) A study of the different uses of land, crop characteristics, adaptations, culture and use. Two lectures and one laboratory period.

202. *Soils.* (3) An introduction to the study of the principles of soil formation, the nature and properties of soil and their relation to plants. Prerequisites: Chemistry 111-12-13. Two lectures and one laboratory period.

203. *Soil Fertility*. (3) A study of soil factors as related to soil fertility maintenance, and fertilizer practices. Two lectures and one laboratory period.

213. *General Agricultural Botany*. (4) Designed to provide a broad understanding of the fundamental facts and principles of botanical sciences. Three lectures and two laboratory periods.

301. *Sorghums and Small Grains*. (3) Deals with the distribution, culture and use of the cereal grains and their climatic adaptation. Two lectures and one laboratory period.

302. *Cotton and Tobacco*. (3) A study of the principles of cotton and tobacco culture, fertilizing, producing, grading, classifying and marketing. Two lectures and one laboratory period.

303. *Forage and Pastures*. (3) A study of the characteristics and uses of the important forages and pasture crops of Tennessee. Two lectures and one laboratory period.

311-12-13. *Technical Skills in Agronomy*. (3) Aims to develop and improve the technical skills necessary for the successful production of field, pasture, forage and soil improvement crops, and for the conservation and improvement of the soil resources. Two laboratory periods per week.

322. *Plant Pathology*. (3) A study of the diseases of the most important agricultural plants of Tennessee and the South. Emphasis on the nature of the disease, recognition and control measures. Two lectures and one laboratory period.

323. *Economic Entomology*. (3) Provides a brief review of the structure, morphology, controls and the recognition of economic insects as related to Agriculture. One lecture and two laboratory periods.

331. *Farm Weeds*. (3) A one-quarter course of laboratory and field work on the identification, eradication, and economic value of the important weeds of fields and pastures. Elective for any department. Two lectures and one laboratory period.

401. *Soil Conservation and Management*. (3) A study of tillage, drainage, fertilization and rotation practices as they affect the productive capacity of field soils. One laboratory period and two lectures.

\*402. *Soil and Plant Analysis*. (3) A laboratory course pertaining to the procedures and methods of plant and soil analysis. Prerequisites: Chemistry 361, Biochemistry 312. Three laboratory periods.

\*403. *Legumes*. (3) A study of the characteristics and uses of the important legumes of Tennessee and the United States, their ecological adaptations, fertilization and management. Two lectures and one laboratory period.

450. *Senior Project*. (3) Required of all agronomy majors.

411-12-13. *Seminar*. (3) Includes the discussion of current topics, lectures and demonstrations in Agronomy and related areas.

\*Approved for graduate credit.

CURRICULUM IN FRUITS AND VEGETABLES (HORTICULTURE)

HAZO W. CARTER, Ph.D., Coordinator

All Freshman and Sophomore students take courses outlined in the General Agricultural Curriculum for Freshmen and Sophomores.

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Horticulture 301-2-2....	3	3	3	Horticulture 401-2-3....	3	3	3
Horticulture 313.....			3	Horticulture 412.....		3	
Horticulture 331-2-3....	2	2	2	Horticulture 423.....			3
Horticulture 321.....	3			Horticulture 433.....			3
Agricultural Economics 312.....		3		Horticulture 450.....			3
Home Management 323.			3	Biochemistry 312.....			4
Chemistry 361.....	4			Agronomy 401-2.....	3	3	
Biology 311.....	4			English 321-2.....	3	3	
Sociology 221-322.....	3	3		English 321-2.....	3	3	
Electives.....		6	6	History 201-2.....	3	3	
				Electives.....	3		3
	19	17	17				

Minor in Horticulture

Horticulture 301	Horticulture 331	Horticulture 403
Horticulture 302	Horticulture 332	
Horticulture 303	Horticulture 333	

COURSES IN HORTICULTURE

Undergraduate

101. *Principles of Fruit Growing*. (3) A study of the principles and practices involved in the culture of orchard plants. Two lectures and one laboratory period.

103. *Vegetable Gardening*. (3) A basic study of the principles and practices of vegetable production. Two lectures and one laboratory period.

212. *Ornamental Horticulture*. (3) An elementary course of principles and practices involved in the production of flowers and ornamental plants. Two lectures and one laboratory period.

301-2-3. *Commercial Vegetable Production*. Winter and Spring Quarter. (9) Deals with the principles and practices of commercial vegetable production, and study of varieties, cultural practices, insect and disease control, grading, packing, storing and marketing. Two lectures and one laboratory period.

313. *Fruit Varieties*. (3) A systematic study of the most important varieties of apples, pears, peaches, plums, and small fruits from the standpoint of their identification, growth characters and special cultural requirements. At least one field trip given. Two lectures and one laboratory period.

321. *Processing of Fruits and Vegetables*. (3) A study of current practices in the processing of fruits and vegetables. In addition to laboratory work, the course includes visits to freezing and dehydrating plants, and canning factories. One lecture and two laboratory periods.

331-2-3. *Technical Skills in Horticulture*. (6) Aims to develop technical skills necessary for production of fruits and vegetables. Required of all students majoring and/or minoring in horticulture. Two laboratory periods.

343. *Propagation of Horticulture Plants*. (3) A study of the methods of propagating horticultural plants including seedage, cuttage and grafting of both economic and ornamental plants. Two lectures and one laboratory period.

350. *Special Problems in Ornamental Horticulture*. (1) Hours arranged.

351. *Floriculture*. (3) A course dealing with the principles underlying the culture of greenhouse crops. Two lectures and one laboratory period.

363. *Forestry*. (3) A study of forest conservation and management and the relation of forestry to agriculture, including the influence of the forest on climate, streamflow and erosion. Two lectures and one laboratory period.

372. *Landscape Plants*. (3) A study of ornamental plants such as trees and shrubs, involving their identification and use in landscape plantings. Two lectures and one laboratory period.

381. *Landscape Design*. (3) A study of landscape composition dealing with the designing of small lots, city property, public grounds and large estates. Two lectures and one laboratory period.

401. *Handling, Storage, and Utilization of Fruits*. (3) The important factors in harvesting and handling fruits that affect quality and marketability studied. Two lectures and one laboratory period.

402. *Orchard and Small Fruit Culture*. (3) Deals with the study and practices in propagating, planting, pruning, cultivating, fertilizing, spraying, and thinning orchard and small fruit crops. Two lectures and one laboratory period.

\*403. *Growth and Development of Fruits and Vegetables*. (3) Deals with the factors affecting growth, development and quality of fruits and vegetables. Two lectures and one laboratory period.

412. *Plant Nutrition*. (3) Deals with soil condition in relation to the growth of fruit trees and vegetable plants; soil and plant tissue tests, fertilizers and their use. Two lectures and one laboratory period.

423. *Types and Varieties of Vegetables*. (3) Deals with the taxonomy, origin, history, characteristics, adaptation, identification, classification, exhibition and judging of kinds and varieties of vegetables. The value of the course depends to a great extent upon gaining an acquaintance with the plant material as it grows. Two lectures and one laboratory period.

\*443. *Breeding of Horticultural Plants*. (3) A study of the principles and methods of genetics as applied to the breeding and improvement of horticultural crops. Two lectures and one laboratory period.

450. *Senior Project in Horticulture*. (3) Individual student research and presentation of a special topic or problem selected by the student and approved by the adviser. Prerequisite: Senior standing.

451. *Floral Design*. (3) A course dealing with the essentials of flower arrangement. One lecture and two laboratory periods.

461. *Floriculture*. (3) A course dealing with the major commercial cut flower crops. Two lectures and one laboratory period.

462. *Floriculture*. (1) Special problems course. Two laboratory periods.

463. *Floriculture*. (1) Special problems course. Two laboratory periods.

#### TERMINAL COURSES IN ORNAMENTAL HORTICULTURE AND FLORICULTURE

This specialized course in Ornamental Horticulture is given to serve the needs of those who wish to go into business as operators, either for themselves or for others.

Two (2) years—Three (3) seasons: Fall—Winter—Spring.

Unit I. Fall (480 Clock Hours) . . . . .

- A. Landscape plants—  
A study of the form, shape and identity of trees and shrubs.
- B. Propagation of ornamental plants—  
A study of the various methods of propagating ornamental plants.
- C. Landscape Design—  
A study that deals with the fundamental elements of design, involving the use of symbols and figures used in landscape design.

\*Approved for graduate credit.

#### Unit II. Winter

- A. Landscape plants—  
A study of the form, shape and identity of trees and shrubs.
- B. Propagating Horticultural plants—  
A continued study of specific methods in propagating certain plants.
- C. Landscape Design—  
A study in the designing of small property.

#### Unit III. Spring

- A. Landscape plants—  
A study of perennials used in landscape design.

#### Graduate Courses

501. *Plant Breeding*. (3) A study of the methods, principles and results of plant improvement work; hereditary variation and the general principles of plant breeding. Prerequisites: Agronomy 201, Biology 101-2. Three lectures.

502. *Fiber (Other than Cotton) Sugar and Root Crops* (3) A study of the distribution, characteristics and cultural requirements of flax, hemp, sugar cane, sugar beets, white and sweet potatoes. Prerequisite: Agronomy 202. Two lectures and one laboratory period.

503. *Soil Classification*. (3) Teaches the basis of soil classification, genesis and morphology of zonal soils of the United States. Emphasis placed on the important series of Tennessee. Prerequisites: Agronomy 202, 401. Two lectures and one laboratory period.

511. *Thesis Writing*. (3) Methods of Research.

512. *Thesis*. (3) Graduate students only.

513. *Advanced Plant Pathology*. (3) Basic concepts of diagnosis, cause, and control of selected plant diseases. Two lectures and one laboratory period.

521-22-23. *Seminar*. (3) Provides opportunity for the discussion of current problems in Plant Science. Prerequisites: 201-2 and permission of the instructor. One hour credit each quarter. One meeting per week.

531-32-33. *Plant Science Literature*. (3) Acquaints the student with the literature in Agronomy and Horticulture. One 2-hour period per week.

541. *Advanced Methods in Soil and Plant Analysis*. (3) Official quantitative methods of soil and plant analysis. Prerequisite: Agronomy 402. Three laboratory periods.

542-43. *Special Problems in Plant Science*. (6)

551. *Advanced Pomology*. (3) The development and performance of fruit plants as influenced by environment and production practices. Two field trips required. Two lectures and one laboratory period.

552. *Advanced Soil and Plant Analysis*. (3) Official quantitative methods of soil and plant analysis. Prerequisites: Agronomy 402. Three laboratory periods.

553. *Advanced Propagation of Horticultural Plants*. (3) A study of the methods of propagating horticultural plants including seedage, cuttage, and grafting of both economic and ornamental plants. Two lectures and one laboratory period.

502. *Psychology (Advanced Statistics)*. (3) Required in the program for the Master of Science degree.

#### Minor in Plant Science

- 501. *Plant Breeding*. (3).
- 502. *Fiber—Sugar and Root Crop*. (3).
- 503. *Soil Classification*. (3).
- 513. *Advanced Plant Pathology*. (3).
- 551. *Advanced Pomology*. (3).
- 553. *Advanced Propagation of Horticultural plants*. (3).

## DEPARTMENT OF HOME ECONOMICS

MIRIAM L. McTEER, Ph.D., *Head*

### General Information

The Department of Home Economics aims to guide students in developing a sound and satisfying philosophy of life, using intelligence in solving personal and family problems, preparing for vocations, developing wholesome social relationships and enriching their general and cultural education.

The Home Economics Department is located in the Women's Building and includes the following curricula: Foods and Nutrition and Home Economics Education.

Students who transfer from other institutions to complete requirements for the Bachelor of Science Degree with a major in any of the curricula of Home Economics must complete at this institution a minimum of one academic year and earn a minimum of 48 hours of credit.

### Home Economics Club

The Tennessee A. and I. State University Home Economics Club is affiliated with the American Home Economics Association. Home Economics majors who are interested in professional home economics and in homemaking are encouraged to become members of the organization. Home Economics Education majors are required to participate as an integral part of their training to become advisers of the New Homemakers of America.

The major purpose of the American Home Economics Association College Club is to improve education for the profession of home economics.

The club gives a cash award annually to the member in each of the four college classes who has maintained the highest scholastic average above 3.0 for that year.

## COURSES IN CLOTHING AND TEXTILES

### Undergraduate

111. *Textiles*. (3) A practical consumer study of fabrics used for clothing and house furnishings including selection, use, and care. One lecture and two laboratory periods.

112. *Clothing Selection*. (3) Planned to help the freshman student meet her clothing problems. Emphasis placed on personal grooming, selection of appropriate clothing, clothing costs, commodity study of articles included in the wardrobe, and care of clothing. Open to all students. One lecture and two laboratory periods.

113. *Children's Clothing*. (3) A study of the physiological, psychological and aesthetic aspects of children's clothing. Selection, construction and care of clothing for infants and small children are chief phases. Prerequisite: Clothing 112. One lecture and two laboratory periods.

201. *Clothing of the Family*. (2) Based on the needs of students interested in child development, family relationships, teaching or social work. The study of family clothing problems from the standpoint of income, occupation, and health as well as aesthetic and psychological factors. Construction is included. Open to all students. Two laboratory periods.

211. *Elementary Clothing Construction*. (3) Principles of clothing construction are applied to cotton, linen and synthetic fabrics. Use and care of sewing machines, sewing skills, and wardrobe inventory included. Open to all students. One lecture and two laboratory periods.

212. *Intermediate Clothing Construction*. (3) Principles of clothing construction are applied to synthetic and blended fabrics. Use of commercial patterns, principles of fitting and the use and care of sewing machines included. Prerequisite: Clothing 112. One lecture and two laboratory periods.

300. *Clothing for Elementary Teachers*. (3) A course designed for majors in Elementary Education. Costume study and construction, handwork including crochet, embroidery, weaving, rug making and crayon work are included. One lecture and two laboratory periods.

301. *History of Costume*. (3) The history of costume from ancient times to the present and the influence of social and economic conditions upon costume. Open to all students. One lecture and two laboratory periods.

313. *Renovation*. (3) Includes restyling, reconstruction, reclaiming, and repairing outmoded and discarded clothing and accessories. Open to all students. One lecture and two laboratory periods.

320. *Needle Craft*. (3) A study of the fundamental techniques of knitting, crocheting, embroidery and lacemaking. Open to all students. One lecture and two laboratory periods.

321. *Advanced Clothing*. (3) Deals with advanced construction methods. Emphasis placed on selection, construction and care of woolen garments. Prerequisite: Examination in construction skills. Juniors and seniors only. One lecture and two laboratory periods.

322. *Flat Pattern Adaptation*. (3) A study of the principles and techniques of flat pattern design with application of these principles to commercial pattern alteration. The development of original designs emphasized. One recitation and two laboratory periods.

401. *Problems in Clothing and Textiles*. (3) Special problems in the details of clothing construction, selection and textiles solved by the students. Also problems met in student teaching reviewed. Newer trends in clothing construction emphasized. Prerequisites: Clothing 211, 212. One lecture and two laboratory periods.

413. *Dress Design and Draping*. A course in dress design with emphasis on originality and draping. Opportunity given to investigate sources of design and to practice various methods of designing. Prerequisite: Clothing 321. One lecture and two laboratory periods.

450. *Senior Project Writing*. (3) (With or without credit.)

## CURRICULUM IN FOODS AND NUTRITION

The objectives of the curriculum in Foods and Nutrition are threefold: To develop in each student (1) a sound, basic, up-to-date knowledge in the fields of foods and nutrition, (2) the ability to interpret these basic facts and apply sound judgment to their translation to actual situations; and (3) the skills and techniques required to apply these basic principles to methods of preparation.

The curriculum in Foods and Nutrition leads to the degree of Bachelor of Science or Bachelor of Arts in Foods and Nutrition. The undergraduate major consists of a total of 204 quarter hours, 67 of which are courses in the 300 and 400 series. A minimum of 39 quarter hours must be taken in Foods and Nutrition, 15 of which must be taken in the 300-400 series.

Foods and Institutional	Chemistry .....	16 hours
Management .....	Inorganic .....	12
Nutrition .....	Organic .....	4
Clothing .....	Human Physiology.....	8 hours
Home Management.....	Biochemistry (Physiological).	5 hours
Child Development.....	Mathematics .....	9 hours
	Bacteriology .....	4 hours

Students desiring the degree of Bachelor of Arts must elect to take the re-

quired years of a modern foreign language as specified under requirements for the Bachelor of Arts Degree.

The curriculum below meets the requirements of the American Dietetic Association for entrance into an approved dietetic internship. It also meets the requirements of the Liberal Education Core for students majoring in non-teaching fields as set up by the School of Arts and Sciences.

Freshman Year Name of Course	Quarter Credit Hours			Sophomore Year Name of Course	Quarter Credit Hours		
	I	II	III		I	II	III
English 101-2-3	3	3	3	English 211-12-13	3	3	3
Home Economics 101-2-3 or 201	1	1	1	Biology 202-203		4	4
Clothing 111			3	Clothing 112	3		
Foods 111-12	3	3		Clothing 211			3
Chemistry 111-12-13	4	4	4	Biology 241	4		
Mathematics 101-2-3	3	3	3	Psychology 221-43-53	3	3	3
Physical Education 11-12-13	1 1/3	1 1/3	1 1/3	Nutrition 211			3
				Foods 223	3		
				Chemistry 361		4	
				History 201*		3	
				Physical Education 20's - 50's	1 1/3	1 1/3	1 1/3
	15 1/3	15 1/3	15 1/3		17 1/3	18 1/3	17 1/3

  

Junior Year Name of Course	Quarter Credit Hours			Senior Year Name of Course	Quarter Credit Hours		
	I	II	III		I	II	III
Related Art 201-3		3	3	Nutrition 411	3		
Speech 201-2	3	3		Sociology 322	3		
Education 341	3			Foods 412		3	
Foods 311	3			Foods 452			3
Foods 321	3			Foods 313	3		
Nutrition 311		3		Nutrition 453		3	
Foods 312		3		Nutrition 433		3	
Biochemistry 313			5	Nutrition 432		3	
Child Development 351			3	Nutrition 450			3
Accounting 211		3		Home Management 421	3		
Foods 352			3	Home Management 423	4		
Home Economics Edu- cation 311-12	3	3		Electives		6	12
Economics 211-12	3		3				
	18	18	17		16	18	18

## COURSES IN FOODS AND NUTRITION

### Undergraduate

#### Foods

111-12. *Food Buying and Preparation.* (6) The study of foods, including standards for selection, purchasing, preparing and serving foods for high nutritive value and analyses of simple principles involved in food cookery. One lecture and two laboratory periods. To be taken in sequence.

223. *Meal Planning and Table Service.* (3) Meal preparation and table service for various occasions, market plans, cost of meals, the nutritive value of food, the aesthetic aspect of meal planning. Open to majors in other areas who can qualify in consultation with instructors. One lecture and two laboratory periods.

311. *Science Related to Cookery.* (3) A study of the principles underlying the theoretical and practical aspects of food preparation. One lecture and two laboratory periods.

312. *Experimental Cookery.* (3) Designed to offer opportunity for independent laboratory work in the solving of practical problems in food preparation, a study of methods of scoring and standardizing experimental work. One lecture and two laboratory periods.

313. *Institutional Equipment.* (3) Includes study of the kinds, selection, care, cost and maintenance of individual pieces of equipment and their use and labor-saving devices in food service organizations.

321. *Food Preservation.* (3) A study of the planning and preserving of an adequate food supply for the year for the urban and the farm family. Laboratory work is done in various methods of food preservation. One lecture and two laboratory periods. Prerequisites: Foods 111-112.

352. *Food Demonstration.* (3) A study of the principles and techniques involved in foods, nutrition and equipment as applied to the needs of extension, business, classroom and community teaching. One lecture and two laboratory periods.

412. *Quantity Cookery.* (3) Deals with the problems of lunchrooms, cafeterias and tearooms for the general public, institutions and schools. Attention is given to methods of purchasing foods in quantity, organization of labor, standards of work materials, equipment and installation, meal planning and preparation in large quantities. One lecture and two three-hour laboratory periods.

431. *School Lunch.* (3) Planned to prepare for the management of school lunchrooms in connection with teaching. A survey is made of the problems of lunchroom management through field trips to lunchrooms of various schools.

452. *Organization and Management.* (3) Includes a study of institutional food departments, professional ethics and qualifications for managers, employment procedures, personnel schedules and financial records. It also includes menu analyses, the development of standardized recipes, schedules and standardized work procedures. One lecture and two laboratory periods.

#### Nutrition

211. *Elementary Nutrition.* (3) Includes the fundamentals of nutrition for health, a study of the essentials of an adequate diet, the food needs of persons of different ages and occupations and the nutritive values of common foods, with special emphasis on the relation of health to such knowledge.

212. *Nutrition for Elementary and Secondary Teachers.* (3) A general course in elementary nutrition and includes problems related to gross signs of good and poor nutrition, optimum diets for growing children, school luncheons to promote good growth and health, and methods and materials used in teaching children good food habits. Open to majors in other fields requiring instruction in the fundamentals of nutrition.

311. *Applied Dietetics.* (3) The fundamental principles of human nutrition as related to the construction of practical dietaries and in the application of these principles to the feeding of individuals, families and groups.

411. *Advanced Nutrition.* (3) A critical study of chemical and physiological factors in metabolism during prenatal life, infancy, childhood and normal adult life. Reports of recent research and their relation to problems of human nutrition. Prerequisites: Nutrition 211, Biochemistry 313.

432. *Community Nutrition.* (3) Programs are developed and analyzed which deal with community problems in nutrition and various agencies through which field work can be promoted. Prerequisite: Nutrition 411, Sociology.

433. *Child Nutrition*. (3) The study of the development of a health program for children as related to nutritive requirements and the planning of adequate dietaries. Prerequisite: Nutrition 211.

450. *Project Writing in Foods and Nutrition*. (3) Instructs the student in techniques of professional writing, literature searching and abstracting scientific material designed to assist each senior project. To be taken in the first quarter of the senior year.

452. *Special Problems in Foods and Nutrition*. (3) Each student is assigned problems in the fields of foods and nutrition for independent and group solution.

453. *Nutrition and Diet Therapy*. (3) Designed to study the modifications of the normal diet in the treatment of disorders of digestion, metabolic disturbances and other pathological conditions of the body. Prerequisite: Nutrition 311. Two lectures and one laboratory period.

#### Graduate

503. *Food Service and Entertainment*. (3) Designed to offer instruction in preparation and service of food for various types of social occasions. Attention is given to table appointments, settings and decorations suitable for any type of entertainment. One lecture and two laboratory periods.

521. *Advanced Nutrition*. (3) Includes an extensive review of the principle of human nutrition and metabolism. Prerequisite: Nutrition 411 or equivalent.

531. *Community Nutrition*. (3) A study of nutritional habits of individuals and methods of improving nutritional practices in a community. Opportunity is provided for the development of techniques used in community nutrition programs.

533. *Review of Literature in Foods and Nutrition*. (3) Designed to give the student the opportunity to become acquainted with the related literature in the fields of foods and nutrition.

### CURRICULUM IN HOME ECONOMICS EDUCATION

The curriculum in home economics education is designed to prepare students to attain the qualifications required to teach Vocational Home Economics in the secondary schools of Tennessee. Graduates also qualify for Home Demonstration Agents.

The undergraduate major consists of 204 quarter hours, 86 of which are on the 300 and 400 levels. A minimum of 100 qtr. hrs. must be taken in Home Economics Education, 70 of which are on the 300 and 400 levels.

The curriculum below applies to all students entering the freshman year since September 1, 1953, and is in accordance with the new certification regulations.

Students who began training prior to September 1953 will follow the curriculum which was in effect at the time of their registration.

Freshman Year Name of Course	Quarter Credit Hours			Sophomore Year Name of Course	Quarter Credit Hours		
	I	II	III		I	II	III
English 101-2-3.....	3	3	3	English 211-2-3....	3	3	3
Clothing 111-112.....	3		3	Clothing 211.....	3		
Related Art 201-3.....		3	3	Zoology 202-3.....		4	4
American History 201.....		3	3	Biology 241.....			4
Foods 111-12.....	3	3		Psychology 221- 243-253.....	3	3	3
Chemistry 111- 12.....	4	4	4	Economics 211-12.3	3	3	
Home Economics 101-2-3 or 201.....	1	1	1	Nutrition 211.....	3		
Mathematics 101 or elective.....			3	Foods 223.....			3
Physical Education 11-12-13.....	1 1/3	1 1/3	1 1/3	Clothing 212.....		3	
	15 1/3	15 1/3	17 1/3	Physical Education 20's-50's.....	1 1/3	1 1/3	1 1/3
					16 1/3	17 1/3	18 1/3

Junior Year Name of Course	Quarter Credit Hours			Senior Year Name of Course	Quarter Credit Hours		
	I	II	III		I	II	III
Education 341.....	3			Child Development 452- 463.....	3	3	
Psychology 263.....		3		Home Management 423.	4		
Clothing 321.....	3			Home Economics Education 431.....			3
Child Development 351.		3		Home Economics Education 442.....			3
Home Management 223- 320-422.....	3	3	3	Home Economics Education 433.....			6
Chemistry 361.....	4			Home Art and Mechanics 400.....			3
Home Economics Education 311-12.....	3	3		Home Economics Education 450.....	3		
Nutrition 311.....		3		Related Art 421.....	3		
Agriculture 303.....		3		Electives*.....	3	3	15
Political Science 313....		3					
Sociology 322.....		3					
Electives*.....		3	6				
	16	18	18		16	18	18

### COURSES IN HOME ECONOMICS EDUCATION

#### Undergraduate

H. E. 101-2-3. *Orientation*. (3) A course required of all freshmen registered in the Area of Home Economics; designed to orient the student into the entire field of Home Economics and to the life of the University. One lecture. One hour credit per quarter.

H. E. 201. *Guidance*. (3) A guidance course required of all transfer students offering three or more quarters of college work. The course is designed to acquaint students with professional opportunities, courses and requirements in the various fields of activity for which the Department of Home Economics offers curricula.

311. *Methods of Teaching Home Economics*. (3) Deals with a critical study of instruction methods, principles of teaching and philosophies of Home Economics. Emphasis is placed on the selection, organization and presentation of courses and lessons in the field of Home Economics. Prerequisites: Education 341 and Child Development 351. Three lectures.

\* Six hours in the Humanities and 18 hours of 300 and 400 Home Economics courses must be elected.

312. *Materials and Teaching Aids.* (3) Designed for students preparing to teach home economics in the public schools. Opportunity is provided for experimentation and operation of different teaching aids and procedures. Special attention is given to the use of films, recordings, bulletin board and radio. Consideration is also given to the place of demonstration, discussion, field trips, home experiences and club work in the teaching of home economics. Three lectures.

431. *Problems of Curriculum and Teaching.* (3) A study of practical methods of organizing the curriculum and adapting its contents to pupil and community needs. Consideration is given to the part the curriculum plays in vitalizing the community and to the underlying principles involved. Three lectures.

433. *Supervised Teaching in Home Economics.* (6) Supervised observation and teaching in Home Economics in the public schools of Tennessee is provided. Problems of organization and supervision basic to induction of teachers into their profession will be stressed. This course is open to seniors who have completed required work in the technical courses of Home Economics. Supervised teaching is done in off-campus teaching centers for a minimum of six weeks. Room and board while in the center will be paid by students.

442. *Adult Education Methods in Home Economics.* (3) Deals with a survey of the organization, administration and recent development in adult education with special emphasis upon the field of homemaking education. A study is made of teaching techniques and materials for adult classes in home-making. Three lectures. Laboratory practice will be arranged.

450. *Senior Project Writing.* (3) Designed to give students opportunity to select and develop problems of their choice in the area of home economics. All seniors are required to write senior projects.

#### COURSES IN CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

##### Undergraduate

321. *The Child's Play Environment.* (3) A study of the role of play in the young child's development. Emphasis placed on the selection, care and use of play materials and equipment for young children. Students are able to plan play activities and to construct toys. One lecture and two laboratory periods.

322. *Courtship and Marriage.* (3) A study of dating, courtship and engagement—problems involved before marriage and their effect on the ultimate success or failure in or out of marriage. Three lectures.

332. *Creative Arts for Young Children.* (3) Observation and analysis of the young child's use of plastic materials such as clay, paint, paper, wood, sand, etc. Students use these materials as well as study their selection, use and care. Open to freshmen, sophomores and non-majors.

351. *The Young Child and His Family.* (3) Emphasis placed upon the individual development of various family members. Consideration of family relations basic to an intelligent understanding of attitudes and behavior of children and young people. Observation of training procedures in the Nursery School. Prerequisite: Psychology 253. Two lectures and two laboratory periods.

452. *Child Practicum.* (3) Observation and participation in the directing and guiding of young children in the nursery school, in the home and other situations. Prerequisites: Child Psychology 253, CD and FR 351. One conference and four hours in Nursery School.

461. *The Growth of Children as Related to Guidance.* (3) A study of physical growth of children. Interpretation of growth norms. Factors influencing growth, such as nutrition, health, and housing are included. Prerequisites: Psychology 221 and 253. Two lectures and one laboratory period.

463. *Personality Development and Family Relationships.* (3) Problems

in family life. A study of modern life giving special emphasis to the activities of the home as they relate to the development of the family and its individual members. Prerequisites: CD. and FR., 322, and Home Management 422 or Sociology 322. Three lectures.

464. *Later Periods of Childhood.* (3) A study of the development of the child from later preschool age through adolescence. Open to men and women of all schools. Prerequisites: CD. and FR. 351, or Child Psychology 253.

465. *Survey of Development Throughout Adulthood.* (3) Interrelation of physical, psychological, and social development from early adulthood through maturity and old age; characteristic adjustment problems in these periods of life. Prerequisites: 3 credit hours in child development and family relationships, psychology, or sociology.

466. *Internship or Fieldwork.* (3-6) Opportunity is given students to do practice work in nursery schools in the community and other agencies caring for children as well as the campus practice laboratory. Taken with approval of instructor.

#### COURSES IN FAMILY ECONOMICS AND HOME MANAGEMENT

##### Undergraduate

111. *Health and Safety in the Home and Community.* (3) Designed to contribute to the understanding of health and safety measures which should be set up in the home and community. Three lectures.

213. *Social and Economic Problems of the Family.* (3) Deals with role of women, men, boys and girls in the home; the attitude toward homemaking as a job and the employment of women outside the home. Problems pertaining to conserving family values are discussed. Two lectures and one laboratory period.

223. *Home Nursing.* (3) Special problems in the promotion of health of the family and home care of the sick. Two lectures and one laboratory period.

320. *Household Equipment.* (3) Deals with the various types of household equipment, standard brands, their selection and care and the study of household equipment, standard brands, their selection and care and the study of problems concerned with the manufacturing, marketing and servicing of the equipment of the household. Two lectures and one laboratory period.

323. *Financial Planning for the Individual and Family.* (3) Introduces the case method in financial planning. The student learns to interpret figures and to apply them in managing the income. Three lectures.

412. *Home Use of Electricity.* (3) Deals with the selection, correct use and care of electrical equipment for the household. A comparative study is made of old models of electrical equipment and recent models; purchase and operating costs and expenses for repair. Two lectures and one laboratory period.

421. *Problems in Home Management.* (3) Required parallel with Home Management 423. Two lectures and two laboratory periods.

422. *Economic Problems of the Household.* (3) Introduces the student to the major social and economic problems that confront families. Three lectures.

423. *Home Management Residence.* (4) Designed to study the principles of practical and effective management of the home. It provides experience in family living with its attendant responsibilities in various phases of home-making. Admission to residence is made on the basis of senior standing.

433. *Consumer Education.* (3) Includes a study of problems on market practices, the consumer and the market, methods of buying commodities and legislation governing labeling and branding. Three lectures.

441. *Advanced Consumer Buying.* (3) Deals with advanced study of marketing problems and consumer credit. Individual problems which concern the technology of buying particular types of consumer goods are studied and surveys are made of current legislation and consumer literature. Three lectures.

444. *Selection and Purchasing of Materials and Supplies for the Home.* (3) A study of the basic principles of selecting and buying related to family needs of food, furnishings, textiles and equipment. Two lectures and one laboratory period.

#### COURSES IN HOME ART AND MECHANICS

301. *Introduction to Home Furnishings and Interior Decoration.* (3) Planned to stimulate awareness and appreciation for the well-designed home and its furnishings as a background for living; experiences in creating objects for home and personal use.

302. *Intermediate Home Furnishings and Interior Decoration.* (3) Continuation of Home Art and Mechanics 301 with more advanced theory and broader experiences with the decorative materials.

303. *Problems in Room Decoration.* (3) Practical experiences in selecting and arranging furnishings in relation to a problem; includes work with draperies, bedspreads, slipcovers and other activities pertinent to the selected problem; scale drawing of floor plans and furniture; setting up model room.

311. *Color Theory and Harmony.* (3) Application of principles of color theory and harmony approached from the decorator's point of view. Principles of water color painting and color harmony development; experimenting with paints and fabrics.

400. *General Home Furnishings and Interior Decoration.* (3) A general course in home furnishing and decorating designed to give basic principles and show how to use these principles in achieving results that are functional, beautiful, individual and personally satisfying. It provides opportunities for understanding the influences which housing has on the emotional and social development of family members and family life. The subject matter and laboratory activities are presented in the natural sequence for decorating a home, starting with color and continuing with furniture, fabric, accessories and arrangement.

401. *Advanced Home Furnishings and Interior Decoration.* (3) A continuation of Home Arts and Mechanics 400 with a detailed study of a given problem. Color harmony planning, furniture selection and arrangement, fabric selection and construction of fabric furnishings, and accessory selection or construction. A campus interior is to be used in executing this problem.

403. *Wood Crafts.* (3) A study of basic procedure in making interesting and useful household items; techniques of sewing, nailing and fastening with screws; designing plywood items; assembling ready-cut items.

411. *Art Crafts.* (3) Includes color harmony; copying or designing stencils; cutting and applying stencils, brush-stroke painting; striping, varnishing and antiqueing; painting tin, glass and fabrics.

## SCHOOL OF ARTS AND SCIENCES

CARL M. HILL, Ph.D., *Dean*

### Purpose

The general purpose of the School of Arts and Sciences is twofold: liberal and technical. The courses which make up its curriculum are offered in the areas of Humanities, Natural Sciences and Social Sciences.

Because of the breadth and fundamental nature of its curriculum and the necessity to acquire a reasonable mastery of a single field of concentration, the School of Arts and Sciences provides a basic undergraduate education for those students planning (1) to enter the professions, (2) to continue in graduate study, or (3) to engage, upon graduation, in the gainful occupations of American life.

Through the School of Arts and Sciences, the University grants the Bachelor of Arts and of Science degrees. The requirements for these degrees are satisfied normally in four years.

### Types of Undergraduate Programs

Two types of undergraduate programs are offered in the School of Arts and Sciences; each leading to the Bachelor's degree. One program attempts to prepare the student for the teaching profession; the second program, for professions other than teaching.

In the teacher training program, the student selects a major field of concentration within the School of Arts and Sciences. The student then fulfills course requirements in the general curriculum pattern of: (1) general education core (60-66 quarter hours), (2) professional education core (36 quarter hours) (3) certification endorsement area (quarter hours vary) and (4) electives (quarter hours vary). Upon successful completion of this program, the student should qualify for a secondary school teaching certificate in the State of Tennessee. The departments offering teacher certification curriculums are: Biology, Chemistry, Science Education, Mathematics, Modern Foreign Languages, Social Sciences, English, and Speech and Drama.

Several departments offer training for professions other than teaching. The purpose of these departments is to train students for successful performance as specialist in somewhat restricted fields of specialization.

### General Requirements for a Bachelor's Degree

The University through the School of Arts and Sciences awards the Bachelor of Arts and Bachelor of Science degrees. All candidates for a Bachelor's degree must complete a minimum of 192 quarter hours (with a minimum average of "C") which include:

The General Education or Liberal Education courses (57 to 66 quarter hours)

A minimum of 66 quarter hours in 300 and 400 level courses

A minimum of 36 quarter hours in a subject or major field with a minimum of 15 quarter hours in 300 and 400 level courses

A minimum of 6 quarters of required health and physical education courses

A minimum of two years of basic Air Force Reserve Officers' Training Corps (men)

Nine quarter hours of English

Nine quarter hours of American history (for all students who do not present one year of American history on their high school transcripts)

A major program of studies within a department of the School

The senior year, or its equivalent (the last 48 quarter hours offered for the degree and the last nine months) in residence

The Junior English Proficiency Examination

A senior project

Requirements for the Bachelor of Science Degree

(With Teaching Certification)

To qualify for the Bachelor of Science degree with teaching certification, the student should complete the general requirements for a Bachelor's degree and other courses included in the following program.

- |  |                 |
|--|-----------------|
| 1. General Education Core.....   | 60-66 qr. hrs.  |
| Communication (English 101, 102, 103).....   | 9 qr. hrs.      |
| Health, Physical Education, Personal Development, and Home and Family Living.....                            | 9 qr. hrs.      |
| Humanities.....  | 15 qr. hrs.     |
| English 211, 212, 213 and Two courses selected from Philosophy 323 or 301, Music 131 and Art 133.....        | 12 qr. hrs.     |
| Natural Science.....   | 12 qr. hrs.     |
| Biology 101, 102, 103; Chemistry 111, 112, 113; Natural Science 121, 122, 123; or Physics 211, 212, 213..... | 12 qr. hrs.     |
| Social Studies 111, 112, 113, 114.....   | 12 qr. hrs.     |
| Mathematics.....   | 3 or 9 qr. hrs. |
| Math 200..... (3 hours) or College Mathematics..... (9 hours)  |                 |
| 2. Professional Education Core.....  | 36 qr. hrs.     |
| 3. Area of Endorsement.....  | 18-54 qr. hrs.  |
| 4. Other quarter hours to total the number required by the University and the major department.              |                 |

Requirements for the Bachelor of Science Degree\*

(Without Teaching Certification)

To qualify for the Bachelor of Science degree without teaching certification, the student should complete the general requirements for a Bachelor's degree and other courses included in the following program.

- |   |   |
|---|---|
| 1. Liberal Education Core.....  | 57 qr. hrs.   |
| Communication.....  | 9 qr. hrs.  |
| English 101, 102, 103.....  | 15 qr. hrs.   |
| Humanities.....   | 12 qr. hrs.   |
| World Literature (English 211, 212, 213) and Two courses from Philosophy 323, Music 131, Art 133, Drama, and Modern Foreign Language above 100 level.....                     | 12 qr. hrs.   |
| Social Science.....   | 12 qr. hrs.   |
| Selected from History, Sociology, Political Science, Geography, and Economics.....  | 12 qr. hrs.   |
| Science.....  | 9 qr. hrs.  |
| Selected from any one of the following courses: Biology 101, 102, 103; Chemistry 111, 112, 113; Physics 211, 212, 213 or 221, 222, 223; or Natural Science 121, 122, 123..... | 9 qr. hrs.  |
| Mathematics.....  | 9 qr. hrs.  |
| Selected from any three-quarter course in Mathematics, taken in sequence.....   | minimum 36 qr. hrs.                                     |
| 2. Major Field Courses.....   | Courses and Quarter hours, adjusted by major department |
| 3. Courses Related to the Major Field.....  | Courses and quarter hours, adjusted by major department |
| 4. Electives.....   | Courses and quarter hours, adjusted by major department |

\*Exceptions are made in agriculture and home economics education.

Requirements for the Bachelor of Arts Degree

To qualify for the Bachelor of Arts degree, the student should (1) complete the general requirements for a Bachelor's degree and other courses in the Liberal Education Core.

- |  |             |
|--|-------------|
| English 101, 102, 103.....               | 9 qr. hrs.  |
| World Literature 211, 212, 213.....      | 9 qr. hrs.  |
| Foreign Language (9-27 hours).....       | 18 qr. hrs. |
| (See Foreign Language requirement below) |             |
| Social Science.....                      | 12 qr. hrs. |
| Natural Science.....                     | 12 qr. hrs. |
| Mathematics.....                         | 9 qr. hrs.  |
| Philosophy, Music, Art, Drama.....       | 6 qr. hrs.  |
| (Combination of any two courses)         |             |

and (2) complete a program of studies in one of the following subjects: Biology, Chemistry, History, Mathematics, Sociology, Social Administration, Speech and Drama, English, Modern Foreign Languages, Geography, Physics, or Political Science.

Modern Foreign Language Requirement for The Bachelor of Arts Degree

The foreign language (French, German, or Spanish) requirement may be satisfied as follows:

- Students who present no (0) units of a foreign language in high school when they enter the University are to take twenty-seven (27) quarter hours of work in a foreign language, beginning with the freshman course in that language.
- Students who present two (2) units of a foreign language in high school and who desire to continue work in that same language may satisfy the language requirement by pursuing eighteen (18) quarter hours in that language, beginning with the sophomore course of that language.
- Students who present four (4) units of a foreign language in high school and who desire to continue work in that language may satisfy the language requirement by pursuing nine (9) quarter hours in that language, beginning with the junior course.

Proficiency Test in French, German, Spanish

Students who enter the University for the first time and who present two or more high school units in a foreign language may take a proficiency test in that language. A student's proficiency in a given language may alter the number of quarter hours required to satisfy the language requirement.

PROVISION FOR PROFESSIONAL TRAINING IN MEDICINE, DENTISTRY, AND NURSING

The State Board of Education of Tennessee and Meharry Medical College have entered into an agreement whereby students classified as residents and citizens of Tennessee will be granted facilities for the study of medicine, dentistry and nursing at Meharry Medical College equivalent to the opportunities offered to students at the University of Tennessee. Residents of Tennessee who meet the proper qualifications will be charged the same tuition in medicine, dentistry and nursing at Meharry Medical College as is charged to students in these professional fields at the University of Tennessee.

COMBINATION CURRICULA FOR THE STUDY OF MEDICINE, DENTISTRY, NURSING, AND CLINICAL LABORATORY TECHNOLOGY

Curricula preparatory for the study of medicine, dentistry, nursing and clinical laboratory technology are offered at Tennessee A. and I. State University in cooperation with Meharry Medical College. Several of these curricula are joint programs between the two institutions and qualify students for the bachelor's degree.

Students who wish to participate in any one of the combination-degree curricula should make known this fact to the Office of the Registrar when request for an official transcript is filed. Also, students who are admitted to the Meharry Medical College, under the combination-degree program, should inquire at the Registrar's Office at Meharry Medical College for further information regarding this program.

**Arts-Medical Combination Curriculum Leading to the Bachelor's Degree**

The first part of this joint curriculum is offered regularly enrolled students at the Tennessee A. and I. State University who are pursuing a Bachelor of Arts or Science curriculum.

The first three years of this curriculum include courses designed (1) to offer adequate training in the basic sciences and (2) to promote broad cultural development. The following courses must be successfully completed:

1. Basic Science Courses: (52 to 56 qr. hrs.)	<i>Qr. Hrs.</i>
General Biology or Zoology with Laboratory.....	12
Inorganic Chemistry (to include physical chemistry of solutions).....	12
Qualitative and Quantitative Analysis.....	8
Organic Chemistry with Laboratory.....	8 to 12
General Physics with Laboratory.....	12
	<hr/>
	52 to 56
2. Broad Cultural Subjects: (88 to 92 qr. hrs.)	
College Mathematics.....	9
English Composition.....	9
Electives: chosen in the student's major area of concentration and in subjects designed to promote broad cultural development.....	70 to 74
	<hr/>
Total.....	144

The fourth year of the joint curriculum is offered those students who are admitted to the Meharry Medical College. At the successful completion of the freshman year curriculum in the School of Medicine at the Meharry Medical College, the student makes application to the Tennessee A. and I. State University for the Bachelor of Arts or Science degree. Upon joint recommendation of the Meharry School of Medicine and the Tennessee A. and I. State University, the student becomes a candidate for the Bachelor of Arts or Science degree. The degree is awarded by the Tennessee A. and I. State University.

**Pre-Nursing Curriculum**

The pre-nursing curriculum provides the necessary college preparation for entrance into the professional program of approved schools of nursing which offer the bachelor's degree in nursing. The curriculum is composed of the following courses:

<i>First Year</i>	<i>Quarter Hours</i>
Chemistry 111-2-3.....	12
English 101-2-3.....	9
Mathematics 131-2-3.....	9
History 121-2-3.....	9
Electives.....	6-9
Physical Education 11-12-13 (Women).....	4
	<hr/>
	49 to 52
<i>Second Year</i>	<i>Quarter Hours</i>
Biology 101-2-3.....	12
History 201-2-3.....	9
Sociology 211-2-3.....	9
Psychology 211-2-3.....	9
Electives.....	9
Physical Ed. 20's to 50's (Women).....	4
	<hr/>
	52

**Arts-Dental Combination Leading to the Bachelor's Degree**

The first part of this joint curriculum is offered regularly enrolled students at the Tennessee A. and I. State University who are pursuing Bachelor of Arts or Science curriculum.

The first three years of this curriculum include courses designed (1) to offer adequate training in the basic sciences and (2) to promote broad cultural development. The following courses must be successfully completed:

1. Basic Science Courses: (48 to 52 qr. hrs.)	<i>Quarter Hours</i>
General Biology or Zoology with Laboratory.....	12
Inorganic Chemistry (to include physical chemistry of solutions).....	12
Qualitative.....	4
Organic Chemistry with Laboratory.....	8-12
General Physics with Laboratory.....	12
	<hr/>
	48 to 52
2. Broad Cultural Subjects: (92 to 96 qtr. hrs.)	
College Mathematics.....	9
English Composition.....	9
Electives: Chosen in the major area of concentration and in subjects designed to promote broad cultural development.....	74 to 78
	<hr/>
Total.....	144

The fourth year of the joint curriculum is offered those students who are admitted to the Meharry School of Dentistry. At the successful completion of the freshman year curriculum in the School of Dentistry at the Meharry Medical College, the student makes application to the Tennessee A. and I. State University for the Bachelor of Arts or Science degree. Upon joint recommendation of the Meharry School of Dentistry and the Tennessee A. and I. State University, the student becomes a candidate for the Bachelor of Arts or Science degree. The degree is awarded by the Tennessee A. and I. State University.

**Medical Laboratory Technology Combination Curriculum Leading to Bachelor Degree and Certificate**

The Meharry Medical College and the Tennessee A. and I. State University have established a combination curriculum leading to the Bachelor of Science degree and a Certificate in Medical Laboratory Technology. The student spends a minimum of two calendar years or three academic years following an essentially prescribed curriculum, at the Tennessee A. and I. State University. Upon admission and successful completion of the two-year program at the Meharry Medical College and upon joint recommendation of the two institutions, the Bachelor of Science degree is awarded by the Tennessee A. and I. State University.

The first part of the combination curriculum is offered at the Tennessee A. and I. State University and consists of the following courses:

	<i>Quarter Hours</i>		<i>Quarter Hours</i>
<i>Freshman Year</i>		<i>Sophomore Year</i>	
English 101-2-3.....	9	Chemistry 211-2-3 or 311-2-3.....	12
Gen. Zool. 111-2-3.....	12	Biology 241 (Bacteriology).....	4
Chemistry 111-2-3.....	12	Biology (Elective).....	4
Electives (Humanities or Social Sciences).....	3	Air Science and Phy. Ed. (Men).....	4
Phy. Ed. (Women) 11-12-13.....	4	Physical Education 20's to 50's (Women).....	4
Air Science and Physical Education (Men) 11-12-13.....	4	Electives (Humanities or Social Science).....	24
Mathematics 131-2-3.....	9		<hr/>
	<hr/>	Total.....	48
Total.....	49		

<i>Summer I</i>		<i>Summer II</i>	
Biology 332-3, Comp. Anat.....	8	Physics 211-2-3.....	12
Social or Political Science or English 211-2.....	6	Electives (Humanities and Social Science).....	9
<b>Total .....</b>	<b>14</b>	<b>Total .....</b>	<b>21</b>

Upon admission to the School of Medical Technology at the Meharry Medical College, the student follows the curriculum listed below.

	<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>	<i>Total</i>
<i>First Year</i>				
Laboratory Practice.....	*252	288	204	744
Biochemistry .....	192			192
Seminar .....	12		12	24
Parasitology .....			72	72
Physiology .....		240		240
Clinical Pathology.....		108		108
Bacteriology .....	144			144
<b>Total .....</b>	<b>600</b>	<b>636</b>	<b>288</b>	<b>1524</b>

	<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>	<i>Total</i>
<i>Second Year</i>				
X-Ray Technic.....	**432	**468		468
Electrocardiography .....	36			36
Seminar .....	12	12	12	36
Laboratory Practice.....	**432	**468	216	648
Basal Metabolism.....			36	36
Tissue Technic.....			216	216
<b>Total .....</b>	<b>480</b>	<b>480</b>	<b>480</b>	<b>1440</b>

### DEPARTMENT OF BIOLOGY

H. K. Wood, Ph.D., Head

The curricula of the department of biology are designed to fulfill the requirements in the areas of (1) preservice teacher training, (2) preprofessional training for the medical branches, (3) service courses for other departments at the University, and (4) graduate courses and research in zoology.

Two major undergraduate curricula are offered, either of which may lead to the Bachelor of Science. With the aid of the departmental adviser the student should select one of the curricula, as outlined below, at the beginning of the freshman year. If the student should desire to change to the other curriculum at the end of the freshman year, sufficient flexibility in both curricula will permit this without much loss in time. Those who wish to prepare for entrance into graduate school or one of the medical branches should select the Preprofessional and Non-Teacher Training Curriculum. The Preprofessional and Non-Teacher Training Curriculum requires a minimum of 192 quarter hours for graduation, 66 of which should be of 300 and 400 level courses. The Preservice Teacher training curriculum requires a minimum of 192 quarter hours for graduation, 66 of which should be of 300 and 400 level courses. Each curriculum requires a minimum of 48 hours of prescribed courses in the major field of which at least 15 quarter hours must be in courses on the 300 and 400 levels. In addition, the student is expected to take the courses in the related areas as indicated in each curriculum. A student may qualify for the Bachelor of Arts degree by completing the equivalent of 27 quarter hours of German or French in addition to the regularly prescribed courses.

- \* Clock Hours
- \*\* Alternating service

An undergraduate minor in Biology consists of a minimum of 36 quarter hours, 12 of which must be taken in sequence in Biology 101-2-3. The remaining 24 hours may be elected from the following courses: Bacteriology 241, Botany 111 or 112-3, Zoology 202-3, Biology 311, Zoology 332-3, 401, and 432.

Graduate studies are offered in zoology and lead to the Master of Science or the Master of Arts degree. A graduate major in zoology is required to complete a minimum of 45 quarter hours of prescribed courses.

### CURRICULUM FOR PREPROFESSIONAL AND NON-TEACHER TRAINING

#### With a Major in Biology

<i>Freshman Year</i>	<i>Quarter Hours Credit</i>			<i>Sophomore Year</i>	<i>Quarter Hours Credit</i>		
	<i>I</i>	<i>II</i>	<i>III</i>		<i>I</i>	<i>II</i>	<i>III</i>
<i>Name of Course</i>				<i>Name of Course</i>			
Biology 111-2-3... 4	4	4	4	Bacteriology 214... 4			
Mathematics				Botany 112-3.....	4	4	
131-2-3 .....	3	3	3	English 211-2-3... 3	3	3	3
English 101-2-3... 3	3	3	3	Chemistry 311-2-3. 4	4	4	4
*German or French				Sociology 211-2-3 or			
101-2-3 or				**History 201-2-3.. 3	3	3	3
201-2-3 .....	3	3	3	German or French			
Chemistry 111-2-3. 4	4	4	4	201-2-3 or			
Air Science (M)				Electives .....	3	3	3
151-2-3 .....	1	1	1	Air Science (M)			
Physical Educ. (M)				251-2-3 .....	1	1	1
11-12-13 .....	1/3	1/3	1/3	Physical Educ. (M)			
Physical Educ. (W)				21 to 49 .....	1/3	1/3	1/3
11-12-13 .....	1 1/3	1 1/3	1 1/3	Physical Educ. (W)			
				21 to 49.....	11/3	11/3	11/3
	18 1/3	18 1/3	18 1/3		18 1/3	18 1/3	18 1/3

<i>Junior</i>	<i>Quarter Hours Credit</i>			<i>Senior Year</i>	<i>Quarter Hours Credit</i>		
	<i>I</i>	<i>II</i>	<i>III</i>		<i>I</i>	<i>II</i>	<i>III</i>
<i>Name of Course</i>				<i>Name of Course</i>			
Biology 311.....	4			Zoology 441 .....	4		
Zoology 332-3 .....		4	4	Zoology 432.....		4	
Physics 211-2-3.....	4	4	4	Zoology 483 .....			4
Psychology 221-2.....		3	3	Biology 450.....	3		
Electives .....	5	4	4	Electives .....	8	12	12
Soc. 322 or Hist.....	3						
	16	15	15		15	16	16

\* A student who has two or more units of the foreign language in high school and passes the entrance proficiency test will begin the language at the level of his indicated proficiency. German is strongly recommended.

\*\* To be pursued if the student does not show one unit on high school transcript.

**CURRICULUM FOR PRESERVICE TEACHER TRAINING**  
With a Major in Biology

Freshman Year	Quarter			Sophomore Year	Quarter		
	Name of Course	I	II		Name of Course	I	II
Biology 101-2-3	4	4	4	Botany 111	4		
Mathematics 131-2-3	3	3	3	Zoology 202-3		4	4
English 101-2-3	3	3	3	English 211-2-3	3	3	3
*German or French				*German or French			
101-2-3 or 201-2-3	3	3	3	201-2-3 or Electives	3	3	3
Social Studies				Chemistry 111-2-3	4	4	4
111-2-3	3	3	3	Social Studies 114	3		
Air Science (M)				Health 211 or			
151-2-3	1	1	1	212 or 213		3	
Physical Education				Education 201			3
(M) 111-2-3	1/3	1/3	1/3	Air Science			
Physical Education				(M) 251-2-3	1	1	1
(W) 11-12-13	1 1/3	1 1/3	1 1/3	Physical Education			
				(M) 20 to 50	1/3	1/3	1/3
				Physical Education			
				(W) 20 to 50	1 1/3	1 1/3	1 1/3
	17 1/3	17 1/3	17 1/3		18 1/3	18 1/3	18 1/3

Junior Year	Quarter			Senior Year	Quarter		
	Name of Course	I	II		Name of Course	I	II
Biology 311	4			Bacteriology 241	4		
Zoology 332-3		4	4	Zoology 401	4		
Chemistry 311-2-3	4	4	4	Zoology 432		4	
Psychology 242-3		3	3	Physics 211-2-3	4	4	4
Education 301	3			Psychology 463	3		
Psychology 312		3		Education 462		3	
Education 387			3	Science Education 471		3	
Music 131	3			Education 472			6
Nutrition 212	3			Education 414			3
Art 133		3		**History 201-2-3 or			
Education 371			3	Electives	3	3	3
				Biology 450		(3)	
	17	17	17		18	17	16

\*Student who has two or more units of the foreign language in high school and passes the entrance proficiency test will begin the language at the level of his indicated proficiency. German is strongly recommended.

\*\* To be pursued if the student *does not* show one unit on high school transcript.

**COURSES IN BIOLOGY**

**Undergraduate**

101-2-3. *Fundamentals of Biology.* (12) Studies of biological principles as illustrated by types of organisms, their activities, and life processes, with emphasis on man. These courses must be taken in sequence. Three lectures and two laboratory periods.

111-12-13. *Principles of Animal Biology.* (12) This course is designed to provide a sound understanding of structure, function and life characteristics of animals. This course should be taken in sequence. Three lectures and two laboratory periods.

311. *Principles of Genetics.* (4) An introduction to genetics, including the laws of heredity, the role of heredity in developmental physiology, and the relation between heredity and evolution. Prerequisites: Biology 101-2-3 or equivalent. Three lectures and two laboratory periods.

\*411. *Advanced Genetics.* (4) The main areas considered are the nature of the gene, the principles governing genic mutation and change in chromosomal structure, and the results of the operation of these principles. Prerequisites: Biology 101-2-3, and 311. Three lectures and two laboratory periods.

\*441. *Microtechnique.* (4) Theory and methods of preparing tissues for microscopical examinations: fixation, embedding, cutting, staining and mounting. Prerequisites: Biology 101-2-3 and Chemistry 111-2-3 or equivalents. One lecture and three laboratory periods.

450. *Senior Project.* (0 or 3) Required of all seniors. This project, preferably experimental research, is to be carried out under a project adviser. It is to begin in the Fall quarter of the senior year and to be completed by the end of the Winter quarter with a written report according to the form prescribed by the Department. Methods in the setting up of a scientific problem, the collection and analysis of data, and the use of the literature are emphasized.

**Bacteriology**

241. *General Bacteriology.* (4) Consideration of identification, culture, sterilization and disinfectant procedures employed in studying certain micro-organisms. Open to majors in Home Economics. Prerequisite: Biology 101 or Chemistry 111. Three lectures and two laboratory periods.

\*401. *Applied Bacteriology.* (4) The study of bacterial techniques in food, sanitation, soil and pathogenic bacteriology. Prerequisites: Bacteriology 241, Chemistry 361 or consent of instructor. Three lectures and two laboratory periods.

**Botany**

111. *Botany for Teachers.* (4) This course includes an introduction to the plant kingdom with emphasis placed on the structure and function of the seed plant. Three lectures and two laboratory periods.

112-3. *General Botany.* (8) Deals with a study of the anatomy, physiology and taxonomy of plants. Three lectures and two laboratory periods.

**Zoology**

202-3. *Human Physiology.* (8) The fundamentals of the structure, function and organization of the organ-systems of man. These courses must be taken in sequence. Open to majors in Home Economics and Health and Physical Education. Prerequisite: Biology 101 or Chemistry 111. Three lectures and two laboratory periods.

332-3. *Comparative Anatomy.* (8) The comparative anatomy and evolution of the organ-systems of chordate animals. These two courses must be taken in sequence. Prerequisites: Biology 101-2-3 or equivalents. Three lectures and two laboratory periods.

\*Approved for graduate credit.

401. *Invertebrate Zoology*. (4) A study of the morphology, physiology, taxonomy and life histories of the invertebrates. Emphasis is placed on the systematic developments of invertebrate types. Prerequisites: Biology 101-2-3 or equivalents. Three lectures and two laboratory periods.

423. *Vertebrate Histology*. (4) The origin and characteristics of the basic tissues and the microscopic anatomy of the organ systems. Also included are the fundamentals of histological technique. Prerequisites: Biology 101-2-3 or equivalents. Three lectures and two laboratory periods.

432. *Embryology*. (4) A general consideration of gametogenesis, fertilization and cleavage in animals and the early development of echinoderms, protochordates and selected vertebrates, with emphasis on early development of the chick. Prerequisites: Zoology 332-3 are strongly recommended. Three lectures and two laboratory periods.

433. *Embryology*. (4) A continuation of Zoology 432. The later development of birds and mammals with emphasis on histogenesis and morphogenesis in the chick and pig. Prerequisite: Zoology 432 or equivalent. Three lectures and two laboratory periods.

\*441. *Introduction to Parasitology*. (4) A survey of the animal parasites of man and animals. Special attention is given to the parasitic protozoa, the helminths, and the arthropods. Consideration is also given to the spirochaetes, certain virus diseases the rickettsia and related organisms. May carry graduate credit for non-majors. Prerequisite: Biology 111-12-13 or equivalent. Three lectures and two laboratory periods.

\*483. *General Entomology*. (4) A study of the general characteristics of insects, with special emphasis on their biology, ecology and economic importance. Some attention is also given to methods of collecting and preserving insects for study and/or demonstrations. May carry graduate credit for non-majors. Prerequisite: Biology 111-12-13 or equivalent. Three lectures and two laboratory periods.

#### Graduate

510. *Literature and Methods in Research*. (3) The purpose of this course is to acquaint the student with the literature in the area of his selected research. Emphasis is placed on methods used in research. Both oral and written reports are required. This course should precede Zoology 511.

511. *Research in Zoology*. (3) This course provides for individual research under the supervision of the major adviser. The student must present a general statement of proposed research and obtain the approval of his Guidance Committee. Prerequisite: Zoology 510.

512. *Thesis Writing*. (3) This course enables the student to receive credit for the preparation of a thesis over his research under the supervision of his Guidance Committee. The format of the thesis is expected to conform with that adopted by the Department of Biology.

521. *General Experimental Physiology I*. (4) The chemical and physical nature of protoplasm. Considered are its chemical constituents and their properties, its colloidal nature and the bearing of this state on its physical properties and processes. Prerequisite: Consent of instructor. Three lectures and two laboratory periods.

522. *General Experimental Physiology II*. (4) The metabolic activities of protoplasm. Both catabolic and anabolic aspects are considered. Prerequisite: Consent of instructor. Three lectures and two laboratory periods.

531. *Experimental Embryology*. (4) The principles and mechanisms of developmental physiology. Prerequisite: Zoology 432 or equivalent or consent of instructor. Three lectures and two laboratory periods.

534. *General Cytology*. (4) The structure and behavior of the cell and its components with special emphasis on mitosis and meiosis. Prerequisite: Consent of instructor. Three lectures and two laboratory periods.

\*Approved for graduate credit.

541. *Advanced Parasitology*. (4) Life histories, taxonomy, morphology and general importance of the parasitic protozoa and the helminths to man and animals. Prerequisite: Consent of instructor. Three lectures and two laboratory periods.

542. *Arthropods and Diseases*. (4) A study of the relationships of arthropods to diseases of man and animals. Special considerations are given to the mites, ticks, lice, bugs, fleas, mosquitos, and flies. Prerequisite: Consent of instructor. Three lectures and two laboratory periods.

571. *Physiology and Genetics of Microorganisms*. (4) The heredity of viruses, bacteria, molds, yeast, and protozoa, with emphasis on protozoan genetics in these forms are also considered. Prerequisite: Biology 311 and consent of instructor. In addition, Biology 411 is recommended. Three lectures and two laboratory periods.

581. *Morphology and Taxonomy of Insects I*. (4) A study of the comparative morphology of insects with special emphasis on the taxonomic applications of morphology; including a survey of the various insect groups, with emphasis on the characters used in determining adult insects to family and beyond. Some attention is given to methods of collecting, mounting and preparing insect material for study. All the orders are covered except Neuroptera, Mecoptera, Siphonaptera, Trichoptera, Lepidoptera, Diptera, and Hymenoptera. Prerequisites: Zoology 481 or consent of the instructor. Three lectures and two laboratory periods per week.

582. *Taxonomy of Insects*. (4) A continuation of Zoology 581, covering Neuroptera, Mecoptera, Siphonaptera, Trichoptera, Lepidoptera, Diptera, Hymenoptera. Prerequisites: Zoology 481 or consent of the instructor. Three lectures and two laboratory periods per week.

Zoology Seminar. No credit. Required of all graduate students in Zoology.

600. *Thesis Conference*. No credit. To be taken by the graduate students who have completed all course requirements for the Master's degree with the exception of the thesis which is in the process of completion.

#### DEPARTMENT OF CHEMISTRY

MYRON B. TOWNS, Ph.D., Head

The curriculum of the Department of Chemistry is designed (1) to offer a collegiate major in Chemistry which, qualitatively and quantitatively, satisfies the criteria generally adopted by the leading colleges and universities of the United States and by the American Chemical Society, (2) to offer meaningful and satisfactory service courses to other departments in the university; and, (3) to offer a graduate program of instruction and research leading to the Master of Science degree which will conform to the requirements of the Graduate School of the university.

Students who are taking a professional undergraduate major in Chemistry must begin their work in the freshman year and should take the courses shown in the program below entitled "Undergraduate Program for Professional Major." A minimum of 66 quarter hours in 300 and 400-level courses is required of majors.

#### Undergraduate Program for Professional Major

A professional undergraduate major consists of a minimum of 60 quarter hours of Chemistry, 36 of which must be in 300 and 400 level courses. These hours are accumulated through pursuing the following courses:

Chemistry 111-2-3 (General)	12 Quarter Hours
Chemistry 211-2-3 (Analytical)	12 Quarter Hours
Chemistry 311-2-3 (Organic)	12 Quarter Hours
Chemistry 404 (Chemical Bibliography)	3 Quarter Hours
Chemistry 481-2-3 (Physical)	12 Quarter Hours
Chemistry 401 (Senior Project)	3 Quarter Hours
Chemistry: Elective Advanced Course	6 Quarter Hours

Total Hours Chemistry..... 60 Quarter Hours

In addition, the major in Chemistry includes the following related and required courses:

Mathematics 161-2-3.....	15	Quarter	Hours
Mathematics 261-2-3.....	15	Quarter	Hours
Physics 221-2-3.....	12	Quarter	Hours
Social Science Electives.....	18	Quarter	Hours
Foreign Language (2 years).....	18	Quarter	Hours
English Composition 101-2-3.....	9	Quarter	Hours
English Literature 211-2-3.....	9	Quarter	Hours

Total Hours Related and Required Courses.....96 Quarter Hours  
In the total course of study, including all courses taken, at least 45 hours must be in 300 and 400 level courses.

#### CURRICULUM IN CHEMISTRY FOR A PROFESSIONAL MAJOR

Freshman Year				Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit			
	I	II	III		I	II	III	
Chemistry 111-2-3	4	4	4	Chemistry 211-2-3	4	4	4	
English 101-2-3	3	3	3	Foreign Language II	3	3	3	
Mathematics 161-2-3	5	5	5	Mathematics 261-2-3	5	5	5	
Physical Education 11-12-13 and Air Science for men	11/3	11/3	11/3	Physical Education 20's to 50's and Air Science for men	11/3	11/3	11/3	
Foreign Language I	3	3	3	World Literature 211-212-213	3	3	3	
<hr/>			<hr/>			<hr/>		
16 1/3			16 1/3			16 1/3		

Junior Year				Senior Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit			
	I	II	III		I	II	III	
Chemistry 311-2-3	4	4	4	Chemistry 481-2-3	4	4	4	
Physics 221-2-3	4	4	4	Chemistry 404	3			
Electives (Unrestricted)	6	6	6	Chemistry Elective		3	3	
Social Science Elective	3	3	3	Chemistry 401 (Senior Project)		3		
<hr/>			<hr/>			<hr/>		
17			17			17		

Students who wish to take a major in Chemistry and to obtain a Tennessee Teachers Provisional Certificate should take the courses shown below in the program entitled "Undergraduate Program for Non-Professional Major for Prospective Teachers":

#### Undergraduate Program for Non-Professional Majors for Prospective Teachers

An undergraduate program, with a major in Chemistry, for prospective teachers includes:

Chemistry 111-2-3 (General).....	12	Quarter	Hours
Chemistry 211-2-3 (Analytical).....	12	Quarter	Hours
Chemistry 311-2-3 (Organic).....	12	Quarter	Hours
Chemistry 401 (Senior Project).....	3	Quarter	Hours

In addition the Tennessee State Board of Education requires:  
Courses in General Education.....48 Quarter Hours  
Courses in Professional Education.....36 Quarter Hours

The curriculum outlined below satisfies both the requirements of the Chemistry Department and of secondary school certification.

#### Curriculum in Chemistry for a Prospective Teacher

Freshman Year				Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit			
	I	II	III		I	II	III	
Chemistry 111-2-3	4	4	4	Chemistry 211-2-3	4	4	4	
English 101-2-3	3	3	3	English 211-2-3	3	3	3	
Mathematics 161-2-3	5	5	5	Education 201	3			
Social Studies 111-2-3	3	3	3	Psychology 242-3		3	3	
Physical Education 11-12-13 and Air Science for men	11/3	11/3	11/3	Health 151, 211		3	3	
<hr/>			<hr/>			<hr/>		
16 1/3			16 1/3			16 1/3		

Junior Year				Senior Year					
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit				
	I	II	III		I	II	III		
Chemistry 311-2-3	4	4	4	Education 462		3			
Physics 221-2-3	4	4	4	Science Education 471		3			
Education 301, 371, 387	3	3	3	Education 472			6		
Psychology 312	3			Electives	9	12	9		
Philosophy 323		3		Psychology 463			3		
Humanity Elective			3	<hr/>					
Elective	3	3	3	15			15		
<hr/>			<hr/>			<hr/>			
17			17			17			

#### COURSES IN CHEMISTRY

##### UNDERGRADUATE

111-2-3. *General Chemistry*. (12) This course is an elementary study of the fundamental laws and theories of chemistry and of the descriptive chemistry of important elements and compounds. Required of majors in chemistry, biology, engineering, pre-medical, pre-dental, home economics, agriculture, health and nursing students. Two lectures, one recitation, and two two-hour laboratory periods per week.

201-2. *Qualitative Analysis*. (Inorganic). (8) Chemistry 111-2-3 are prerequisites. A study of the principles underlying ionic equilibria in solutions and a laboratory study of the separation and identification of the common cations and anions. Two lectures and two three-hour laboratory periods per week.

211-2-3. *Elementary Analytical Chemistry*. (12) Chemistry 111-2-3 and Mathematics 161-2-3 are prerequisites. This course includes the theories and laboratory practice in both qualitative and quantitative analysis. The quantitative analysis includes both volumetric and gravimetric analysis, together with related stoichiometric problems. Three lectures and two three-hour laboratory periods per week.

311-2-3. *Organic Chemistry*. (12) Chemistry 111-2-3 are prerequisites. A systematic study of the source, physical properties, and chemical behavior of aliphatic, aromatic, and heterocyclic compounds of carbon. Three lectures and two three-hour laboratory periods.

361. *Organic Chemistry Survey*. (4) Chemistry 111-2-3 are prerequisites. Important classes of organic compounds are presented. Emphasis is placed upon the study of hydrocarbons and their principal derivatives, carbohydrates, proteins, fats and oils, vitamins, and dyes. Designed for majors in agriculture, home economics, and health. Three lectures and two two-hour laboratory periods.

## DEPARTMENT OF ENGLISH

CRAWFORD B. LINDSAY, Ph.D., *Head*

The program of the Department of English is so arranged as to serve the needs of all the students of the University, as well as to give a thorough foundation to those who desire to become teachers or specialists in the field. The Department also gives assistance to those who look forward to careers in the field of journalism.

Work leading to the B.S. degree, as well as to the A.B. degree, may be pursued in the Department of English. All students working for an undergraduate degree in English must complete at least 12 quarter hours in either biology, chemistry, or natural science and at least 9 quarter hours in mathematics (Mathematics 111-112-113 or Mathematics 131-132-133), in addition to the other requirements. Candidates for the A.B. degree must meet the requirements of the University in foreign languages, which requirements are stated elsewhere. (For a person who has had no foreign language in high school, the foreign language requirement is 27 quarter hours of work in one language for the A.B. degree). Candidates for the B.S. degree may satisfy the requirement in foreign languages by completing only 9 quarter hours of work in one language, regardless of whether or not they had had foreign language in high school. All other requirements for the B.S. degree and the A.B. degree in English are the same.

Each undergraduate must complete a minimum of 192 quarter hours of work for a bachelor's degree. At least 66 of the quarter hours in all subjects must be in courses on the 300 and 400 level. At least 45 quarter hours of work in English must be completed above the 9 quarter hours of work in Freshman English. For a major, thirty-six of the required hours in English must be on the 300 and 400 level. This 45 quarter hour program in English does not include the 3 quarter hour course in English 471 (Methods of Teaching English), which carries certification credit in secondary education, although it is administered by the Department of English.

One desiring certification in English as a second teaching area must complete 36 quarter hours of work in English, including Freshman English, but excluding Methods of Teaching English.

Majors in English are required to complete the following courses: English 101-102-103 (Freshman English); English 211-212-213 (World Literature); English 222-223 (English Literature); English 361-362-363 (American Literature); and English 451 (English Language). Beginning in September, 1954, all English majors must elect a course in composition above the freshman level before graduation. In addition to the courses listed above, all English majors working toward certification must complete 36 quarter hours of approved work in professional education and, also, the following courses: Art 133 (Man and Materials); Music 131 (Music Appreciation); Social Studies 111-112-113-114; and 9 quarter hours of work in Health, Personal Development, and Home and Family Living.

Any student, whether an English major or not, may elect two full years (18 quarter hours) of work in journalism (English 301-302-303; 481-482-483).

Graduate students in English may qualify for the degree of Master of Arts only. A candidate for this degree must pass a foreign language examination administered by the Department of Modern Foreign Languages. A graduate student in English may take a graduate minor in education or in some other subject matter field.

401. *Senior Project.* (3) Experimentation and writing. This course is required of prospective graduating seniors. Students should enroll in this course at least two quarters prior to expected date of graduation. Other regulations pertaining to this subject found elsewhere in this catalog, should be observed. Minimum of eight hours per week.

404. *Chemical Bibliography.* (3) Chemistry 211-2-3 and 311-2-3 are prerequisites. A study of how to use the chemical journals, reference books, and other sources of chemical information. A systematic search in the chemical literature for information on several compounds and topics will be included. Two conferences a week.

422-3. *Analytical Chemistry.* (6) Chemistry 211-2-3, Chemistry 311-2-3, Chemistry 481 and Physics 221-2-3 are prerequisites. Instrumental methods of analysis. Open to senior chemistry majors and graduate students. This course trains students in the theory and practice of instrumental methods as applied to quantitative analysis. Potentiometric and conductometric titrations, measurement of pH, and analyses using refractometers, colorimeters, spectrophotometers, polarimeters, and Geiger Counters will be performed. Two lectures and two three-hour laboratory periods each week.

462-3. *Organic Qualitative Analysis.* (6) Chemistry 211-2-3, 311-2-3, and 404 are prerequisites. A systematic study of the solubility and class reactions of the principal classes or organic compounds. It includes also identification of pure organic compounds and mixtures. Two lectures and two three-hour laboratory periods.

481-2-3. *Physical Chemistry.* (12) Prerequisites: Chemistry 111-2-3 and 211-2-3, Mathematics 261-2-3, and Physics 221-2-3. Physics 221-2-3, and Chemistry 481-2-3 may be taken concurrently. This course is devoted to a study of the fundamental theories and laws governing both physical and chemical changes and covers the properties of gases, liquids, solids, thermodynamics, solutions, chemical equilibria, reaction rates, and electrochemistry. Three lectures and two three-hour laboratory periods.

### Graduate

504. *Glassblowing.* (3) Theory and practice in glass blowing.

541-2-3. *Advanced Inorganic Chemistry.* (9) The chemical elements and their compounds are discussed as they appear on the several periodic arrangements. Special attention is given to the relationships between atomic structure and properties.

544-5. *Inorganic Preparations.* (6) Advanced experimentation leading to preparation of several selected inorganic compounds is included.

561-2-3. *Advanced Organic Chemistry.* (9) A survey of the more important classes of organic compounds and their reactions; a discussion of selected topics, including tautomerism, electronic interpretation of organic reactions, mechanisms, molecular rearrangements, and stereo-chemistry.

566-7. *Organic Preparations.* (6) Laboratory practice in the synthesis of organic compounds of complex structure.

571-2. *Quantitative Organic Micro Analysis.* (8) A discussion of and laboratory in micro techniques involved in use of micro balance, carbon and hydrogen combustion analysis, molecular weight determinations, methoxy group analysis, Dumas and Kjeldahl nitrogen determination, and sulfur and halogen analyses.

581-2-3. *Advanced Physical Chemistry.* (9) Thermodynamics, the electro-chemistry of dilute solutions, surface chemistry and colloids, and kinetics.

584-5-6. *Advanced Physical Chemistry Laboratory.* (9) Experiments on selected topics.

537-8-9; 557-8-9; 577-8-9; 597-8-9. *Chemical Research.* (6 max.) Credit conditioned by quality and quantity of research required of candidates for the master of science degree.

*Chemistry Seminar.* No credit. Required of all candidates for advanced degree. Seminar meets twice each month.

**B.S. CURRICULUM IN ENGLISH**

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-102-103	3	3	3	English 211-212-213 (World Lit.)	3	3	3
Foreign Language	3	3	3	English 222-223 (English Lit.)	3	3	
Social Studies 111-112-113	3	3	3	Music 131 (Music Appreciation)	3	3	
Mathematics 111-112-113	3	3	3	Biology 101-102-103 or Chemistry 111-112-113			
Health 211-212	3	3		Natural Science 121-122-123	4	4	4
Art 133 (Man and Materials)			3	Education 201 (Foundations of Ed.)	3		
P. E. (11-12-13 (Women))	1 1/3	1 1/3	1 1/3	Psy. 242 (Ed Psy I, Human Development)		3	
P. E. (Men)	1/3	1/3	1/3	Social Studies 114			3
R. O. T. C. (Men)	1	1	1	P. E. 21-22-23 (Women)	1 1/3	1 1/3	1 1/3
				P. E. 21-22-23 (Men)	1/3	1/3	1/3
				R. O. T. C. (Men)	1	1	1
				History 201-202-203	3	3	3
	16 1/3	16 1/3	16 1/3		17 1/3	17 1/3	17 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 361-362-363 (American Lit.)	3	3	3	English 411-412-393 or English 421-422-423	3	3	3
Education 301 (School Organization, Administration, and Management)	3			Psy. 463 (Classroom Guidance)	3		
Psy. 243 (Ed Psy. II, Psy of Learning)	3			English 451-471-450	3	3	3
Psy. 312 (Measurement and Evaluation)		3		Ed 387 (Curriculum Construction)		3	
English 323 (Expository Writing)			3	Ed 371 (Secondary School Methods)	3		
English 311-312-313 or English 331-332-333	3	3	3	Ed 472 (Practice Teaching)			6
Electives	6	9	9	Ed 414 (Principles of Teaching)			3
	18	18	18	Ed 462 (Community Relations)	3		
				Electives	3	9	
	18	18	18		18	18	15

**A.B. CURRICULUM IN ENGLISH**

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-102-103	3	3	3	English 211-212-213 (World Lit.)	3	3	3
Foreign Language	3	3	3	English 222-223 (English Lit.)		3	3
Social Studies 111-112-113	3	3	3	Music 131 (Exploring Music)	3		
Mathematics 111-112-113	3	3	3	Biology 101-102-103 or Chemistry 111-112-113			
Health 211-212	3	3		Natural Science 121-122-123	4	4	4
Art 133 (Man and Materials)			3	Ed 201 (Foundations of Ed.)	3		
P. E. (Women)	1 1/3	1 1/3	1 1/3	Psy 242 (Ed. Psy. I, Human Development)		3	
P. E. (Men)	1/3	1/3	1/3	Social Studies 114			3
R. O. T. C. (Men)	1	1	1	P. E. (Women)	1 1/3	1 1/3	1 1/3
				P. E. (Men)	1/3	1/3	1/3
				R. O. T. C.	1	1	1
				Foreign Language	3	3	3
	16 1/3	16 1/3	16 1/3		17 1/3	17 1/3	17 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 361-362-363 (American Lit.)	3	3	3	English 411-412-393 or English 421-422-423	3	3	3
Foreign Language	3	3	3	English 450-451-471	3	3	3
Ed 301 (School Organization, Administration and Management)	3			History 491 or 492	3		
Psy. 312 (Measurement and Evaluation)		3		Psy. 463 (Classroom Guidance)			3
English 323 (Expository Writing)			3	History 201 or 202 or 203		3	
English 311-312-313 or English 331-332-333	3	3	3	Ed. 387 (Curriculum Construction)		3	
Psy. 243 (Ed. Psy. II, Psy. of Learning)	3			Ed. 371 (Secondary School Methods)	3		
Electives	3	6	6	Ed. 472 (Practice Teaching)			6
	18	18	18	Community Relations (Ed. 462)	3		
				Electives	3	6	
	18	18	18		18	18	15

## COURSES IN ENGLISH

### Undergraduate

100. *English Fundamentals*. A non-credit course designed for students who give evidence by entrance examination of their inability to meet the standards of English 101.

101-102-103. *Freshman English*. (9) A course concerned with the development of various areas of the communication skills—reading, writing, speaking, and listening. Required of all freshmen in numerical sequence.

211-212-213. *World Literature*. (9) (Three credit hours each quarter.) A course embracing the study of the principal works, by types, of world literature from the ancients to the contemporary American, British, French, German, Spanish, and Italian writers. Special attention given to religious and philosophical theories in these writings and their applications to modern life and thought.

222-223. *Survey of English Literature*. (6) (Three credit hours each quarter.) Lectures, reports, readings, and classroom discussion of major English works from the Anglo-Saxon Period to the Twentieth Century. (Three courses were offered as English 202-203 during 1950-51, as English 201-202 prior to September, 1949, and as English 212-213 during 1950-51.) Philosophical and religious implications in these selections given consideration as they contribute to the prospective English teacher and the life of the community in which he resides.

261-262. *Children's Literature*. (6) (Three Credit hours each quarter.) (Offered also as Education.) Offers prospective teachers of the primary grades an opportunity to become familiar with the field of literature suited to the tastes of children. Principles that underlie selection of children's literature considered.

272. *Advanced Composition*. (3) Open to students beyond the freshman year who desire additional training in written communication.

301-302-303. *Elementary Journalism*. (9) (Three credit hours each quarter.) A practical course in English composition, with emphasis upon the construction and function of daily and weekly newspapers, community publicity, school publications, and news stories.

311. *Literature of the Romantic Movement*. (3) Study of representative British selections from 1798 to 1832. Attention given to both poetry and prose.

312. *The Victorian Era*. (3) Study of selections from the chief representative of the Victorian period in Great Britain, with emphasis upon the relation of the literature to the time in which it was written.

321-322. *Business English*. (6) A course in business correspondence and advertising. English 272 or 321 a pre-requisite for English 322.

323. *Expository Writing*. (3) Training in preparation of the research report and other types of expository writing, with emphasis on the collection of material, analysis, organization, and arrangement.

\*331. *Literature of the Sixteenth Century*. (3) Study of representative British selections from 1500 to 1600. A consideration of the non-dramatic literature of the century; Lyly, Peele, Greene, Linacre, More, Colet, and others. The poetic types included. Philosophical and religious phases in the lives and works of the authors so concerned stressed in relation to the future teacher of English and his clientele.

\*332. *Literature of the Seventeenth Century*. (3) Study of representative British selections from 1600 to 1700. The poetry and prose of the period in relation to streams of thought of the century as revealed in the writings of the metaphysical, cavalier, puritan, and restoration authors.

\*333. *Literature of the Eighteenth Century*. (3) Study of representative British selections from the ages of Pope (1700-1744) and Johnson (1744-1788.)

\*Approved for graduate credit.

341. *Introduction to Drama*. (3) Study of drama as a literary form. Selections studied will be some of the representative classical and modern plays.

342. *Modern Drama*. (3) Extensive study of selections from modern European drama, chiefly British. Readings and reports.

343. *American Drama*. (3) Continuation of English 342, using selections from chief American playwrights.

\*361-362-363. *Survey of American Literature*. (9) (Three credit hours each quarter.) American Literature from Colonial times to the Civil War; American Literature from the Civil War till 1900; American Literature of the twentieth century. Required of all majors in the Junior year.

\*393. *Literature of Negro Life*. (3) A study of American literature dealing primarily with Negro life.

\*401. *The Metaphysicals*. (3) A study of the works of John Donne, George Herbert, Richard Crenshaw, Henry Vaughn and other followers of the Donnesque school. Special attention given to religious doctrines and philosophies advanced by these writers, and their implications to future teachers of English and their communities.

\*411. *Shakespeare*. (3) Study of the principal plays of Shakespeare.

\*412. *Shakespeare*. (3) A continuation of the study of Shakespeare, with emphasis upon the cultural background of the Elizabethan Period.

\*421. *The English Novel*. (3) A study of selected English novels, with attention to the social background in which they were written.

\*422. *The American Novel*. (3) A study of selected American novels, with attention to the social background in which they were written.

\*423. *The Continental Novel*. (3) A study of selected Continental novels with attention to the social background in which they were written.

\*431. *Milton and Bunyan*. (3) Study of Milton's *Paradise Lost*, *Samson Agonistes*, *Paradise Regained*, the minor poems, and the more important prose tracts; and of Bunyan's *Pilgrim's Progress*. The philosophy and religion in the works of Milton and Bunyan will be carefully treated to gain maximum perspective in the thinking of the prospective teacher of English.

\*451. *History of the English Language*. (3) A study of the development of the English language from the beginnings to modern times. Some attention is given to phonetics and to the elementary principles of linguistics. Required of all English majors. Pre-requisite: Eighteen hours of English.

453. *Current English*. (3) Advanced grammar and modern usage. Some attention is given to semantics. Pre-requisite: Eighteen hours of English.

471. *Methods of Teaching High School English*. (3) (Offered as Education.) A methods course in secondary school English. Required of majors. Pre-requisites: Thirty-six hours of English. Must be taken during residence at this University.

481-482-483. *Advanced Journalism*. (9) (Three credit hours each quarter.) Reporting: newsgathering methods, practice, and writing. Newspaper editing: preparation of copy for publication, headlines, make-up. Interpretive writing: editorials, columns, reviews, magazine articles. Pre-requisite: English 301-302-303 (Elementary Journalism.)

### GRADUATE

501. *Old English*. (3) A study of Anglo-Saxon grammar and readings. Pre-requisite: Thirty-six hours of English.

502. *Old English*. (3) Continuation of English 501. Prerequisite: English 501.

503. *Beowulf*. (3) A reading of *Beowulf* in Old English and an inquiry into some of the scholarly problems with the poem. Prerequisites: English 501 and 502.

\*Approved for graduate credit.

## DEPARTMENT OF MODERN FOREIGN LANGUAGES

ALMA T. WATKINS, Ph.D., *Head*

The Department of Modern Foreign Languages offers the Bachelor of Arts degree. A minimum of 192 quarter hours with an average grade of "C" or above is required for graduation.

Students who elect a major in romance languages, French and Spanish, shall present twenty-seven quarter hours of course work in one romance language and not less than eighteen quarter hours in an additional romance language; these courses to be based upon two or more units of high school credit in the major language elected. Otherwise the student shall offer thirty-six quarter hours in one romance language with not less than twenty-seven quarter hours in courses numbered above 300, and twenty-seven quarter hours in an additional language with not less than eighteen quarter hours in courses numbered above 300. The twenty-seven quarter hours must include nine quarter hours of literature from the 300 series, three quarter hours of French or Spanish phonetics, six quarter hours of advanced oral and written French or Spanish composition, and nine additional quarter hours from the 400 series. The eighteen quarter hours elected from the additional language must include nine quarter hours of literature from the 300 series, three quarter hours of phonetics (course number 421), and six quarter hours of advanced oral and written composition (courses number 422 and 423). Courses will be chosen by the student in consultation with his adviser. Students who anticipate obtaining the M. A. degree in the department must pursue this curriculum.

Students who elect a minor in romance languages must present eighteen quarter hours of course work including nine quarter hours of literature in the 300 series, three quarter hours of phonetics (course number 421), and six quarter hours of advanced oral and written composition (courses number 422 and 423) in the two languages elected.

Students who elect a major in French shall present thirty-six quarter hours based upon two or more units of high school credit; otherwise forty-five quarter hours will be required with not less than twenty-seven quarter hours in courses numbered above 300. These courses must include nine quarter hours of literature in the 300 series, three quarter hours in phonetics (French 421), six quarter hours in advanced oral and written composition (French 422 and 423), and nine additional quarter hours in courses in the 400 series. Courses will be chosen by the student in consultation with his adviser.

A student who elects a minor in French must present eighteen quarter hours of course work, including nine quarter hours of literature from courses in the 300 series, three quarter hours of phonetics (French 421), and six quarter hours in advanced oral and written composition (French 422 and 423).

Students who elect a major in Spanish shall present thirty-six quarter hours based upon two or more units of high school credit; otherwise forty-five quarter hours will be required with not less than twenty-seven quarter hours in courses numbered above 300. These courses must include nine quarter hours of literature in the 300 series, three quarter hours in phonetics (Spanish 421), six quarter hours in advanced oral and written composition (Spanish 422 and 423), and nine additional quarter hours in courses in the 400 series. Courses will be chosen by the student in consultation with his adviser.

A student who elects a minor in Spanish must present eighteen quarter hours of work, including nine quarter hours of literature from courses in the 300 series, three quarter hours of phonetics (Spanish 421), and six quarter hours in advanced oral and written composition (Spanish 422 and 423).

All majors in the department are required to write a senior project. Students who enter with advanced credits must take the proficiency examination in the language elected for proper placement.

### GRADUATE PROGRAM IN ROMANCE LANGUAGES

The Department of Modern Foreign Languages offers the Master of Arts degree in Romance Languages.

Students may elect 27 hours in French and 18 hours in Spanish or they may elect 27 hours in Spanish and 18 hours in French.

A graduate minor in Secondary Education may elect 15 hours in French or Spanish.

### REQUIREMENTS FOR CERTIFICATION OF TEACHERS OF FOREIGN LANGUAGES

The requirements listed here for certification of teachers of foreign languages became effective in September, 1953. Methods-Modern Foreign Languages 471 is required of all students who wish to be certified as teachers of foreign languages.

#### Curriculum in Romance Language

Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
French or Spanish				French or Spanish			
101-2-3 .....	3	3	3	201-2-3 .....	3	3	3
English 101-2-3 .....	3	3	3	English 211-2-3 .....	3	3	3
Biology, Zoology or				Minor .....	3	3	3
Chemistry 101-2-3 ..	4	4	4	Social Studies 114.....	3		
Social Studies 111-2-3..	3	3	3	Psychology 242-3 .....		3	3
Health 151 .....	3			History 201-2-3 .....	3	3	3
Music 131 .....		3		Physical Education			
Education 201 .....				20's to 50's (M).....	1/3	1/3	1/3
Physical Education ...			3	Physical Education			
11-2-3 (M) .....	1/3	1/3	1/3	20's to 50's (W).....	1 1/3	1 1/3	1 1/3
Physical Education				Air Science II (M)....	1	1	1
11-2-3 (W) .....	1 1/3	1 1/3	1 1/3				
Air Science I (M)....	1	1	1				
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year			Senior Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
French or Spanish				French or Spanish			
311-2-3 .....	3	3	3	421-2-3 .....	3	3	3
English 411 .....	3			Methods-Modern			
English 423 .....			3	Foreign Lang. 471....	3		
Education 301 .....	3			French, Spanish			
Minor .....	3	3	3	441-2-3 .....	3	3	3
Math. 111-2-3 .....	3	3	3	Minor .....	3	3	3
Psychology 312 .....		3		Major or Electives....	3		3
Education 371 .....			3	Psychology 463 .....			3
Nutrition 212 .....	3			Minor .....	3		
Education 387 .....		3		Education 472 .....		6	
Philosophy 323 .....			3	Health 211 or 212.....			3
Psychology 462 .....		3					
	18	18	18		18	18	18

## Curriculum in French

Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
French 101-2-3	3	3	3	French 201-2-3	3	3	3
English 101-2-3	3	3	3	English 211-2-3	3	3	3
Biology, Zoology or Chemistry 101-2-3	4	4	4	Minor	3	3	3
Social Studies 111-2-3	3	3	3	Social Studies 114	3		
Health 151	3			Psychology 242-3		3	3
Music 131		3		History 201-2-3	3	3	3
Education 201			3	Physical Education 20's to 50's (M)	1/3	1/3	1/3
Physical Education 11-2-3 (M)	1/3	1/3	1/3	Physical Education 20's to 50's (W)	1 1/3	1 1/3	1 1/3
Physical Education 11-2-3 (W)	1 1/3	1 1/3	1 1/3	Air Science II (M)	1	1	1
Air Science I (M)	1	1	1				
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year			Senior Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
French 311-2-3	3	3	3	French 421-2-3	3	3	3
English 411	3			Education 471	3		
English 423		3		Minor	3	3	3
Education 301			3	French 441-2-3	3	3	3
Minor	3	3	3	Major or Electives	3		3
Math 111-2-3	3	3	3	Psychology 463	3		
Psychology 312	3			Minor			3
Education 371			3	Education 472		6	
Nutrition 212	3			Health 211 or 212			3
Education 387		3					
Philosophy 323			3				
Psychology 462		3					
	18	18	18		18	15	18

## CURRICULUM IN SPANISH

Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Spanish 101-2-3	3	3	3	Spanish 201-2-3	3	3	3
English 101-2-3	3	3	3	English 211-2-3	3	3	3
Biology, Zoology or Chemistry 101-2-3	4	4	4	Minor	3	3	3
Social Studies 111-2-3	3	3	3	Social Studies 114	3		
Health 151	3			Psychology 242-3		3	3
Music 131		3		History 201-2-3	3	3	3
Education 201			3	Physical Education 20's to 50's (M)	1/3	1/3	1/3
Physical Education 11-2-3 (M)	1/3	1/3	1/3	Physical Education 20's to 50's (W)	1 1/3	1 1/3	1 1/3
Physical Education 11-2-3 (W)	1 1/3	1 1/3	1 1/3	Air Science II (M)	1	1	1
Air Science I (M)	1	1	1				
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Spanish 311-2-3	3	3	3	Spanish 421-2-3	3	3	3
English 411	3			Education 471	3		
English 423		3		Minor	3	3	3
Education 301			3	Spanish 441-2-3	3	3	3
Minor	3	3	3	Major or Electives	3		3
Math 111-2-3	3	3	3	Psychology 463	3		
Psychology 312	3			Minor			3
Education 371			3	Education 472		6	
Nutrition 212	3			Health 211 or 212			3
Education 387		3					
Philosophy 323			3				
Psychology 462		3					
	18	18	18		18	15	18

## Courses in German

## Undergraduate

101-2-3. *Elementary German*. (9) Aims to develop the ability to write, read and understand simple German. A functional vocabulary is built up, and the essentials of grammar are stressed. Supplemented with graded reading.

201-2-3. *Intermediate German*. (9) Consists of intensive and extensive reading of graded German works (literary and scientific.) Fluency and accuracy of comprehension are the primary objectives.

311-2-3. *Introduction to German Literature*. (9) Consists of selected readings to give the student an acquaintance with outstanding writers, ideas and movements in German literature from the beginning of the German language and literature to the contemporary period.

## Courses in French

## Undergraduate

101-2-3. *Elementary French*. (9) A course for beginners which consists of pronunciation, grammar and graded reading.

201-2-3. *Intermediate French*. (9) A continuation of French 101-2-3 consisting of a systematic review of grammar, dictation, conversation, and reading. Stress is placed on ability to read and easy conversation.

311-2-3. *Aspects of French Literature*. (9) An introductory course based on readings selected to give the students an acquaintance with some of the more important personalities, movements, and ideas of French literature with emphasis placed on the 17th, 18th, and 19th Centuries.

381-2-3. *Survey of French Literature*. (9) This course begins with the Middle Ages and emphasizes the works of the best authors to the present.

411-2. *The Classical Age of French Literature*. (6) Stresses the origins and foundations of French Classicism and its main representatives. Offered every other year.

413. *Main Ideas of the Eighteenth Century*. (3) Emphasizes the theories and philosophy of the works of the best authors of the century.

421. *Phonetics*. (3) Consists of an analysis of the sounds of French and of the operation of phonetic laws in the development of the French language.

422-3. *Advanced Grammar, Oral and Written Composition*. (6) A grammatical analysis of selected prose works; and oral and written composition. Required of those wishing to be certified as teachers of French.

441-2-3. *French Civilization*. (9) A course in the history of French civilization and culture, the arts, sciences, and institutions of France to the present.

451-2-3. *Modern French Literature.* (9) Stresses the nineteenth century in the novel, drama and poetry. The following aspects of French literature form the contents of the course: Romanticism; Realism; the Parnassian reaction in poetry; Naturalism and Symbolism. Offered every other year.

471-2-3. *French Literature of the Twentieth Century.* (9) Alternates with French 451-2-3. Consists of critical studies in the works of leading figures in the novel, drama, and poetry and stresses the philosophy and theories of selected contemporary writers.

471. *The Teaching of Foreign Languages.* (3) A basic course in modern language teaching. It acquaints the student with the recent developments in methods, materials and texts. Required of those wishing to be certified as teachers of modern foreign languages.

#### COURSES IN SPANISH

##### Undergraduate

101-2-3. *Elementary Spanish.* (9) A course for beginners which consists of pronunciation, grammar, and graded reading.

201-2-3. *Intermediate Spanish.* (9) A continuation of Spanish 101-2-3 consisting of a systematic review of grammar, dictation, conversation and reading. Stress is placed on ability to read and easy conversation.

311-2-3. *Aspects of Spanish Literature.* (9) An introductory course based on readings selected to give the students an acquaintance with some of the more important personalities, movements, and ideas of Spanish Literature with emphasis placed on the 17th, 18th, and 19th Centuries.

321-2-3. *Spanish American Literature.* (9) Consists of selected readings to give the student an acquaintance with the important ideas, personalities, and types of literature of the Colonial Period, the Gaucho Literature and Modernism. Offered every other year.

381-2-3. *Survey of Spanish Literature.* (9) Begins with the Cid and emphasizes the works of the best authors to the present.

411-2-3. *Spanish Prose and Poetry of the Golden Age.* (9) Consists of a study of the Picaresque Novel, Cervantes and the Comedia. Offered every other year.

421. *Phonetics.* (3) Consists of an analysis of the sounds of Spanish and of the operation of phonetic laws in the development of the Spanish language.

422-3. *Advanced Grammar, Oral and Written Composition.* (6) A grammatical analysis of selected prose works; oral and written composition. Required of those wishing to be certified as teachers of Spanish.

441-2-3. *Spanish and Spanish American Civilization.* (9) The history of Spanish and Spanish American civilization, culture, and institutions.

451-2-3. *Modern Spanish Literature.* (9) Survey of the 19th Century Novel, Drama and Poetry stressing the following aspects: Romanticism, Realism, Regionalism and Modernism.

471. *The Teaching of Foreign Languages.* (3) A basic course in Modern Language teaching. It acquaints the students with the recent developments in methods, materials, and texts. Required of those wishing to be certified as teachers of modern foreign languages.

##### Graduate Courses in French

501. *Old French.* (3) An introductory course to medieval French. The course includes reading, phonology and morphology of old texts in prose and poetry.

511-2. *Research in Thesis Writing and the Thesis.* (6) Required of all candidates for the Master's degree in French.

521-2-3. *French Literature of the Sixteenth Century.* (9) An intensive study of French Literature of the French Renaissance with emphasis on the Pleiade, Rabelais, and Montaigne.

541-2-3. *The French Novel.* (9) Consists of the origins and development of the French Novel.

551-2-3. *The French Drama.* (9) Consists of the development of the French Drama from Corneille to 1914. Offered in alternate years with French 541-2-3.

##### Graduate Courses in Spanish

501. *Old Spanish.* (3) A study of Old Spanish language and literature. The course includes reading, phonology and morphology of old texts in prose and poetry.

511-2. *Research in Thesis Writing and the Thesis.* (6) Required of all candidates for the Master's degree in Spanish.

521-2-3. *Origins and Development of the Spanish Novel.* (9) First Quarter: The Celestina-authorship, sources and influences. Second Quarter: The Quixote, Third Quarter: The Picaresque Novel.

531-2-3. *The Modern Spanish Novel.* (9) An intensive study of the modern novel beginning with Fernan Caballero.

551-2-3. *The Spanish Drama from its Origin to the Present.* (9) Research in the drama from the Medieval period to the present. Offered in alternate years with Spanish 531-2-3.

#### DEPARTMENT OF PHYSICS AND MATHEMATICS

R. H. ADKINS, Ph.D., *Head*

The department of physics and mathematics offers courses of study at the undergraduate level leading to the bachelor degree in physics or in mathematics.

##### CURRICULUM IN PHYSICS

The courses in physics have been designed to serve the needs of the following types of students: (1) those who wish to pursue the study of physics as a major; (2) those who require physics as a part of their pre-professional training; (3) those students majoring in the sciences or mathematics to whom the knowledge and techniques of physics are desirable adjuncts.

The physics curriculum requires a minimum of 200 quarter hours for graduation. Of this number, 48 quarter hours of courses in physics are required to satisfy the requirements for a major in physics with at least 24 quarter hours chosen from courses on the 300 level and 12 quarter hours chosen from courses on the 400 level. Of the total number of quarter hours required for graduation, 66 quarter hours should be completed on the 300 and 400 levels.

A major in physics consists of Physics 221-2-3, 311-2-3, 331-2-3, 412-3-4, 450 and additional courses to make a total of 45 quarter hours. A minor in physics consists of Physics 211-2-3 or Physics 221-2-3 and additional credits to make a total of 27 quarter hours.

##### CURRICULUM FOR A MAJOR IN PHYSICS

Freshman Year	Quarter			Sophomore Year	Quarter		
	Hours	Credit			Hours	Credit	
English 101-2-3 . . . . .	3	3	3	Name of Course	I	II	III
Mathematics				Physics 221-2-3 . . . . .	4	4	4
161-2-3 . . . . .	5	5	5	Mathematics			
Physical Ed. 11-12-13				261-2-3 . . . . .	5	5	5
(Men . . . . .)	1/3	1/3	1/3	German or French . . . . .	3	3	3
(Women) . . . . .	1 1/3	1 1/3	1 1/3	Physical Ed.			
Chemistry 111-2-3. . . . .	4	4	4	20's to 50's (Men) . . . . .	1/3	1/3	1/3
German or French . . . . .	3	3	3	(Women) . . . . .	1 1/3	1 1/3	1 1/3
Air Science 151-2-3				English 211-12-13. . . . .	3	3	3
(Men) . . . . .	1	1	1	Air Science (251-2-3)			
				(Men) . . . . .	1	1	1
	16 1/3	16 1/3	16 1/3				
					16 1/3	16 1/3	16 1/3



**CURRICULUM FOR BACHELOR OF SCIENCE DEGREE WITH A MAJOR IN MATHEMATICS**

Freshman Year				Sophomore Year			
Name of Course	Quarter			Name of Course	Quarter		
	Hours	II	III		Hours	II	III
English 101-2-3	3	3	3	English 211-12-13	3	3	3
Mathematics 161-2-3	5	5	5	Mathematics 261-2-3	5	5	5
Science 121-2-3	4	4	4	Biology 101-2-3 or Chemistry 111-12-13	4	4	4
Soc. Studies 111-12-13	3	3	3	Soc. Studies 114	3		
Phys. Ed. 11-12-13				Education 201		3	
(Women)	1 1/3	1 1/3	1 1/3	Art 133			3
(Men)	1 1/3	1 1/3	1 1/3	Physical Ed. 20's			
Air Science I (Men)	1	1	1	(Women)	1 1/3	1 1/3	1 1/3
				(Men)	1 1/3	1 1/3	1 1/3
				Air Science II (Men)	1	1	1
	16 1/3	16 1/3	16 1/3	Total (Women)	16 1/3	16 1/3	16 1/3

Junior Year				Senior Year			
Name of Course	Quarter			Name of Course	Quarter		
	Hours	II	III		Hours	II	III
Mathematics 371-2-3	3	3	3	Mathematics 322			3
Mathematics 471		3		*Mathematics (Elect.)		3	3
Education 371		3		Mathematics 450		3	
Psychology 242-3	3	3		Education 462	3		
Education 301	3			Psychology 463	3		
Education 387			3	Health 212		3	
Psychology 312			3	History 491		3	
Physics 221-2-3	4	4	4	Zoology 332-3 or Chemistry 312-13		4	4
Biology 311 or Chemistry 311 or History 201-2 (3 or 4)		3		Education 472	6		
Health 151			3	Philosophy 323			3
*Elective			3	*Elective			1
	16 or 17	19	19		12	16	14

**COURSES IN MATHEMATICS**

**Undergraduate**

100. *Fundamentals of Arithmetic and Algebra.* (0) A non-credit course designed especially for students who desire to pursue courses offered by the department but whose score on the Placement Test indicates probable failure in the regular courses. Students wishing to enroll in Mathematics 161, Mathematics 131 or Mathematics 111 must first pass the Placement Test given during Freshman Week or pass this course. Five lectures per week.

101. *Arithmetic.* (3) Designed primarily for prospective teachers in the elementary schools. Study of number and its symbols, fundamental operations with whole numbers, fractions, decimals, denominate numbers, percentage, with problem solving. Will not be counted toward a major or minor in mathematics.

102. *Arithmetic.* (3) A continuation of Mathematics 101 with numerous everyday applications of the topics discussed. Will not be counted toward a major or minor in mathematics. Prerequisite: Mathematics 101.

111-12-13. *Introduction to College Mathematics.* (9) Designed for the prospective teacher; and, provides experiences that will offer him or her maximum opportunity to achieve functional competence in the elementary notions of college mathematics. The major concepts of number, measurement, function, and proof

\*All electives must be numbered above 300.

are the mathematical media through which this achievement is sought. (Will not be counted toward a major or minor in Mathematics. Prerequisite: Passing Placement Test or Mathematics 100. Five lectures.

131. *Algebra.* (3) Review of elementary operations, factoring, fractions, linear equations, graphs, ratio, proportion, variation, exponents, and radicals. Prerequisite: Passing of the Placement Test or of Mathematics 100.

132. *Algebra.* (3) A continuation of 131. Quadratic equations, graphs, binomial theorem, progressions, permutations and combinations. Prerequisite: Mathematics 131. Three lectures.

133. *Plane Trigonometry.* (3) Functions of angles, identities, equations, logarithms, solution of right and oblique triangles with application, graphs of functions. Prerequisite: Mathematics 132.

141. *Agricultural Mathematics I.* (3) Review of the fundamental processes with whole numbers, common fractions and decimal fractions. Percentage, interest, practical applications. For students of agriculture.

142. *Agricultural Mathematics II.* (3) Elementary algebraic operations, linear equations, formulae, lengths, areas, volumes, ratio, proportion, practical applications. For students of agriculture. Prerequisite: Mathematics 141.

143. *Agricultural Mathematics III.* (3) Functions of the acute angle, averages, graphs, practical applications. For students of agriculture. Prerequisite: Mathematics 142.

161. *Algebra.* (5) Discussion of topics in simple and quadratic equations, binomial theorem, progressions, theory of equations, partial fractions. Prerequisite: Passing of the Placement Test or of Mathematics 100.

162. *Trigonometry.* (5) Functions of the general angle, identities, equations, logarithms, the general triangle, and functions of two angles. Prerequisite: Mathematics 161.

163. *Analytic Geometry.* (5) Properties of the straight line, the conic sections in the plane, transformation of coordinates, polar equations of the conics, higher plane curves. Prerequisite: Mathematics 162.

171. *Mathematics of Business.* (3) Review of the fundamental processes in simple arithmetic and algebraic operations.

172. *Mathematics of Business.* (3) Application of these operations to percentage, simple interest discount, partial payments. Prerequisite: Mathematics 171.

173. *Mathematics of Business.* (3) Exponents, radicals, logarithms, progressions, binomial theorem, compound interest, annuities and their applications to problems of business and finance. Prerequisite: Mathematics 172.

200. *Fundamental Concepts of Mathematics.* (3) Designed for the prospective teacher; and aims to assist him or her in achieving a better understanding of the nature and development of critical thought and quantitative thinking. Emphasis is placed upon the major concepts of number, measurement, function, and proof.

261-2-3. *Calculus.* (15) Differential and integral calculus. Derivative of algebraic, trigonometric, exponential, and logarithmic functions with application to problems rising in engineering and the physical sciences; the indefinite and definite integral with applications; infinite series, approximate computation. Prerequisite: Mathematics 163.

311. *Fundamentals of Statistics.* (3) A basic course in general statistics, including tabulation of data, charts, a study of frequency distributions, measures of central tendency and dispersion, graphs, normal curve, linear correlation. It is advisable that a student take algebra before enrolling in this course.

322. *History of Mathematics.* (3) Great names in the development of

mathematics, tracing the development of each of the subject matter fields. For prospective teachers of mathematics.

331-2. *College Geometry*. (6) A study of the concepts of Euclidean Geometry with special emphasis on the nature of proof and of the nature of a logical or mathematical system.

371. *Advanced Algebra*. (3) A continuation of College Algebra. Aimed at broadening the concepts of algebra for students intending to study higher mathematics or to teach mathematics on the secondary level. Prerequisite: Mathematics 161.

372-3. *Theory of Equations*. (6) Properties of polynomials, transformation of equations, elementary theorems on the roots of an equation, solution of equations by graphs, trigonometric solution of the cubic equation, Descartes' rules, Sturm's theorem, solutions of numerical equations, determinants, symmetric functions of the roots, ruler and compass constructions. Prerequisites: Mathematics 371 and Calculus, or the approval of the department.

421. *Advanced Calculus*. (3) Partial differentiations, multiple integrals; line, surface and volume integrals; infinite series. Prerequisite: Mathematics 263.

422-3. *Analytic Geometry of Space*. (6) Planes and lines in space; polar, spherical, and cylindrical coordinates; forms, classification, and properties of quadric surfaces; quadric surfaces in tetrahedral coordinates; transformation of space. Prerequisite: Consent of the Department.

450. *Senior Project Writing*. (3) Individual student research, study, compilation, and presentation of special mathematical topics and related problems selected by the student and approved by the Department. Required of all prospective graduating seniors in the department. Prerequisite: Senior standing. Conference hours arranged.

451-2-3. *Introduction to Analysis*. (9) Basic properties of the real number system; theory of limits, continuous functions, uniform continuity, and convergence; integration, differentiation, function of several real variables, implicit function theory. Prerequisite: Mathematics 263.

461. *Elementary Theory of Numbers*. (3) Number systems, divisibility, congruences, theorems of Fermat and Wilson, primitive roots, indices, quadratic reciprocity. Prerequisite: Consent of the department.

462-463. *Differential Equations*. (6) Classification and solution of common types of elementary differential equations; application of ordinary differential equations to problems arising in engineering and the physical sciences; introduction to partial differential equations. Prerequisite: Mathematics 263.

471. *The Teaching of Mathematics in the Secondary Schools*. (3) Lectures, discussions and reports on problems connected with the content and methods of mathematical instruction in the junior and senior high schools. Emphasis is on effective techniques of developing basic concepts in mathematics. Prerequisite: Calculus and/or approval of the Department.

#### Graduate

523. *Advanced Course in Teaching of Arithmetic*. (3) A study of methods and materials used in teaching arithmetic in the elementary grades. Emphasis is placed on methods leading to mathematical understanding, methods of teaching computational skills and applications in quantitative problems of everyday living.

## DEPARTMENT OF SCIENCE EDUCATION

WILLIAM N. JACKSON, Ph.D., Head

The department's program is designed to meet the needs of three groups of students: 1. Those who wish to qualify for secondary school science teaching with certification in several science fields. 2. Those who desire a four-year general curriculum built around a core of natural science, which might be used to fulfill the entrance requirements of schools which prepare technicians for the several areas of medicine, health, earth sciences, and allied professions, and the scientific branches of government service; and 3. Those from other curricula of the university who wish to take service courses in the area of science education and/or geography.

To serve these needs, the department offers undergraduate curricula leading to the Bachelor of Science degree with a major in science education. These curricula are designed for prospective teachers of science. A graduate program culminating in the Master of Science degree in science education is offered for science teachers.

There are two programs designed for undergraduate majors in science education. The first program, designated as the "Mathematics and Physical Science" curriculum, provides training for a student who desires teacher certification in mathematics and the physical sciences (i.e., physics and chemistry). A minimum of 75 quarter hours in mathematics and the physical sciences (chemistry, physics, geology, geography and astronomy) is required for such certification.

Of the 107 quarter hours required in the major area (mathematics, physics, chemistry, earth sciences and science education), 38 hours must be in courses at the junior and senior level. The total program requiring 196 quarter hours, must include a minimum of 71 quarter hours of courses at the 300-400 level.

The second program, designated as the "Science" curriculum, provides training for a student who desires teacher certification in the natural sciences (i.e., biology, chemistry, physics and general science). A minimum of 48 quarter hours in the natural sciences with courses in at least three of the following areas is required for certification: biology, chemistry, geology and physics. The student may include integrated science courses for credit toward certification.

Of the 88 quarter hours required in the major area (natural sciences and science education), 32 hours must be in courses on the junior and senior levels. The total program requiring 198 quarter hours, must include a minimum of 68 quarter hours of courses at the 300-400 level.

A minimum grade of C in each required course of the major sequence is necessary for maintenance of good standing in the selected curriculum.

The graduate program in science education is designed to lead to the Master of Science degree and to provide experienced teachers, or those persons who have earned a bachelor's degree with a teaching major in a natural science, with further training basic to positions of increased responsibility and leadership.

In general, this program will include graduate work in a natural science, advanced courses in education and the teaching of science, and a research project. It is assumed that all participants in the program will have completed an undergraduate course of study with at least twenty-seven quarter hours in education, including practice teaching, and a major in a natural science or science education with an average of B or better.

Curriculum for the Bachelor of Science Degree with a Major in Science Education  
"Mathematics and Physical Science"

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Freshman English				English 211-2-3...	3	3	3
101-2-3	3	3	3	Education 201...	3		
Social Studies				Psychology 242-3...		3	3
111-2-3	3	3	3	Physics 221-2-3...	4	4	4
Mathematics				Mathematics 200...	3		
161-2-3	5	5	5	Chemistry 211-2, 361		4	4
Chemistry 111-2-3	4	4	4	Health 212, Soc. St. 114		3	3
Phy. Educ. (women)	11/3	11/3	11/3	Phy. Educ. (Women)			
Phy. Educ. (Men)				20's-40's	1 1/3	1 1/3	1 1/3
11-2-3	1/3	1/3	1/3	Phy. Educ. (Men) 20's-40's	1/3	1/3	1/3
Air Science				Air Science 251-2-3 (M)	1	1	1
151-2-3 (M)	1	1	1				
<hr/>				<hr/>			
	16 1/3	16 1/3	16 1/3		18 1/3	18 1/3	18 1/3

Junior Year				Senior Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Religion 301, Phil. 323	3		3	Sci. Educ. 471, 425	3		3
Educ. 301, 387, 462	3	3	3	Education 472		6	
Psychology 312		3		Psychology 463			3
Mathematics 311, 471	3		3	Nutrition 212		3	
Geology 361			4	Sci. Educ. 450, 427	3		3
Geography 171-2	3	3		Geography 261	3		
Mathematics 261-2	5	5		Science Electives (300-400 courses)	4	4	4
Health 151		3					
Education 371			3				
Elect. (300-400 course)			3				
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	17	17	19		13	13	13

Curriculum for the Bachelor of Science Degree with a Major in Science Education  
"Science Curriculum"

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Mathematics				Math 200;			
161-2-3	5	5	5	Soc. Stud. 114;			
Chemistry 111-2-3	4	4	4	Health 151	3	3	3
Fr. English 101-2-3	3	3	3	Physics 221-2-3	4	4	4
Soc. Stud. 111-2-3	3	3	3	Biology 101-2-3	4	4	4
Phy. Educ. (Women)	11-2-3	11/3	11/3	English 211-2-3	3	3	3
Phy. Educ. (Men)				Education 201	3		
11-2-3	1/3	1/3	1/3	Psychology 242-3		3	3
Air Science (M)				Phy. Educ. (Women)			
151-2-3	1	1	1	20's-40's	1 1/3	1 1/3	1 1/3
				Phy. Educ. (Men)			
				20's-40's	1/3	1/3	1/3
				Air Science (M)			
				251-2-3	1	1	1
<hr/>				<hr/>			
	16 1/3	16 1/3	16 1/3		18 1/3	18 1/3	18 1/3

Name of Course	Junior Year			Senior Year		
	Hours	II	III	Hours	II	III
Biology 202-3, 241	4	4	4	Sci. Educ. 471, 425	3	3
Chemistry, 211-2, 361	4	4	4	Sci. Educ. 427, 450	3	3
Educ. 301, 371, 387	3	3	3	Psych. 463, Educ. 472	3	6
Health 212, Nut. 212	3	3		Science Electives (300-400 Courses)	8	4
Relig. 301, Phil. 323		3	3	Educ. Electives (300-400 Courses)		3
Psych. 312, Educ. 462	3		3			
<hr/>				<hr/>		
	17	17	17		17	13

COURSES IN SCIENCE EDUCATION

Undergraduate

121-2-3. *Introduction to Natural Science.* (12) Basic principles from the physical and biological sciences, the place of science in human culture, and the use of the scientific method in problem solving developed through experiences in the classroom, field, and laboratory. The first two quarters are devoted to selected experiences in the areas of astronomy, geology, physics, and chemistry. The third quarter deals with biological phenomena. Three lectures and one two-hour laboratory period.

301-2-3. *Science for Elementary Teachers.* (9) A three quarter course which combines a survey of the science subject matter suitable for elementary schools with the methods of teaching this science. (Formerly Science 101-2-3.)

\*425. *Laboratory Practicum for Science Teachers.* (3) A laboratory course especially designed for science teachers. Students will have experience developing techniques to be used in caring for apparatus, tools, and materials, as well as for assembling and constructing demonstration and laboratory devices for science courses. Prerequisite: Science Education 471 and a major or minor in a natural science. Six laboratory periods.

\*427. *Philosophy of Science.* (3) (Formerly Science Education 422). Consideration of the evidence and logic upon which contemporary scientific concepts rest, and the interplay of ideas, stresses, and new vistas that have caused continuous changes. The course assumes that the student possesses a broad background in the fundamental science subjects. Recommended for senior science majors and graduate students in the sciences. The course may be taken for elective credit in science or secondary education.

450 *Senior Project in Science Education.* (3) Individual student research and presentation of a special topic or problem selected by the student with the approval of the Department. Required of all candidates for the Bachelor's degree. Prerequisite: Completion of 75 per cent of the major work in science and senior standing in the Department.

471. *Teaching of the Sciences in Secondary Schools.* (3) Materials and methods suitable for use in junior and senior high schools stressed. A course for science majors who plan to teach in secondary schools. Prerequisites: Psychology 312; Education 387, 371; and completion of at least 75 per cent of the major work in science.

Graduate

500. *Seminar: Current Problems in Science Teaching.* (No credit.) Required of all graduate students in the department. Meets twice monthly throughout the year.

501. *Problems in the Teaching and Supervision of Science in Secondary Schools.* (3) The place of science in the secondary school. Objectives, curricula, recent trends, concept formation, and sequences investigated for clues as to desirable organization and supervision of a curriculum in science. Prerequisite: Teaching or supervising experience.

\*Approved for graduate credit.

502. *Materials for Teaching Science.* (3) An advanced course treating the location, collection, and use of curriculum materials in science teaching. Prerequisite: Science Education 471. Three lecture periods.

505. *Problems in the Teaching of Elementary Science.* (3) This course is offered for majors in Elementary Education only. It is for those graduate students concerned with the problems of teaching elementary science. Students who plan to do thesis problems in this area will be guided in the preparation of their preliminary plans. Acquaintance with educational research and other literature concerned with the teaching of elementary science. Consideration of problems related to the purpose, content, materials, activities and evaluation in elementary science.

512. *Thesis in Science Education.* (3)

### COURSES IN GEOGRAPHY

171-2-3. *Elements of Geography.* (9) The fundamentals of physical and human geography. A survey of regional patterns of settlement interpretation of lands and other basic resources is the culmination of this course.

200. *Geography Laboratory.* (Non-credit) Designed to aid students who have difficulty in understanding the geographical method. It is open to all undergraduates of the University who feel that they need assistance in understanding the geographical method.

201. *Economic Geography.* (3) Emphasizes the distribution of economic products. Communication, domestic and foreign, are an integral part of the course.

261. *Elements of Weather.* (3) A critical study of the atmosphere. This course will consider weather elements, weather observation, air masses, and their importance to weather.

262. *Conservation.* (3) A study of the methods of conservation of natural resources, their importance, and the need for their conservation. This course will include a study of the land as an economic factor with a consideration of the character and location in land utilization and value. Consideration will be given in regional and national planning for resource utilization. No prerequisites.

271-2-3. *Fundamentals of Economic Geography.* (9) A survey of the elements of the human habitat with emphasis on major world resources. A consideration of the geographic facts which are important to the development of the major world industry areas. (For Business Students only.)

361. *Geology.* (4) Deals with a study of the materials of the earth, the geologic processes and how they affect land forms and soil distribution. Three lectures and one laboratory or field period.

371. *United States and Canada.* (3) Recognition, analysis and interpretation of the basic physiographic features, resources and human adjustments within its several areas.

372. *Caribbean America.* (3) The northern countries of Latin America and the West Indies; their patterns of land occupation; their commercial relation to the United States.

373. *South America.* (3) Regions and resources of South America beyond the Caribbean area with a special study of the distinctive role of each country according to its geographic significance.

381. *Europe.* (3) Regions and resources of Europe, and their relation to the development of the basic culture in different areas.

382. *Cities.* (3) Geographic factors in the origin and growth of urban centers. Analysis and synthesis of the economic and physical structure; function of trade centers in the light of their geographic setting; a real expansion; intra- and inter-trade relations; integration with avenues of communication and city planning.

391. *Political Geography.* (3) A study of political relations, territorial aims, and aspirations, boundaries and raw materials.

401. *The Middle East and India.* (3) Resources and economic activities in their regional setting; aggressive policies in territorial expansion.

402-3. *Geography of the South.* (6) A regional study of the South generally during the first quarter. Emphasis is on the sequence of land occupation. During the second quarter, a detailed study of Tennessee, the Tennessee Valley Authority (TVA), and adjoining areas is given.

411. *Southeastern Asia and Australia.* (3) Australia and the East Indies. A study of the physical, economic, and cultural elements visible as earth features.

412. *Africa.* (3) Resources and regions of Africa. Some consideration will be given to the French, British and other colonial policies in Africa.

413. *World Resources.* (3) A study of the natural conditions and resources in the major areas of international concern. Special emphasis will be given resources needed by the United States.

421. *China.* (3) Regions and resources of China, with special emphasis on differences and similarities of each cultural and physical region. The placing of China as a whole in its proper continental and world framework is the final objective.

422. *The U.S.S.R.* (3) A geographical analysis of the terrain, resources and economic development of Russia and those areas in Europe and Asia largely under Russian influence.

450. *Geography.* (3) Senior Project. The writing of a special paper or the preparation of some special project in Geography. Required of all graduating seniors.

451. *Cartography.* (3) Drawing of projections. The study of types of projections and the best use of each is included. Some attention is given to the preparation of graphs.

462. *World Climates.* (3) Designed to effect a concept of the distribution of climates over the world and the reasons for this distribution. Of major importance in this course will be: controls of climate, a climatic classification by Koppen, and the relationship of man's activities and world climates.

463. *Physiography.* (3) Study of the land features of the earth and their development. Prerequisites: Geography 181-82.

471. *Teaching of Geography.* (3) Principles of organizing and presenting geographic materials for teaching purposes in secondary schools.

### DEPARTMENT OF SOCIAL SCIENCES

A. A. THOMPSON, Ph.D. *Head*

The Department of Social Sciences offers four curricula leading to the Bachelor's degree, namely History, Political Science, Sociology, Social Administration and courses in Economics.

The curriculum in History offers courses of study at the undergraduate and graduate levels.

The curriculum in Political Science offers courses of study at the undergraduate level leading to the degrees of Bachelor of Science and Bachelor of Arts. The curriculum also offers courses of study leading to teacher certification either for individual endorsement or group certification.

The curriculum in Sociology offers courses of study at the undergraduate level leading to the Bachelor of Arts and Bachelor of Science degrees. The Sociology curriculum also offers courses of study leading to teacher certification in terms of individual certification and group certification.

The curriculum in Social Administration offers courses of study at the undergraduate level leading to the degrees of Bachelor of Arts and Bachelor of Science.

COURSES IN ECONOMICS

201-2-3. *Economic Principles.* (9) Principles and problems associated with the production, exchange, and the use of wealth.

204. *Consumer Economics.* (3) Designed to acquaint the student with the character and significance of the factors which determine and govern consumption, particularly as they are related to the prosperity and stability of the economic system.

301. *Labor Problems.* (3) A study of labor problems from union and management point of view with emphasis on the social and economic aspects of labor relations.

302. *Intermediate Economics.* (3) A major treatment of the problems of price determination, demand, and costs, and price determination and output under a system of pure competition and monopolistic competition.

303. *Recent Labor Legislation.* (3) A study of labor legislation from the Sherman Anti-Trust Law to the present, with emphasis on the sociological aspects of the legislation.

401. *Economic Development of the United States.* (3) A study in the progress in agriculture, industry, communication, transportation, banking and trade, and the developments in governmental economic policy.

402. *State and Local Taxation.* (3) A survey course devoted to tax problems of state and local governments; special emphasis on state questions.

403. *Introduction to Government Finance.* (3) Survey of institutions and theories of government finance. Effects of public expenditures; functions of public revenues; forms of taxation; tax criteria; determination of tax policy; public borrowing; debt management; fiscal policy.

CURRICULUM IN HISTORY

ALONZO T. STEPHENS, Ph.D., Coordinator

Instruction in the curriculum of history is designed to present the main aspects of the rise and development of civilization. The curriculum emphasizes the social, economic, and political phases of history, but it also deals with the institutional, cultural, diplomatic and religious phases. The aim of the curriculum is to enable students to read historical literature critically and to acquaint students with the facts in the development of man and of civilization.

A student who makes history his major will be expected to complete 48 quarter hours, (including History 121-2-3.) Those students who desire the Bachelor of Arts degree in history must fulfill 57 quarter hours included in the Liberal Education Core. In addition the following departmental requirements are made: History 121-2-3; 211-12-13; 301-2-3; 341-2; and 491 and/or 492.

Instruction in history is designed to give to the student within the first two years a knowledge of the important events, characters and development in the past of mankind. To achieve this aim, the curriculum requires that all majors have a general understanding of certain related fields.

A student who makes history his minor will be expected to complete the same amount of prerequisite work as that indicated in the preceding paragraphs. In addition, each minor must complete nine hours of history in a prescribed area. Hence, a student with a minor in history must have a minimum of 27 hours.

All majors in history are required to select a minimum of 15 quarter hours on the 300 and 400 levels from the following three areas: namely, (1) American History—United States (Colonial, Middle, Recent and Regional), (2) European History, and (3) World Civilization and Culture.

A major in history may include History 121-2-3; 201-2-3; 211-12-13; 301-2-3; 341-2; and 491 and/or 492; nine additional hours in junior-senior courses in history; Economics 211-12-13; or Sociology 211-12-13; and Political Science 221-2-3.

A total of 192 quarter hours with an average grade of "C" or above is required for graduation.

BACHELOR OF ARTS CURRICULUM—NON-TEACHING

Curriculum in History

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 101-2-3 (Freshman Orientation) ...	1	1	1	English 211-12-13... 3	3	3	3
English 101-2-3... 3	3	3	3	Foreign Language... 3	3	3	3
Foreign Language... 3	3	3	3	Social Studies (Economics, Polit. Sci., Sociology or Geography) ... 3	3	3	3
History 121-2-3... 3	3	3	3	History 201-2-3... 3	3	3	3
Science (Biology, Chemistry, or Natural Science) 4	4	4	4	Psych. 221-2... 3	3	3	3
Mathematics 111-2-3 or 200... 3	3	3	3	Elective ... 3			
Physical Ed. 11-12-13 (Men) ... 1/3	1/3	1/3	1/3	Physical Ed. 20's to 50's (Men) ... 1/3	1/3	1/3	1/3
(Women) ... 1 1/3	1 1/3	1 1/3	1 1/3	(Women) ... 1 1/3	1 1/3	1 1/3	1 1/3
Air Science I (Men) ... 1	1	1	1	Air Science II (Men) ... 1	1	1	1
	18 1/3	18 1/3	18 1/3		16 1/3	16 1/3	16 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Political Science... 3	3			History 491 and/or 492 ... 3	3		
History 341-2 ... 3	3	3		History (300-400) ... 3	3	3	3
History 301-2-3 ... 3	3	3	6	Minor ... 3	3	3	3
Minor ... 3	3	3	3	History 450 ... 3	3		
Foreign Language ... 3	3	3	3	Electives ... 9	9	6	9
Electives ... 3	3	6	3				
	18	18	15		18	18	15

CURRICULUM FOR TEACHER CERTIFICATION

Curriculum in History

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3 ... 3	3	3	3	English 211-12-13 ... 3	3	3	3
Social Studies 111-12-13 ... 3	3	3	3	History 121-2-3 ... 3	3	3	3
Mathematics 111-12-13 or 200 ... 3	3	3	3	Social Studies 114 ... 3	3		
Health 211-12-13 ... 3	3	3	3	Music 131 ... 3	3		
Art 133 ... 3	3			Science (Biology, Chem., Physics, or Science Educ.) ... 4	4	4	4
Physical Education 11-12-13 (Men) ... 1/3	1/3	1/3	1/3	Education 201 ... 3	3		
(Women) ... 1 1/3	1 1/3	1 1/3	1 1/3	Psychology 242 ... 3	3		
Air Science I (Men) ... 1	1	1	1	Psychology 243 ... 3	3		
Electives ... 3	3	3		Physical Education 20's to 50's (Men) ... 1/3	1/3	1/3	1/3
	16 1/3	16 1/3	16 1/3	(Women) ... 1 1/3	1 1/3	1 1/3	1 1/3
				Air Science (Men) ... 1	1	1	1
					17 1/3	14 1/3	17 1/3

201, 202, 203

341 or 342

491 and on 492

Junior Year Name of Course	Quarter			Senior Year Name of Course	Quarter		
	Hours	Credit			Hours	Credit	
History 201-2-3.....	3	3	3	History 301-2-3.....	3	3	3
Education 301 .....	3			History 450 .....	3		
Psychology 312 .....		3		History 471 (Educ. 471) .....	3		
History 341-2 .....		3	3	History 491 or 492.....	3	3	
Political Science 221-2-3 .....	3	3	3	Education 462 .....	3		
Economics or Sociology .....	3	3	3	Education 387 .....		3	0
Education 371 .....		3		Education 472 .....		6	0
Electives .....	3		6	Psychology 463 .....			3
				Electives .....	3	3	12
	15	18	18		18	18	18

### COURSES IN HISTORY

#### Undergraduate

101-2-3. *Freshman Orientation.* (3) A course for freshmen and new students. It includes orientation to the University, to the area of history, and a survey of library resources and techniques.

121-2-3. *The Growth of Civilization.* (9) A study of the contributions that all races and nations have made to our present civilization. Assigned readings, discussions, reports, and quizzes will comprise the type of work in this course. (Required of all Freshmen.)

200. *History Laboratory.* (Non-credit) This laboratory is designed to aid students who have difficulty in understanding the historical method. It is open to all undergraduates of the University who feel that they need assistance in understanding the historical method.

201-2-3. *American History.* (9) European background of the beginnings and establishment of the United States in 1789. The beginning of our National State from 1789-1877. The development and significance of Jeffersonian Democracy; the war of 1812, the growth of Nationalism; the westward movement; the controversy over the Negro and his place in a democracy; the Civil War and Reconstruction. The emergence of the industrial life and the influence of the machine in American civilization; the problem of rapidly changing environment; industrial consolidation; rise of organized labor; rural trends and the Negro; the flight of the Negro to the city; American imperialism; education and religion; the plight of a democracy in a collective society; the Second World War and contemporary Society.

211-12-13. *History of England.* (9) Not open to Freshmen. History of England to 1588; History of England, 1588-1763; History of England since 1763.

301. *Foundations of Modern Europe.* (3) This course deals with the important phases of the Protestant Revolt; the economic, political, and the religious background; the Lutheran and Reform Movements, with special reference to their political and theological trends; the early expansion of Europe.

302. *Foundations of Modern Europe.* (3) A study of the rise of Russia, Prussia and Austria; the decline of Sweden and Poland; the Intellectual Revolution; the continued expansion of Europe. Most emphasis will be placed upon the French Revolution; upon its causes; personalities and its constructive features; the career of Napoleon.

303. *Foundations of Modern Europe.* (3) A study of European History from 1815-1870. The beginning of the Industrial and Social Revolution of the nineteenth century; Vienna Peace Settlement; political reaction and revolution; the creation of Germany and Italy; the struggle of democracy and social reform in various European countries.

331. *American Colonial History.* (3) The economic, social, religious, cultural, and political development of America from 1607-1789.

\*Approved for graduate credit.

341-2. *History of Tennessee.* (6) A course in the cultural, economic, and political development of the State of Tennessee. Emphasis will be placed on the part the Negro has played.

361. (333) *Constitutional History of the United States to 1787.* (3) The origin, development and operation of the Constitution of the United States with attention to the factors which have influenced constitutional changes and the historic cases in which the provisions and principles of the Constitution have been interpreted and applied by the courts. Prerequisite: History 201-2-3 or Political Science 221-2-3.

362. *Constitutional History of the United States 1787-1816.* (3) Continuation of History 361.

363. *Constitutional History of the United States 1816-Present.* (3) Continuation of History 362.

371. (403) *Economic History of the United States 1603-1860.* (3) A study of the economic development of the United States from the colonial period to the present with particular emphasis on the influence of economic forces in the shaping of social and political growth and change. Prerequisite: History 201-2-3.

372. *Economic History of the United States 1865-Present.* (3) Continuation of History 371.

381-2. (312) *Civil War and Reconstruction.* (6) The study of the factors leading to the secession and an analysis of the problems of reconstruction. Three quarter hours each.

385-6-7. *Vital Topics.* (6) The study, analysis, and interpretation of vital topics in the changing world of today. The vital current economic, social, religious, and political problems that confront the world and the United States will be presented, analyzed, discussed, and interpreted. Representatives from each Division may participate jointly in the conduct of the course. Two hours credit each quarter. A student may earn a maximum of six credits. He may repeat the course without credit at his option.

391-2-3. *Russian History.* (9) The background, causes and events deals with the emergence of Russia from barbarism to a National State and her attempts to become a Westernized nation. A study of Russia's political development will be made from Alexander I to the present day. The many changes incident to her rise from a feudal state to a dynamic revolutionary state will be considered. Special emphasis will be laid upon the impact of successive revolutionary precursor of Marxian Socialism. Russia's historic mission in foreign affairs will be employed as a guide toward an understanding of her present-day aims.

401-2-3. *Contemporary World History.* (9) The background, causes and events of the First World War; the Paris Peace Conference and its later problems; the League of Nations; the rise of Communism, Fascism, Nazism; development in education, art, literature and music and religion; the East in Revolt; the new totalitarian states; and finally, the second world war and present issue.

421-2-3. (422) *Diplomatic History of the United States.* (9) A survey of the foreign relations of the United States, with special reference to the establishment and development of those major policies which have determined American international action.

433-4. *The British Empire.* (6) A study of the rise and expansion of the British Empire and its influence on world history of 1783. Topics: The establishment of colonies in the East and West Indies; India, Africa, and North America under the Stuarts; the struggles with Spain, Holland, and France, for world domination; Merchantilism and Colonial Administration; the American revolution since 1783; the lapse and revival of imperial spirit in Egypt, Australia, New Zealand, and Canada; Protectorates, Mandates, crown colonies, and "spheres of influence," the world importance of the British Empire; and the recent developments in British Dominion Government.

442-3. *Renaissance and Reformation.* (6) The first quarter of this course will be a survey of Europe between 1250 and 1600. Special attention will be given to the Renaissance, the artistic, literary, political, and commercial growth.

\*Approved for graduate credit.



Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Economics 211-2-3	3	3	3	Music 131		3	
Speech 202-3		3	3	Health 151	3		
Geography 171-2	3	3		History 491	3		
Psychology 321			3	Geography 391	3		
Sociology 211-2-3	3	3	3	Sociology 463			3
Pol. Sci. 321-2-3	3	3	3	Major	6	6	6
Pol. Sci. 341-2-3	3	3	3	Minor		6	3
Pol. Sci. 313	3			Electives		3	3
				Philosophy 323	3		
	18	18	18		18	18	15

**BACHELOR OF SCIENCE  
CERTIFICATION IN POLITICAL SCIENCE**

**Individual Endorsement**

Freshman Year			Sophomore Year				
Quarter Hours Credit			Quarter Hours Credit				
Name of Course	I	II	III	Name of Course	I	II	III
English 101-2-3	3	3	3	History 201-2-3	3	3	3
Social Studies 111-2-3	3	3	3	Health 211	3		
Art 133		3		Pol. Sci. 221-2-3	3	3	3
Natural Science (Biology, Chemistry, etc.)	4	4	4	Pol. Sci. 313			3
Music 131			3	Education 201		3	
Mathematics 111-2-3	3	3	3	English 211-2-3	3	3	3
Health 151	3			Ed. Psychology 242		3	
Phy. Ed. (W) 11-12-13	1 1/3	1 1/3	1 1/3	Ed. Psychology 243			3
Phy. Ed. (M) 11-12-13	1/3	1/3	1/3	Social Studies 114	3		
Air Science 151-2-3	1	1	1	Phy. Ed. (W)	1 1/3	1 1/3	1 1/3
				Phy. Ed. (M)	1/3	1/3	1/3
				Air Science 251-2-3	1	1	1
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year			Senior Year				
Quarter Hours Credit			Quarter Hours Credit				
Name of Course	I	II	III	Name of Course	I	II	III
Pol. Sci. 321-2-3	3	3	3	History 301-2-3	3	3	3
History 211-2-3	3	3	3	Philosophy 323			3
Education 301			3	Psychology 312		3	
Pol. Sci. 362-3		3	3	Psychology 463			3
Education 371	3			History 491	3		
Pol. Sci. 341-2-3	3	3	3	Education 471-72	3		6
Education 387, 462	3	3		Major	6	6	
Sociology 211-2-3	3	3	3	Electives	3	6	
	18	18	18		18	18	15

\*Language requirements vary from 9 to 27 hours, depending upon the student's proficiency in a given language, or number of high school units completed in a given modern foreign language.

Freshman Year			Sophomore Year				
Quarter Hours Credit			Quarter Hours Credit				
Name of Course	I	II	III	Name of Course	I	II	III
English 101-2-3	3	3	3	History 201-2-3	3	3	3
Social Studies 111-2-3	3	3	3	Health 211	3		
Natural Science (Biology or Chemistry)	4	4	4	Pol. Sci. 221-2-3	3	3	3
Mathematics 11-2-3	3	3	3	Pol. Sci. 313			3
Art 133		3		Education 201		3	
Music 131			3	English 211-2-3	3	3	3
Health 151	3			Soc. Studies 114	3		
Phy. Ed. (W) 11-12-13	1 1/3	1 1/3	1 1/3	Ed. Psychology 242		3	
Phy. Ed. (M) 11-12-13	1/3	1/3	1/3	Ed. Psychology 243			3
Air Science (M) 151-2-3	1	1	1	Phy. Education (W)	1 1/3	1 1/3	1 1/3
				Phy. Education (M)	1/3	1/3	1/3
	17 1/3	17 1/3	17 1/3	Air Science 251-2-3	1	1	1
					16 1/3	16 1/3	16 1/3

Junior Year			Senior Year				
Quarter Hours Credit			Quarter Hours Credit				
Name of Course	I	II	III	Name of Course	I	II	III
Pol. Sci. 321-2-3	3	3	3	Pol. Sci. 362-63		3	3
Pol. Sci. 341-2-3	3	3	3	Economics 211-2-3	3	3	3
Education 301	3			History 301-2-3	3	3	3
Education 371		3		Education 471-72		3	6
Psychology 312			3	History 491	3		
Geography 171-2-3	3	3	3	Major	6	6	
Education 387, 462	3	3		Electives		3	
Psychology 463			3				
Sociology 211-2-3	3	3	3				
	18	18	18		18	18	15

**COURSES IN POLITICAL SCIENCE**

**Undergraduate**

Political Science 221-2-3 are prerequisites to all other courses in the curriculum.

Unless otherwise designated all courses meet three one-hour periods per week.

221-2. *American Government: National.* (6) An introductory course which deals with the foundation, organization, and principles of the national government. Attention focused on the relations of the citizens to the government and the rights, duties, and obligations of citizens.

223. *American Government: State and Local.* (3) An analysis of the structure, principles and operations of the state and local units of government. Illustrative material is drawn largely from Tennessee.

312. *The Legislative Process.* (3) An examination of the structure and methods of transacting business in the American Congress and State Legislatures.

313. *Tennessee State Government.* (3) Study of Tennessee government from the functional point of view emphasizing political activities, taxation, education, social welfare and economic services of the government.

321-2-3. *Comparative European Government.* (9) An analysis of the government of selected European countries with special attention given to the

development of their political systems both in theory and practice. Comparison with American institutions emphasized.

331-2. *Latin American Government.* (6) An analysis of the political and constitutional development of the Latin American states with emphasis on political concepts, policies, and international relations.

333. *Far Eastern Government.* (3) Constitutional and political development in China and Japan. Consideration given to policies and international relations.

341-2-3. *International Relations.* (9) An examination of the present-day relations and problems among states of the world and the major factors which underlie and influence these relations. Prerequisites: Political Science 321-2-3.

351. *Government of the British Commonwealth of Nations.* (3) An examination of the government of the United Kingdom and the organization of that government as it bears upon the Commonwealth. Attention focused on an analysis of the problems of the Dominions and dependent areas with special consideration given to the problems of imperial strategy and their bearings on international policies.

353. *Government of Russia.* (3) Deals with the theory, structure, functions, operations, powers, problems and trends of the Russian government under Soviet rule.

362. *American Political Parties and Policies.* (3) An analysis of the dynamics of American politics with emphasis upon the factors influencing the formation of public opinion and the role of pressure groups.

363. *American Political Parties and Policies.* (3) Designed to analyze the formation of political parties; nominations and elections; methods of representation and voting; and the importance of parties in American government. Prerequisite: Political Science 362.

373. *Propaganda and Public Opinion.* (3) An analysis of the purposes and techniques of propaganda and the functions and expression of public opinion.

421-2-3. *Public Administration.* (9) Principles of public administration; structure and organization; financial management; administrative responsibility; and the relation between the administration and other branches of government in the United States.

431-2-3. *American Constitutional Law.* (9) Devoted to a study of the sources, principles and powers of government in the United States as embodied in the Constitution and judicial decisions in leading cases.

441-2. *International Law.* (6) A study designed to examine the rights and duties of states in their normal relations; war neutrality; intervention and blockade.

450. *Senior Project Writing.* (3)

451-2. *Government and the Economic Order.* (6) Deals with constitutional principles as they apply to the regulation of business. Emphasis placed on Federal and State regulation of public utilities, labor, securities, communications, transportation, housing, commerce and social security.

453. *American Diplomacy.* (3) Examines the more important principles of American diplomacy and their applications as basis for the understanding of the foundation of American foreign policy. Prerequisites: Political Science 341-2-3.

461. *Western Political Thought.* (3) Origin and evolution of the major political concepts of the Western World.

462-3. *American Political Thought.* (6) An intensive study of main currents in American Political Thought from the Colonial Period to the present.

465. *Contemporary Political Thought.* (3) An examination of the changing political ideas since the late eighteenth century revolutions as basis for contemporary systems of Democracy, Communism and Fascism.

## CURRICULUM IN SOCIAL ADMINISTRATION

The pre-professional social work curriculum is designed to provide the student with an introductory knowledge of the generic principles, skills, and understanding of human behavior which is necessary for graduate study in social work and essential to the practice of social work as a junior worker in private and public social welfare agencies.

Students are also required to do seventy-two hours of Field Work in selected social agencies. This is a requirement of the American Association of Schools of Social Administration, which is the accrediting body and of which we are a member. The purpose of field work is to provide the student with the opportunity of applying theory to actual practice in a controlled setting under the supervision and guidance of a qualified practitioner. He is then evaluated upon the basis of his growth and development on the job.

The Curriculum of Social Administration offers the Bachelor of Science and the Bachelor of Arts Degrees.

In addition to the University requirements for graduation, the minimum Curriculum requirements are: (1) 203 quarter hours for the Bachelor of Arts degree, and 203 quarter hours for the Bachelor of Science degree, of which a minimum of 66 quarter hours for each degree must be completed in 300 and 400 level courses; (2) 45 quarter hours in the curriculum of which a minimum of 24 quarter hours must be completed in 300 and 400 level courses for the Bachelor of Arts and Bachelor of Science degrees.

Students who minor in the Curriculum must complete a minimum of 18 quarter hours in 300 and 400 level courses in addition to the basic courses in Sociology: Sociology 211, 212, 213, 322, 412 and 451.

### CURRICULUM IN SOCIAL ADMINISTRATION

Bachelor of Science							
Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3	3	3	3	English 211-2-3	3	3	3
History 121-2-3	3	3	3	Sociology 211-2-3	3	3	3
Biology 101-2-3	4	4	4	Political Science 221-2-3	3	3	3
Mathematics 131-2-3				Psychology 221-2-3	3	3	3
or Math. 101-2-3	3	3	3	Economics 211-2-3	3	3	3
Phy. Ed. (W)	1 1/3	1 1/3	1 1/3	Phy. Ed. (W)	1 1/3	1 1/3	1 1/3
Phy. Ed. (M)	1/3	1/3	1/3	Phy. Ed. (M)	1/3	1/3	1/3
Air Science I (M)	1	1	1	Air Science II (M)	1	1	1
Geography 171-2-3	3	3	3				
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year			Senior Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 201-2-3	3	3	3	Art 241		3	
Sociology 322		3		Math. 311	3		
Sociology 303			3	Sociology 461	3		
Psychology 242-3		3	3	Social Adm. 443			3
Sociology 351	3			Social Adm. 421-2-3	3	3	3
Soc. Adm. 302		3		Social Adm. 482		3	
Soc. Adm. 332		3		Psychology 323			3
Soc. Adm. 341	3			Social Adm. 450		3	
Sociology 412		3		Biology 311			4
Sociology 451			3	Electives		3	
Soc. Adm. 463			3	Polit. Science 313	3		
Music 131	3			Social Adm. 471-3	3		3
Art 101	3			Social Adm. 433			3
Electives			3				
	15	18	18		18	16	15

Bachelor of Arts

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3....	3	3	3	English 211-2-3....	3	3	3
Foreign Language.	3	3	3	Foreign Language.	3	3	3
History 121-2-3....	3	3	3	Sociology 221-2-3...	3	3	3
Biology 101-2-3...	4	4	4	Pol. Sci. 221-2-3...	3	3	3
Mathematics 131-2-3 or Math 101-2-3....	3	3	3	Psychology 221-2-3	3	3	3
Phy. Ed. (W)....	1 1/3	1 1/3	1 1/3	Phy. Ed. (W)....	1 1/3	1 1/3	1 1/3
Phy. Ed. (M)....	1/3	1/3	1/3	Phy. Ed. (M)....	1/3	1/3	1/3
Air Science I (M).	1	1	1	Air Science II (M)	1	1	1
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 201-2-3.....	3	3	3	Art 241 .....		3	
Foreign Language or Economics 211-2-3....	3	3	3	Math 311 .....	3		
Psychology 242-3.....	3	3	3	Sociology 461 .....	3		
Sociology 322.....		3		Psychology 323 .....			3
Social Adm. 302.....		3		Social Adm. 421-2-3....	3	3	3
Social Adm. 332.....		3		Social Adm. 433 .....			3
Social Adm. 341.....	3			Social Adm. 471-3.....	3		3
Sociology 412.....			3	Social Adm. 482 .....		3	
Sociology 451.....	3			Biology 311 .....	4		
Sociology 303.....			3	Social Adm. 450.....		3	
Social Adm. 463.....			3	Electives .....		3	3
Political Sci. 313.....	3						
	18	18	15		16	15	15

COURSES IN SOCIAL ADMINISTRATION

302. *Social Recreation I.* (3) Designed to develop skill in quiet and active games, play party games, and singing games with emphasis on the dynamics of play leadership and program planning.
303. *Social Recreation II.* (3) Designed to develop skills in the use of dramatics, folk rhythms and square dancing.
331. *Leisure and Recreation.* (3) The study of the historical development of recreation and its relationship to modern society.
332. *Recreational Agencies in the Field of Group.* (3) A study of those social agencies focusing on the group and their relationship to the group work method.
341. *Survey of the Field of Social Work.* (3) A survey of contemporary social work by functional groupings such as Case Work, Group Work, and Community Organization. Emphasis on objectives, processes and historical development of the Social Work idea.
421. *Introduction to Social Casework.* (3) A limited beginning in Social Case Work and an introductory consideration of the basic skills in working with people. Emphasis is placed on meeting needs of individuals and families, individualizing people, understanding attitudes and using community resources. Prerequisite: 341.

422. *The Interview and Case Recording.* (3) A course designed to develop skills in the techniques and methods of interviewing and recording. Special emphasis upon the understanding of one's self and generic human behavior and office procedures as it relates to the welfare office. Prerequisites: 341, 421.

423. *Field Work (Case).* (3) Supervised practice in Social Agencies emphasizing case work skills within the limitations of the agencies functioning. Prerequisites: 341, 421, 422, and 463-443.

433. *Social Work and Health Problems.* (3) Elementary medical information for social workers. The course revolves around the symptoms, and etiology of common diseases; the responsibility of the social worker to detect, report, and to organize medical care as resources in treatment. It also includes the public health agencies. Prerequisite: 341.

443. *Problems of the Aged.* (3) A course designed to present something of our population changes, to examine the financial dependence or independence of the aged, to analyze some of their needs, and to discuss the range, variety and helpfulness of the social services that are available or are being developed by, for and with the aged. Prerequisites: Soc. Adm. 341, 421, and 433.

450. *Senior Project Writing.* (3)

463. *Community Organizations.* (3) Deals with the methods and principles involved in analyzing community needs, developing programs to meet these needs in terms of community resources and securing community interests, leadership and support. Prerequisite: 341.

471. *Introduction to Group Work.* (3) Examines the process of Social Group Work as a basic approach and method in Social Work and acquaints the student with some of the principles, methods, and techniques of Group Work. Prerequisite: 341.

473. *Field Work. (Group)* (3) Supervised practice in selected Social Agencies which provides an opportunity for students to apply theory to actual practice. Emphasizing placement in a Group Work Agency and professional growth on the job. Prerequisites: Social Adm. 302, 303, 341, 443, 463, 471, and Art 241.

482. *Introduction to Group Leadership.* (3) Analysis of leadership as to types and purpose, with emphasis on its application to activities, age range, sex and program development. Prerequisites: 332, 341, 471, 472.

CURRICULUM IN SOCIOLOGY

The general design of the department of sociology embraces a four-fold objective: (1) to provide systematic framework for understanding the nature of human relationships; (2) to train students for employment in civil service, teaching and community organization; (3) to prepare students for advanced specialized study in Sociology; and (4) to train students to conduct research in the fundamental problems of social science.

The Curriculum of Sociology offers courses of study at the undergraduate level leading to the degrees of Bachelor of Arts and Bachelor of Science.

Students in the curriculum are required to take a minimum of one major and one minor.

Students desiring to qualify for certification may do so by selecting courses prescribed by the State Board of Education, Division of Certification. Two types of certification are offered: (a) individual certification and (b) group certification. In addition, provisions are made for a second teaching area. Unless a student initially selected a course of study leading to certification, additional hours will be required.

In addition to the University requirements for graduation, the minimum curriculum requirements are: (1) 203 quarter hours for the Bachelor of Arts degree, 203 quarter hours for the Bachelor of Science degree, including indi-

vidual or group certification, of which a minimum of 66 quarter hours for each degree must be completed in 300 and 400 level courses; (2) 45 quarter hours in the curriculum of which a minimum of 24 quarter hours must be completed in 300 and 400 level courses for the Bachelor of Arts and Bachelor of Science degrees; (3) 30 quarter hours in Sociology of which a minimum of 21 quarter hours must be completed in 300 and 400 level courses for the individual certification; (4) 54 quarter hours in the Social Studies of which a minimum of 15 quarter hours must be completed in 300 and 400 level courses for group certification.

Students who minor in the curriculum must complete a minimum of 18 quarter hours in 300 and 400 level courses in addition to the basic courses, Sociology 211, 212, and 213. The following special courses are required: Sociology 322, 303, 461, 442, 451, 462.

### NON-TEACHING CURRICULUM IN SOCIOLOGY

Bachelor of Arts							
Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3....	3	3	3	English 211-2-3... 3	3	3	3
Foreign Language. 3	3	3	3	Foreign Language. 3	3	3	3
History 121-2-3.... 3	3	3	3	Sociology 211-2-3.. 3	3	3	3
Biology, Chemistry 4	4	4	4	Psychology 221-2-3 3	3	3	3
Mathematics 131-2-3	3	3	3	Economics 211-2-3. 3	3	3	3
or Math 101-2-3. 3	3	3	3	Physical Education (W) 20's to 50's.	1 1/3	1 1/3	1 1/3
Physical Education (W) 11-12-13...	1 1/3	1 1/3	1 1/3	Physical Education (M) 20's to 50's.	1/3	1/3	1/3
Physical Education (M) 11-12-13...	1/3	1/3	1/3	Air Science 251-2-3 (Men) .....	1	1	1
Air Science 151-2-3 (Men) .....	1	1	1				
	17 1/3	17 1/3	17 1/3		16 1/3	16 1/3	16 1/3

Junior Year				Senior Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 201-2-3.....	3	3	3	Health 301.....	3		
Pol. Sci. 221-2-3.....	3	3	3	Geography 171-2-3.....	3	3	3
Psychology 242.....			3	History 300's or 400's....			3
Speech 202.....		3		Sociology 411.....	3		
Sociology 221.....	3			Sociology 461.....	3		
Sociology 322.....		3		Sociology 491.....	3		
Sociology 351.....	3			Sociology 442.....		3	
Sociology 303.....			3	Sociology 462.....		3	
Sociology 393.....	3	3	3	Sociology 450.....			3
Foreign Language or Music 131 and Pol. Sci. 313, Electives.	3	3	3	Soc. Adm. 463.....			3
	18	18	18	Electives .....	3	6	3
					18	15	15

### Bachelor of Science

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3....	3	3	3	English 211-2-3....	3	3	3
History 121-2-3... 3	3	3	3	Sociology 211-2-3.. 3	3	3	3
Biology 101-2-3... 4	4	4	4	Psychology 221-2-3 3	3	3	3
Geography 171-2-3 3	3	3	3	Economics 211-2-3. 3	3	3	3
Mathematics 131-2-3 .....	3	3	3	Sociology 301 .....	3		
Physical Ed. (W) 11-12-13 .....	1 1/3	1 1/3	1 1/3	Physical Ed. (W) 20's to 50's.....	1 1/3	1 1/3	1 1/3
Physical Ed. (M) 11-12-13 .....	1/3	1/3	1/3	Physical Ed. (M) 20's to 50's.....	1/3	1/3	1/3
Air Science 151-2-3 (M).....	1	1	1	Air Science 251-2-3 (M).....	1	1	1
	17 1/3	17 1/3	17 1/3	Electives Music 131 .....		3	3
					16 1/3	16 1/3	13 1/3

  

Junior Year				Senior Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 201-2-3.....	3	3	3	Health 301 .....	3		
Pol. Sci. 221-2-3.....	3	3	3	Sociology 472.....	3		3
Pol. Sci. 313 .....			3	History 300's or 400's....			3
Philosophy 323 .....		3		Sociology 411.....	3		
Health 151.....	3			Sociology 461.....	3		
Sociology 221.....	3			Sociology 491.....	3		
Sociology 322.....		3		Sociology 400.....		3	
Sociology 351.....	3			Sociology 462.....		3	
Sociology 303.....			3	Sociology 450.....			3
Sociology 393.....		3	3	Social Adm. 463.....			3
Psychology 242.....	3	3	3	Sociology 332.....			3
Electives .....	3	3		Sociology 482.....	3	9	
	18	18	15		18	18	12

### TEACHING CURRICULUM IN SOCIOLOGY

Recommended Schedule for Four-Year College Major in Sociology Group Endorsement

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3....	3	3	3	Social Studies 114. 3			
Natural Science (Biology, Physics, or Chemistry)...	4	4	4	English 211-2-3....	3	3	3
Math. 111-2-3 or Math. 200....	3	3	3	Nutrition 212.....		3	
Social Studies 111-2-3 .....	3	3	3	Education 201.....	3		
Physical Education (W) 11-12-13.....	1 1/3	1 1/3	1 1/3	Health 213.....			3
Physical Education (M) 11-12-13.....	1/3	1/3	1/3	Psychology 242-3..		3	3
Geography 171-2-3. 3	3	3	3	Economics 211-2-3. 3	3	3	3
Air Science 151-2-3 (Men) .....	1	1	1	Physical Education (W) 20's to 50's.	1 1/3	1 1/3	1 1/3
	17 1/3	17 1/3	17 1/3	Physical Education (M) 20's to 50's..	1/3	1/3	1/3
				Sociology 211-2-3.. 3	3	3	3
				Air Science 251-2-3 (Men) .....	1	1	1
					16 1/3	16 1/3	16 1/3

COURSES IN SOCIOLOGY

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
History 201-2-3.....	3	3	3	History 301-2-3.....	3	3	3
Pol. Sci. 221-2-3.....	3	3	3	Education 387.....	3		
Music 131.....	3			Psychology 463.....		3	
Philosophy 323 or Religion 301.....		3		Sociology 471.....		3	
Psychology 312.....			3	Education 462.....	3		
Education 301.....	3			Education 472.....			6
Education 371.....	3			History 491 or 492.....	3		
Pol. Sci. 313.....			3	Soc. Adm. 463.....		3	
Soc. 411, 461, 491, 400, 450, 303.....	3	9	6	Electives.....	6		6
	18	18	18		18	12	15

Individual Area Endorsement

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3....	3	3	3	Social Studies 114.	3		
Natural Science (Biology, Physics, or Chemistry)...	4	4	4	English 211-2-3....	3	3	3
Math. 111-2-3 or Math. 200....	3	3	3	History 201-2-3....	3	3	3
Social Studies 111-2-3.....	3	3	3	Psychology 242....		3	
Physical Education (W) 11-12-13....	1 1/3	1 1/3	1 1/3	Psychology 243....			3
Physical Education (M) 11-12-13....	1/3	1/3	1/3	Sociology 211-2-3...	3	3	3
Air Science 151-2-3 (Men).....	1	1	1	Pol. Sci. 221-2....	3	3	
Geography 171-2-3	3	3	3	Pol. Sci. 313.....			3
	14 1/3	14 1/3	17 1/3	Physical Education (W) 20's to 50's.	1 1/3	1 1/3	1 1/3
				Physical Education (M) 20's to 50's.	1/3	1/3	1/3
				Air Science 251-2-3 (Men).....	1	1	1
					17 1/3	16 1/3	16 1/3

Junior Year				Senior Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Sociology 221.....	3			Education 387.....	3		
Education 371.....			3	Psychology 463.....		3	
Nutrition 212.....		3		Education 462.....	3		
Health 213.....			3	Education 471.....		3	
Philosophy 323 or Religion 301.....		3		Education 472.....			6
Psychology 312.....			3	Electives.....	9	6	9
Sociology 322.....		3		Education 301.....	3		
Sociology 351.....	3			Sociology 462.....		3	
Sociology Elec, 300....	6	9	9				
Education 201.....	3						
	18	18	18		18	12	15

All classes carrying three hours' credit will meet three one-hour periods per week, unless otherwise designated.

Sociology 211-2-3 are prerequisites for all other Sociology courses.

211-2-3. *Introduction to Sociology.* (9) This series of courses is focused upon the relationship of people to their physical and cultural surroundings and to each other. A systematic conceptual framework developed that will permit the student to view the social world and its major problems in terms other than common sense.

221. *Anthropology.* (3) Studies man's social origin with emphasis on the development of races and languages; the origin, nature and diffusion of cultures; and a comparison of the principle cultures of the world.

301. *Labor Problems.* (3) Problems of employment and labor from the standpoint of the employee, the employer, and the socio-cultural environment.

303. *Introduction to Field Study.* (3) A study of the theory and methods of social research including the structure and use of questionnaire, the schedule, the interview case histories, sociograms, sampling, etc.

322. *The Family.* (3) Principles and problems associated with the organization, disorganization and reorganization of the family in the American and other societies.

323. *Problems of Courtship and Marriage.* (3) A critical approach to problems of courtship, marriage and the family, with emphasis on marital roles and adjustments; biological and economic problems; women and the family; child-parent relationships; war and the family.

332. *Social Pathology.* (3) An analysis of the various aspects of personal and social disorganization as they are expressed, not only through abnormal activities, but also through socially approved cultural patterns. Analysis made in terms of a consistent framework, the central notion of which stresses the unitary nature of the process through which both the normal and abnormal come into being.

351. *Introduction to Social Psychology.* (3) A study of the biological and social basis of human behavior with emphasis on the development of personality and an analysis of the general social setting in which personality development occurs.

393. *Racial and Cultural Relations.* (3) An examination of the problems, relationships and adjustments of racial, cultural and ethnic minorities. Emphasis on the nature of these phenomena as they occur in the American social setting.

411. *Statistics.* (3) Identical with Mathematics 311. A study of the various measures of central tendency and dispersion, linear and non-linear times series; linear and multiple correlation of attributes; and sampling. Prerequisites: Mathematics 131-2-3, or Mathematics 101-2-3, or Mathematics 111-12-13.

412. *Criminology.* (3) Includes an examination of the problems of crime and criminals; the making of the criminal; the theories of crime and punishment; machinery employed in dealing with the criminal; penal and correctional institutions and programs of correction. Case studies and visits to institutions serve as aids in enriching understanding.

421. *Population Problems.* (3) Theories and trends in population growth in conjunction with the political and economic implication of these trends at regional, national, and international levels.

442-3. *Rural Sociology.* (6) The structure of dynamics of rural life, together with a consideration of the technological and social changes in the rural community.

450. *Senior Project Writing.* (3)

451. *Juvenile Delinquency.* (3) Covers the major causes and problems involved in anti-social acts of children. A study of the methods used in preven-

tion of delinquencies and treatment of the juvenile including probational and institutional care.

452-3. *Sociology of Child Development.* (6) A study of the development of the child with emphasis upon a distinct sociological approach to behavior in relation to the family, play groups, school situations, the community and larger social institutions. Designed to acquaint prospective teachers and majors in sociology with the influences of social institutions upon the child's total development. Admission only with the approval of the instructor.

461. *Urban Sociology.* (3) A study of the growth of urbanism, its spatial and communicative extension into rural areas, and its impact upon the economy, the values and the social organization of communities. The spatial structure and land use patterns of urban and fringe areas and their implications for social service and police administration analyzed.

462. *Social Institutions.* (3) Concerned with the theories relating to the development of the major social institutions, their values and changes in satisfying the basic needs of man.

471. *Methods of Teaching Social Studies in High Schools.* (3) Designed to acquaint the prospective teacher with the most recent trends in the teaching of the social studies in regard to objectives the selection and organization of curricular materials; the selection and utilization of equipment and resources; methods of teaching; and appraisal of the results of teaching.

472. *Advanced Social Psychology.* (3) An examination of the major points of view in social psychology including those of Mead, Dewey, and Cooley; Gestalt Psychology, Behaviorism and Psychoanalysis. Prerequisite: Sociology 453 and consent of instructor.

482. *Collective Behavior.* (3) Treatment of a wide variety of collective groupings and movements; their origin, organization, membership, leadership, and dissolution. Includes an analysis of such social phenomena as institutions, formalized and congenial groupings, audiences, publics, crowds, mobs, fads and fashions and mass movements such as social unrest and reform.

491. *History of Sociological Theory.* (3) Major sociological theories as represented by Comte, Spencer, Durkheim, Weber, Simmel, et al., including those of the contemporary period.

## DEPARTMENT OF SPEECH AND DRAMA

THOMAS E. POAG, Ph.D., *Head*

### SPEECH

The departmental program in Speech and Drama is divided into two areas of concentration: (1) Speech and Drama and (2) Speech and Audiology. Courses in Radio and Television are offered as electives. Students are free to major or to minor in the four areas. The purposes of the department are: to train teachers in the areas of Speech and Drama for public schools, colleges, and universities; to train technicians for the educational, community, and professional theatre, and for radio and television. The department offers service courses for non-majors who are interested in speech improvement, and dramatics as a cultural or a leisure-time activity.

Curricula in Speech and Drama meet the requirements of the State Department of Education for teaching certificates and the needs of graduate students. Forty-eight hours of courses in Speech, Drama, and related subjects or a combination of Speech and Drama courses are required for a major; and 18-27 hours for a minor. A minimum of 192 quarter hours are required for graduation.

A major in the department of Speech and Drama for the Bachelor of Arts degree must complete 48 hours of course work in the areas of Speech or Drama and 66 hours in the General Education core plus 18-27 hours in Modern Foreign Languages if he plans to teach. All Speech and Drama majors are encouraged to minor in Education—36 hours; and English, 36 hours.

A major in the Department of Speech and Drama for the Bachelor of Science degree must complete 48 hours or more of course work in the areas of Speech or Drama, plus 60 to 66 hours in the General Education Core; 36 hours in Education; and 41 hours in other specified courses and electives. All majors for this degree are encouraged to minor in English, 36 hours.

Majors must complete 66 hours of courses on the 300 and 400 levels for graduation.

Students majoring in Speech and Audiology will follow a special curriculum pattern.

### BACHELOR OF SCIENCE DEGREE

#### Curriculum in Speech and Hearing

Freshman Year	Quarter			Sophomore Year	Quarter		
	Hours	Credit			Hours	Credit	
Name of Course	I	II	III	Name of Course	I	II	III
Speech 101-2-3	1	1	1	Social Studies 114	3		
English 101-2-3	3	3	3	Speech 201-2-3	3	3	3
Art 133	3			Speech 211-12-13	3	3	3
Health 212	3			Math. 111-12-13	3	3	3
Health 151			3	English 211-12-13	3	3	3
Speech 223		3		Education 201		3	
Music 131		3		Psychology 242			3
Social Studies 111-12-13	3	3	3	Air Science 251-52-53	1	1	1
Biology 101-2-3	4	4	4	Physical Ed. (men)	1/3	1/3	1/3
Air Science 151-52-53	1	1	1	Physical Ed. (women)	11/3	11/3	11/3
Physical Ed. (men)	1/3	1/3	1/3				
Physical Ed. (women)	11/3	11/3	11/3				
Elective			3				
	18 1/3	18 1/3	18 1/3		16 1/3	16 1/3	16 1/3

Junior Year	Quarter			Senior Year	Quarter		
	Hours	Credit			Hours	Credit	
Name of Course	I	II	III	Name of Course	I	II	III
Speech 321-22-23	3	3	3	English 301	3		
Speech 381-82-83	3	3	3	Speech 450	3		
Education 371-485-486	3	3	3	Speech 481-82-83	3	3	3
Speech 451	3			History 201-2-3	3	3	3
Psychology 312			3	Electives		6	3
Philosophy 323			3	Education 472			6
Education 485-486		3	3	Elective		3	
English 272		3		Education 471	3		
Education 462		3		Psychology	3		
Psychology 243		3					
Elective		3					
	18	18	18		18	15	15

BACHELOR OF ARTS DEGREE

Curriculum in Speech and Drama

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Art 133	3			Education 201	3		
Music 131		3		Social Studies 114	3		
Health 151			3	Speech 201-2		3	3
Speech 111-12-13	1	1	1	Modern Foreign Language	3	3	3
English 101-2-3	3	3	3	English 211-12-13	3	3	3
French, Spanish or German 101-2-3	3	3	3	History 201-2-3	3	3	3
Social Studies 111-12-13	3	3	3	Psychology 242-243	3	3	3
Biology 101-2-3	4	4	4	Air Science (men)	1	1	1
Air Science (men)	1	1	1	Physical Ed. (men)	1/3	1/3	1/3
Physical Ed. (men)	1/3	1/3	1/3	Physical Ed. (women) 20's-50's	1 1/3	1 1/3	1 1/3
Physical Ed. (women)	1/3	1/3	1/3				
	18 1/3	18 1/3	18 1/3		16 1/3	16 1/3	16 1/3

Junior Year				Senior Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Speech 203			3	Speech 453 (Ed. 371)	3	3	
Speech 212-341	3	3		Philosophy 323			3
Math. 111-12-13	3	3	3	Speech 411-12-13	3	3	3
Education 301, 387	3	3		Speech 421-22-23	3	3	3
Psychology 312			3	Speech 450	3		
English	3	3	6	Education 471		3	
Education 342-462	3	3		Health 212	3		
Psychology 463			3	English		3	
Modern Foreign Language (if required)				History 203	3		
Electives	3	3		Education 472			6
	18	18	18		18	15	15

BACHELOR OF SCIENCE DEGREE

Curriculum in Speech and Drama

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Speech 111-12-13	1	1	1	Speech 201-2	3	3	
Art 133	3			Social Studies 114			3
Health 151			3	Speech 211-12-13	3	3	3
English 101-2-3	3	3	3	Math. 111-12-13	3	3	3
Social Studies 111-12-13	3	3	3	English 211-12-13	3	3	3
Biology 101-2-3	4	4	4	Education 201	3		
Physical Ed. (men)	1/3	1/3	1/3	Psychology 242-243		3	3
Air Science (men)	1	1	1	Physical Ed. (men)	1/3	1/3	1/3
Physical Ed. (women)	1 1/3	1 1/3	1 1/3	Air Science (men)	1	1	1
History 201-2-3	3	3	3	Physical Ed. (women)	1 1/3	1 1/3	1 1/3
Elective		3					
	18 1/3	18 1/3	18 1/3		16 1/3	16 1/3	16 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Speech 301-2-3	3	3	3	Speech 450	3		
Speech 421-22-23	3	3	3	Speech 381	3		
Education 301-387	3	3		Speech 411	3		
Psychology 312			3	Speech 461			3
Speech 341-42	3	3		English		6	3
Philosophy 323			3	Education 471-472		3	6
Speech 203	3			Health 212		3	
Education 462		3		History 203	3		
Psychology 463			3	Speech 311		3	
Speech 231-32-33	1	1	1	Speech 453			3
	16	16	16	Education 371	3		
					15	15	15

Courses in Speech

101-2-3. *Speech Composition*. (1) A study of the basic principles used in the writing of various types of speeches. Attention also given to voice and diction. One credit hours each quarter.

201. *Fundamentals of Speech*. (3) A study of the fundamental theory and practice of voice usage as related to effective speech.

202. *Public Speaking*. (3) The practice of speech composition and delivery will be stressed. The student will have practice in preparing and presenting short, informative, entertaining and persuasive speeches. The method in which the student is trained is applicable to social and business conversation as well as to public speaking.

203. *Argumentation and Debating*. (3) The principles and practices of argumentation, an analysis of propositions, evidence, brief making, and preparation and delivery of forensics, as well as participation in classroom discussions. Techniques governing round table, forum and panel discussions will be studied.

212. *Phonetics*. (3) An introduction to the study of phonetics, the symbolization of speech sounds, kinesologic phonetics, American speech style, and applied phonetics.

213. *Speech Correction*. (3) Especially designed to meet the needs of the teacher of speech in public schools and colleges. This course will deal with actual clinical processes in the theory and practice of speech correction and training of visual hearing. Prerequisite: Speech 201.

221. *Business and Professional Speech*. (3) Designed purposely for the student with neither a major nor minor in the field of speech. Emphasis is placed on the following speech situations: business interviews, conference, reports, and similar types of business conversations. In addition, the student's individual speech is analyzed and checked.

223. *Choral Speaking*. (3) Oral group interpretation of verse. Afford an opportunity for intensified and vital artistic expression through the formation of a speaking choir. Values for both elementary and adult groups. Methods of conducting groups and selection of materials will be considered. (Class limited to 25).

32. *Lip Reading*. (3) Positions and movements involved in English Speech and the current methods used in teaching Lip Reading.

323. *Psychology of Speech*. (3) Basic factors in persuasion, technique of persuasion attention, suggestion, motivation, the audience, semantic and interview.

361. *Parliamentary Procedures*. (3) A study of the laws and techniques of parliamentary practices.

381. *Voice Science*. (3) Fall. Consideration of aspects of the phonetic, anatomic, physiologic, and physical bases of speech. (Laboratory practice.)

382. *Anatomy and Physiology of the Vocal Mechanism*. (3) Respiration, articulation, resonance, and phonation. Practical application to speech improvement.

383. *Hearing Disorders*. (3) Physiology and anatomy of auditory mechanism, Symptomatology and pathology of hearing disorders, their surgical treatment, clinical and classroom management.

450. *Senior Project*. (3)

451. *History of English Language*. (3) Same as English 451. Prerequisite: Speech 201.

452. *Advanced Public Speaking*. (3) A study of the standards of criticism and techniques involved in effective public address.

453. *Methods of Teaching High School Speech*. (3) Spring. A methods course in the teaching of speech and drama on the secondary level.

461. *Public Address I*. (3) A study of speech making from ancient time through the Renaissance and includes attention to the development of rhetorical theory.

462. *Public Address II*. (3) A study of speech making from the Renaissance to the modern times and includes attention to the development of rhetorical theory.

463. *Advanced Public Discussions*. (3) A study of types of discussions.

481. *Audiometry and Hearing Aids*. (3) Theory and practice of clinical and group audiometry; screening and diagnostic techniques, pure tone and speech audiometry. Characteristics of modern hearing aids; selection and usage problems.

482. *Language Disorders and Cerebral Palsy*. (3) Linguistic disorders, causes, and remedial training; types of cerebral palsy, causes and treatment of cerebral palsy speech.

483. *Clinical Methods and Practice in Speech Pathology*. Study of cases and practice in clinical diagnosis and remedial treatment.

491. *Speech for the Classroom Teacher*. (3) Instruction in Speech and Speech forms designed for class room use. An analysis of the teachers speech habits. Open to all prospective teachers. To be given each quarter.

#### DRAMA

111-12-13. *Theatre Practice*. (3) An introduction to theatre organization and practices. One credit hour each quarter.

211. *Elements of Acting*. (3) Study and practice in the fundamentals of acting technique. The importance of voice, posture, gesture, and movement in theatrical expressiveness. Scenes from the world's best dramas will be analyzed and used as criteria for the course.

231. *Introduction to Stage Design*. (1) A study of the fundamentals of design for the theatre.

232. *Stage Make-up*. (1) A study of the fundamental principles of stage make-up.

233. *Color Psychology*. (1) A study of the basic principles of color in production.

301. *General Dramatics*. (3) Basic principles of stage design, casting, acting, technique, preliminary script analysis, and the technique of producing plays. The student will be required to make a prompt book and to apply this technical knowledge to the productions of the year.

302. *Play Interpretation and Direction*. (3) The fundamental principles of directing are taught through exercises and projects. Each student will be

required to direct a one-act play, and to attend rehearsals of the Tennessee State Players Guild. Study and practice in the methods by which the values of the written drama are translated to the stage in terms of acting, stage composition, grouping, movement, tempo, smoothness, and rhythm will be emphasized. Prerequisite: Speech 301.

303. *Playwriting*. (3) General principles and techniques of playwriting. Practical laboratory work dealing with a study of the plot, characterization, and dialogue necessary for creative production for stage, radio and screen will be stressed. The student will have an opportunity to stage his original plays in the workshop theatre. Prerequisite: Speech 302. Also open to Junior and Senior English majors.

311-12-13. *History of the Theatre*. (3) The Orient, Europe, and America. The physical playhouse, methods of production, great actors, stage machinery, scenery, costumes and masks.

331. *Children's Theatre I*. (3) Creative dramatics.

332. *Children's Theatre II*. (3) Organizing the children's theatre program. (grades 1-8).

333. *Children's Theatre III*. (3) Organizing the youth theatre program. (grades 9-12).

341. *Introduction to Drama*. (3) Same as English 341.

342. *Modern Drama*. (3) Same as English 342. Requirements: Speech 341.

343. *American Drama*. (3) Same as English 343. Prerequisite: Speech 341.

371. *Radio and Television Production*. (3) An introductory course dealing with the basic principles of formulating and producing the radio and television program.

372. *Radio and Television Acting*. (3) Methods and techniques involved in the presentation of radio and television plays.

373. *Radio and Television Writing*. (3) A study of the techniques and methods used in writing the radio and television script. The student will be required to write a number of scripts for various types of programs.

411. *Shakespeare*. (3) Same as English 411.

412. *Community Drama*. (3) The problems of the teacher, and community worker in the presentation of plays. Special emphasis will be placed upon directing and recreational activities in the rural and urban communities. General techniques in organizing and managing the Little Theatre in social centers, churches, and clubs will be stressed. The student will have an opportunity to make general equipment for the community theatre in the scenic workshop. Special problems in analysis and production of pageants, folk-songs, masque, and festivals in the relation to community development are also studied.

421. *Stage Design*. (3)

422. *Stagecraft*. (3)

423. *Stage Lighting*. (3)

431. *Costume Design*. (3)

*Notes*

## SCHOOL OF EDUCATION

MALCOLM D. WILLIAMS, Ed.D., *Dean*

### Purposes of the School of Education

The basic concept for preparing teachers for service and life has been utilized as the foundation element for the development of the purposes of the School of Education, which are:

1. To prepare teachers, supervisors, and administrators for the public schools of Tennessee, elementary and secondary.
2. To provide opportunities for students to pursue research in the problems of education.
3. To assist graduates in finding teaching positions for which they are qualified and in advancing to better teaching positions after they have had teaching experience.
4. To provide students with opportunities for knowledge and understanding of the economic society in which they live and their relation and responsibility in such a society.
5. To provide a sound program of guidance and work cooperatively with the other departments and schools of the university in implementing the program.

### Organization

The School of Education is composed of five departments, four curricula, and courses in Administration and Supervision, Library Science, Secondary Education, and Special Education. It is organized as follows: the Department of Administration, Curriculum and Instruction with a curriculum in Elementary Education, and courses in Administration and Supervision, Library Science, Secondary Education and Special Education; the Department of Art and Music with a curriculum in Music and courses in Art Education; the Department of Business with curricula in general business administration, and business education; the Department of Health and Physical Education; and the Department of Psychology.

The School of Education has cooperative agreements with the county schools of Davidson County and the city schools of Nashville, under which certain schools are made available for teacher preparing centers. Some departments have teacher preparing centers in Clarksville, Chattanooga, Knoxville, Lebanon, Memphis, Morristown, and Ripley, Tennessee.

### Advisory System

Upon being admitted to the University, each student is assigned by the Registrar on a basis of the student's choice of school, to the Dean of that school who refers the student to the head of the major department for guidance.

The duties of the adviser are to assist the student in selecting his subjects so as to secure a well-rounded education, as well as to aid in interpreting the requirements in their proper sequence.

The responsibility for the selection of courses rests, in the final analysis, upon the student; and it is not the province of the adviser to refuse approval of the course which the student is entitled to elect. Similarly, it is the primary duty of the student to pursue courses in their proper order to meet the requirements for graduation in the senior year. When the student registers for each quarter, he is required to consult his adviser on all schedules to be pursued. The student is urged, further, to confer with his adviser frequently, at least monthly, during each quarter.

Major advisers are members of the staff of the department in which the student is doing his major work. Major advisers counsel students on curricular and life adjustment problems.

In an effort to provide a highly effective and efficient guidance program, use is made of the following techniques: conferences, interviews, rating scales, perso-

nality tests, senior standing blanks, and a cumulative folder for each student of the School of Education.

#### Teacher Placement

The School of Education does not maintain a separate placement bureau from that of the University. The School of Education cooperates with the University Placement Bureau in assisting its graduates to secure teaching and administrative positions.

Every graduating senior is required to register with the University Placement Bureau which is located in the administration building. No service charge is made by the Bureau of students, employers, and alumni of the University.

#### Public Services

Throughout the year the School of Education receives many requests for services from local, county, and state agencies. In an effort to meet these requests, the following services are provided: (1) cooperation with the extension division to organize undergraduate class centers, (2) cooperation with the state in-service program in conducting short courses and summer work-conferences, (3) consultative services on local problems to school personnel throughout the state by university staff members, (4) development and distribution of materials to school personnel, and (5) cooperation with the State Department of Education in the administration of the State-wide Testing Program.

#### Curriculum Laboratory

The curriculum laboratory was organized at the University in the fall of 1952. The laboratory is located in Room 208 in the Education Building.

#### Functions of General Education

Much discussion has been held about the purpose, nature, content, and characteristics of General Education. The issues, which seem to be well defined, are centered around the characteristics of general education rather than around the content. General Education as conceived at the Tennessee Agricultural and Industrial State University is designed to develop in students those skills, understandings, attitudes, and values which will equip them for effective living and responsible citizenship in a democratic society.

The types of General Education envisioned by the University seek to provide students with an opportunity to become acquainted with broad areas of subject matter, to aid them in the discovery of their own interests and abilities, and to equip them to live more effectively with themselves and with others as citizens of a democracy.

In order that the students at the Tennessee Agricultural and Industrial State University might participate effectively in the benefits to be derived from a general education, the University has revised its curriculum to provide for its students a 60 quarter hour program, as minimum, to be taken from the General Education Core.

The general education courses may be taken from the following areas:

	<i>Quarter Hours</i>
Communication .....	9
Health, Physical Education, Personal Development, and Home and Family Living .....	9
Humanities .....	15
Natural Sciences .....	12
Social Studies .....	12
Fundamental Concepts of Mathematics .....	3 or 9

#### General Competencies Sought in General Education:

The prospective teacher should possess the ability to:

1. Improve and maintain his own health and assume his share of responsibility for protecting the health of others.
2. Communicate effectively through reading, writing, speaking, and listening.

3. Attain emotional and social adjustment through the enjoyment of a wide range of social relationships and through the experience of working cooperatively with others.
4. Think logically, relatively, and imaginatively.
5. Discriminate among moral and spiritual values and apply these values in day-to-day relationships.
6. Accept the responsibilities and exercise the privileges of democratic citizenship.
7. Appreciate beauty as it appears in nature, in literature, in music, and in the graphic and practical arts; and find means of creative expression in the arts.
8. Study and learn.
9. Understand his natural environment and its relationship to human welfare.
10. Develop an awareness of the greatness of man and of the essential oneness of men of all ages, nations, races, and creeds.

### DEPARTMENT OF ADMINISTRATION, CURRICULUM AND INSTRUCTION

CHARITY M. MANCE, Ph.D., *Head*

#### General Statement

The Department of Administration, Curriculum and Instruction is designed primarily for the training of teachers. It consists of a curriculum in Elementary Education, offering the Bachelor of Science degree; and courses in Administration and Supervision, Library Science, Secondary Education, and Special Education. The Master of Science degree may be obtained in Educational Administration and Supervision, Elementary Education and Secondary Education Instruction.

\*NOTE: Beginning with the June Summer School session of 1957, persons who desire to meet requirements for a Master of Science degree in elementary or secondary education will be required to take in addition to some of the present courses, the following courses:

#### Elementary Education:

Science 505—Problems in the Teaching of Elementary Science.  
Three quarter hours.

Math 523—Advanced Course in Arithmetic for Teachers. Three quarter hours.

The Master of Science degree requires a minimum of 45 quarter hours of graduate courses and three quarters of residence.

The Master of Education degree requires a minimum of 48 quarter hours of graduate courses and 3½ quarters of residence.

The distribution of the 45 minimum required hours for the *Master of Science degree* is as follows:

	<i>Hours</i>
Core Education Courses .....	15
Special Area .....	24
Electives .....	6
<b>Total</b> .....	<b>45</b>

The distribution of the 48 minimum required hours for the *Master of Education degree* is as follows:

	<i>Hours</i>
Core Education Courses .....	15
Special Area .....	27
(Six of which are seminar courses. Educ. 601-602.)	
Electives .....	6
<b>Total</b> .....	<b>48</b>

Students who have enrolled in Education 512 or Education 602 and do not complete their thesis or project during the quarter enrolled, may enroll in Education 600—Thesis or Project Conference for continued supervision during the writing of the thesis or project.

#### COURSES IN ADMINISTRATION AND SUPERVISION

##### Undergraduate

301. *School Organization, Administration, and Management.* (3) Planned to acquaint the student with the general organization, administration, and management of public schools; the composition and responsibilities of the state, local and district school boards; the principals, supervisors, and teachers are examined critically.

341. *Principles and Organization of Secondary Education.* (3) Includes the principles underlying the evolution of the present American high school, types of organization, the high school pupil, curricula offerings and present-day problems

##### Graduate

Prerequisite: Undergraduate Courses or their equivalent.\*

Educ. 201 Foundations of Education (3)

Educ. 301 School Organization, Administration, and Management (3)

Psych. 463 Guidance for Classroom Teachers (3)

##### Graduate

\*Sp. Ed. 465 Introduction to Special Education (3)

\*Sp. Ed. 467 Characteristics and Needs of the Mentally Retarded (3)

\*Sp. Ed. 471 Methods and Materials for Teaching the Mentally Retarded Child (3)

\*Sp. Ed. 473 Observation, Participation and Teaching the Mentally Retarded (3)

500. *Foundations of Education.* (3) Social, the historical, and philosophical foundations of education will be considered.

502. *School Administration.* (3) Includes the following areas: (a) Public school administration, (b) Public school supervision, (c) Public school finance, (d) Curriculum development, (e) Survey technique, (f) Public relations, (g) Planning, construction, operation and maintenance of school buildings, (h) School transportation, (i) History and philosophy of education, (j) Educational sociology, and (k) Teachers salaries.

503. *School Supervision.* (3) Problems of administrative organization and relationships, financial control and assistance, legislative and regulatory standards, and various types of supervisory service. The history of supervision is traced, its background is sketched, and details concerning the methods now in use are described.

505. *Legal Basis for Public School Organization and Administration.* (3) A Study is made of legal principles that relate to such matters as authority, responsibility, and liability of school boards; districts, state and federal organizations. The legal status of principals and teachers are considered. The present interpretation and application of the school laws of Tennessee are examined.

511. *Methods of Research.* (3) A study and practical exploration of the techniques of research. A critical analysis is made of the various types of research and the various manuals of acceptable styles for writing data.

512. *Thesis Writing.* (3) This course involves the writing of a thesis. The adequate set-up of the problem, the collection of data, their use, and conclusions to be reached are emphasized.

\*See Undergraduate Course Descriptions

514. *Principles of Teaching.* (3) Critical survey of elementary and secondary education; current trends, administration, pupil guidance, teaching methods and evaluation.

524. *History of Education.* (3) This course offers a critical examination of the social and educational experiences which have greatest significance in explaining present educational policies, practices and institutions.

526. *Philosophy of Education.* (3) A critical examination of the purpose of education in our elementary and secondary schools and the bearing of this purpose on problems of organization and administration, the selection of subject-matter, and classroom practice. Consideration will be given to the significance of our educational purpose and practice to our concept of a democratic society.

534. *An Evaluation of Public School Programs.* (3) Designed to help the student analyze and interpret state, regional, and national public school evaluation programs. Consideration will be given to the intelligent use and interpretation of standardized and teacher-made tests and other procedures for collecting data aimed at the newer objectives of education.

551. *The Principal at Work.* (3) A systematic study and analysis of the work of a principal in a given school situation and of the possibilities for development of the school program and formulation of specific plans to foster such growth.

553. *The Supervisor at Work.* (3) Evaluation of program of work; program planning; report making; relation to superintendent; relation to community agencies; relation to school principals; professional activities for teachers; publicity.

554. *Group Dynamics in Supervision.* (3) Designed to provide opportunities for pre-service and in-service teachers to gain experience in group organization, planning and evaluation, and to develop skills in group leadership and participation, recording, observing role playing, and interpretation of group interaction.

561. *Organization of School Staffs for Curriculum Improvement.* (3) Designed to provide opportunities for study of curriculum practices with special emphasis on the Tennessee State program of Curriculum Improvement and other representative patterns of over-all organization. Special curriculum improvement problems will be studied.

564. *School and Community Relations.* (3) The relation of school and community in developing responsible citizens; awareness of the role of the local community on the national and international scenes; insights into social needs, processes and problems; effective use of the community and community resources in providing life experiences for developing citizens.

572. *Public School Finance.* (3) A consideration of the financial support of elementary and secondary education involving sources of income, methods employed in financing, and expenditures. The school finance problems of the local administrator is given special attention.

573. *Problems in Audio-Visual Education.* (3) Analysis of the development and function of audio-visual programs in schools. Includes problems of organization, selection and utilization of materials and equipment, unit costs, and school plant requirements. Some laboratory experience with equipment is required.

587. *Curriculum Construction and Practices in the Public Schools.* (3) Critical appraisal of the development and present status of the elementary and secondary school curriculum policies and practices in terms of functional value and social needs; implications for reorganization and basic changes and trends.

601-602. *Departmental and Project Seminars.* (6) The departmental seminar consists of information and experiences concerning the general area being studied. The Project Seminar consists of the writing of the project and the final examinations on the project and graduate courses studied for the desired master's degree.

COURSES REQUIRED FOR MASTER OF SCIENCE AND MASTER OF  
EDUCATION DEGREES

Educational Administration and Supervision

General Education Core:	Electives (6 quarter hours)
Education 502	Sp. Ed. 465
Education 511	Sp. Ed. 467
Education 526	Sp. Ed. 471
Psychology 502	Sp. Ed. 473
Psychology 543	Education 523
	Education 524
Administration and Supervision	Education 546
Core	Education 554
Education 500	Education 561
Education 503	Education 572
Education 505	Education 573
Education 512 (Master of Science)	Education 596
Education 534	Psychology 532
Education 551	Psychology 551
Education 564	Sociology 451
Education 587	Sociology 521
Education 601-602 (Master of Education)	Sociology 533
	Sociology 542

CURRICULUM IN ELEMENTARY EDUCATION

Elementary education is one of the curricula in the department of administration, curriculum and instruction set up by the University as its agency for the professional preparation of leaders in the field of elementary education. The Bachelor of Science degree is awarded upon the satisfactory completion of 198 quarter hours, of which 60 quarter hours must be in the 300 and 400 level courses. A major in elementary education consists of 49 quarter hours, of which 24 quarter hours must be 300 and 400 level courses.

Required courses for a major in Elementary Education are as follows: Education 101, 201, 231, 232, 233, 301, 333, 387, 431, 432, 433, 443, 462, Psychology 242, 243, 312, and 463.

TENNESSEE TEACHERS' CERTIFICATES

Certification Requirements for Elementary Teachers

Professional Education

The basic pattern of professional education needed for teaching has certain common elements which apply to problems which all teachers face irrespective of the age level of the pupils who are under their supervision.

Each prospective teacher, qualifying for a certificate based upon a degree, is expected to prepare initially either for endorsement grades 1-9, or endorsement grades 7-12. Therefore, the professional education required is indicated as "core professional" and as "specialized professional".

Each candidate for a teacher's certificate based upon a college degree shall have completed core professional preparation giving attention to areas of common concern for all teachers including: human growth and development; the psychology of learning as applied to learning activities under the guidance of the school; historical, philosophical, and sociological foundations of American education; the teacher's school and community relationships; professional organization and ethics; the keeping of records and reports, and the routine management of the school; materials, including skills in the use of audio-visual materials and equipment; guidance and mental hygiene.

Endorsement Grades 1-9

In addition to the general education and professional education requirements, the applicant shall offer a minimum of 39 quarter hours in the following areas:

- Language Arts—A minimum of 18 quarter hours in Language Arts, including 9 quarter hours in Communication as outlined under General Education, and additional study in areas such as Language Usage, Speech, Children's Literature, and Library Service.
- Natural Sciences—A minimum of 18 quarter hours in Natural Sciences, including 12 quarter hours as outlined under General Education and including study of best uses of natural resources.
- Humanities—A minimum of 21 quarter hours in the Humanities including 15 quarter hours as outlined under General Education, and including study in Art (including Crafts and Music).
- Health, Physical Education, Personal Development, and Home and Family Living—A minimum of 18 quarter hours in Health, Physical Education, Personal Development, and Home and Family Living, including 9 quarter hours as outlined in General Education. The applicant shall offer not less than 6 quarter hours in Health and 8 quarter hours in Physical Education, including study in areas such as Personal Health, Nutrition, Physical Activities, Rhythmic Activities, and Games.
- Social Studies—A minimum of 18 quarter hours in Social Studies, including 12 quarter hours as outlined in General Education, and including study in areas such as Tennessee History, Pol. Science, Geography and socio-economic problems.
- Mathematics—A minimum of 6 quarter hours in mathematics, including 3 quarter hours as outlined in General Education, and including study in functional arithmetic.

Supervised student teaching in grades 1-9 with at least 6 quarter hours' credit must be offered. (Experience in Lieu of Student Teaching) An applicant for a certificate based upon a college degree may present evidence of 3 years' teaching experience in the type of work authorized by the certificate sought in lieu of three credit hours in student teaching required for such certification, provided that (1) such experience was gained on a valid certificate; (2) a corresponding number of quarter hours of credit is presented in other education courses; and (3) the institution recommending the applicant for such a certificate is agreeable to the substitution.

Endorsement for Both Grades 1-9 and Grades 7-12

Adding endorsement grades 7-12 to endorsement grades 1-9 the holder of a certificate with endorsements of grades 1-9 may qualify for endorsement in grades 7-12 by the completion of 15 quarter hours of credit, 9 of which are in the field of professional education for grades 7-12, including at least 3 quarter hours in appropriate methods and by the meeting of requirements for endorsement in at least one area.

Adding endorsement grades 1-9 to endorsement grades 7-12, the holder of a certificate with endorsement of grades 7-12 may qualify for endorsement in grades 1-9 by completion of 18 quarter hours credit, 9 of which are in the field of professional education grades 1-9, including at least 3 quarter hours of methods appropriate to grades 1-9.

CURRICULUM IN ELEMENTARY EDUCATION

Elementary Education majors who plan to complete all requirements for graduation as set up by the University will receive the Bachelor of Science degree in elementary education. Each student is required to secure the approval of his faculty adviser in the department of elementary education concerning his program of work. The faculty adviser will help the student prepare a program of study leading to certification as well as to graduation.

CURRICULUM FOR ELEMENTARY EDUCATION

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Eng. 101-2-3	3	3	3	Eng. 211-12-261	3	3	3
Geo. 171-2-3	3	3	3	Sci. 121-22-123	4	4	4
Music 101-2-131	3	3	3	Health 211-2-3	3	3	3
Math 101-2		3	3	Soc. Stud. 114	3		
Art 133	3			Nutrition 212		3	
Soc. Stud. 111-2-3	3	3	3	Math 200			3
P. E. 11-12-13	1 1/3	1 1/3	1 1/3	Educ. 201 - Health 151		3	3
Orientation	1			L. S. 211	3		
				P. E. 20-50	1 1/3	1 1/3	1 1/3
	17 1/3	16 1/3	16 1/3		17 1/3	17 1/3	17 1/3

  

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Art 201	3			Educ 431-2-3	9		
Educ 231-2-3	3	3	3	Educ. 481		3	
Sci 301-2	3	3		Educ. 473		3	
Educ. 301				Psy 463		3	
Psy 242-243		3	3	Educ 462			3
Educ 333-387	3		3	Educ. 443	3		
Psy. 312		3		Educ 444-465		3	3
Speech 201-2	3	3		Pol. Sci. 221-2		3	3
P. E. 243 - Hist. 341		3	3	Electives (6 hrs)**		3	3
Electives**	3			Educ. 450			3
	18	18	15		12	18	15

COURSES IN ELEMENTARY EDUCATION

101. *Orientation.* (1) A course required of all freshmen registered in Elementary Education; designed to orient the student into the entire field of Elementary Education and to the life of the University.

231. *Teaching Arithmetic in the Elementary School.* (3) An analysis of current methods in teaching arithmetic through first-hand experiences, the place of number meaning, thinking and drill in effective learning.

232. *Teaching of Language Arts in the Elementary School.* (3) A consideration of modern trends in teaching the language arts; using as tools of communication reading, spelling, literature, composition, and writing. The course also deals with the adequate training in both the subject matter and methods of teaching the language arts subjects.

233. *Teaching the Social Studies in the Elementary School.* (3) This course considers the educational values of the social studies and ways and means of integrating history, geography, civics, and the development of pupils' appropriate emotional and thought reactions to social problems and issues.

332. *History of Education in the United States.* (3) A survey course of the evolution of public education in the United States. (Must be taken on the Junior or Senior level).

333. *Seminar Workshop.* (3) This course is designed to help prospective teachers plan, organize, and execute the type of work they are expected to do

\*\*Specified departmental electives (9 quarter hours) choose from the following in the junior and senior years: Library Science 362, 363, 441; Science Education 303; Philosophy 426; Education 363.

The maximum number of hours to be taken during the period of practice teaching is 15.

during the practice period; making charts, graphs, friezes and emphases on the actual construction of curriculum material together with analysis of methods involved. (Must be taken on the Junior or Senior level).

363. *Activities in the School Program.* (3) The basic principles and procedures involved in guidance programs which meet the educational, social, vocational needs of the elementary and high school pupils. Special attempts are made to show the place of the assembly programs, student civic organizations, clubs and athletics in the total growth and development of the student population, both individually and in group activities. (Must be taken on the Junior or Senior level).

431-2-3. *Student Teaching in the Elementary School.* (9) Fall, winter, spring quarters. A three-part course consisting of directed observation and participation in instruction in elementary grades; open only to seniors and teachers with some experience. It proposes to offer situations which the student will meet in actual work and give him benefit of skilled and experienced teachers' solution of school problems. Conferences for interpreting school activities in the light of the observation and parallel readings are held frequently. Applicants must have a minimum average of 2.0. Applications for student teaching must be filed the preceding quarter in which the applicant desires student teaching privileges. Parallel, 443. Prerequisites: Education 201, 231-2-3, 301, 333, 387; Psychology 242, 243, 312; Art 133; Music 101; P.E. 243.

443. *Principles of Teaching in the Elementary School.* (3) An advanced course in methods and materials in the elementary school, designed for students who have had the equivalent of Education 231-2-3, 333, Psychology 221, 242-43. Must be taken along with Education 431-2-3, Student Teaching. (Senior level only).

444. *Problems in Teaching.* (3) A critical viewing of some specific problems in Elementary teaching with emphases on methods and content, as determined by the maturity and intent of individual students. (Must be taken on the Senior level).

450. *Senior Project Writing.* (3) Designed to give opportunity for students to work individually on any problem of their choice in the area of elementary education. If a student has completed 60 hours of 300 and 400 level courses this course may be taken without credit. (Must be taken on the Senior level).

481. *Early Childhood Education.* (3) The course seeks to provide experience and understandings for the student who is interested in becoming a kindergarten and/or primary teacher. Also interprets the mechanics of desirable educational conditions, programs, and practices for these levels. Open to seniors only.

GRADUATE COURSES IN ELEMENTARY EDUCATION

Graduate

505. *Problems in Science for Elementary Teachers.* This course is concerned with the problems of teaching elementary science. Students who plan to do thesis problems in the area will be guided in the preparation of their preliminary plans. Acquaintance with educational research and other literature concerned with the teaching of elementary science. Consideration of problems related to the purposes, content, materials, activities and evaluation in the area.

520. *Curriculum Construction in the Elementary School.* (3) Designed for teachers and administrators who desire to study newer curriculum practices and needed changes in selection and organization of curriculum content.

523. *Advanced Course in Arithmetic for Teachers.* (3) A Study of methods and materials used in teaching arithmetic in the elementary grades. Emphasis is placed on methods leading to mathematical understanding, computational skill and applications in quantitative problems of everyday living.

527. *Advanced Course in Social Studies for Teachers.* (3) This course is designed for students who desire to explore the newer practices and materials

existing in the social studies program of the elementary schools. It offers the individual student an opportunity for creative expression and directed study in areas of need and interest.

529. *Advanced Course in Language Arts for Teachers.* (3) A study of the current trends and newer practices in the teaching of subjects which make up the language arts. It offers the individual student an opportunity for creative expression, and directed study in areas of need and interest.

537. *Evaluating the Elementary School.* (3) Offers a student the opportunity to construct and use the evaluative criteria for analyzing the total elementary school program or aspects of such programs of special interest and need to the individual student. Consideration of probable outcomes of the evaluative process is stressed.

538. *Basic Principles of Elementary Education.* (3) A critical analysis of child-centered and society-centered points of view in elementary education; purposes or values basic to a balanced, functional instructional program in the elementary school.

546. *Organization and Administration in the Elementary School.* (3) Designed for administrators and teachers who desire to study purposes, practices, and trends in elementary school administration. The special areas include: the elementary school in the organization of the public school system; objectives of elementary education; school and community relationships; organization of the curriculum and pupil personnel work; evaluating various phases of the school organization and facilities; and research in elementary school organization.

547. *Current Issues, Trends and Practices in the Elementary School.* (3) Designed to give teachers, supervisors and administrators an opportunity to examine the current issues, trends, and practices in the elementary school as they refer to procedures, equipment and materials of instruction. Practical suggestions will be made to problems involving the improvement of instruction.

548. *Personnel Problems in the Elementary School.* (3) Emphasis on operation of groups in schools and communities stressing personnel policies and practices in schools and communities. Special consideration is given to pupil-teacher, teacher-principal, principal-staff problems and the interrelationships of these persons to each other and the community.

549. *Supervising the Elementary School.* (3) Designed to acquaint the students with organization and personnel factors in the elementary school with special emphasis on methods and techniques, problems, and practices of supervision. Attention is given to problems of human relations in the supervisory job.

562. *Techniques of Teaching Reading in the Elementary School.* (3) A consideration of the modern trends in the teaching of reading techniques and materials for children on the primary, middle and upper grade levels.

575. *Review of Research Studies in Elementary Education.* (3) Provides for a study of the emerging trends in education and their implications for elementary school teachers. A review of the best literature and research available in the field studied, with direct applications to elementary school problems.

595. *Curriculum Planning and Programming in the Elementary School.* (3) Designed for principals, supervisors and teachers who desire to become acquainted with the current procedures, practices and trends in curriculum planning and programming in the elementary school.

596. *Visiting the Teacher at Work and Improving Instruction.* (3) Designed primarily for elementary teachers, principals, and supervisors. The students are expected to visit and observe, along with the instructor, a teacher or teachers instructing children in as normal classroom situation as can be provided. The course work will be concerned with an evaluation of the classroom visitation and observation and suggested methods and materials for improving instruction.

602. *Project Seminar.* (3) This course consists of the writing of the project and the final examination on the project and graduate courses studied for the desired master's degree.

*Elementary Education*

General Education Core:	Sp. Ed. 465
Education 502	Education 473
Education 511	Education 520
Education 526	Education 524
Psychology 502	Education 534
Psychology 543	Education 538
Elementary Education Core:	Education 546
Education 500	Education 547
Education 512 (Master of Science)	Education 548
Education 514	Education 549
Education 527	Education 562
Education 529	Education 564
Education 601-602	Education 573
(Master of Education)	Education 587
Mathematics 523	Education 591
Psychology 551	Education 592
Sci. Ed. 505	Education 593
Electives (6 quarter hours):	Education 596
Sociology 451	Psychology 523
	Education 575

*Area of Secondary Education*

*Program of Study*

The program for the preparation of prospective teachers for the secondary level is designed to provide students an opportunity to attain the necessary competencies for successful performance of the professional tasks required of teachers.

Students who plan to teach in the secondary schools have two choices for certification: Broad area endorsement, such as, Science, Social Studies, and Foreign Language; and single subject endorsement, such as, Biology, Economics, and French. It is suggested that students elect areas or subjects which will meet the requirements for teaching at least three subjects in the secondary schools. Those students interested in library work or work as teacher-librarians should take sufficient courses in Library Service to meet state requirements.

The student should begin his professional training at the beginning of his sophomore year and continue this training along with his general education courses and major courses through the senior year.

In planning the program of professional education attention was given to certain areas of concern to the professional preparation of teachers which are specifically mentioned by state teacher certification authorities. These areas include:

1. Orientation to the teaching profession: Historical, philosophical, and sociological foundations of American Education.
2. Human Growth and Development, including an understanding of how children grow physically, emotionally, socially, and mentally, the nurture necessary for wholesome growth, and the relation between growth and acquiring or learning new behavior patterns.
3. The psychology of learning as applied to learning activities under the guidance of the school.
4. Understanding of School Organization, Administration, and Management.
5. Techniques of Measurement and Evaluation.
6. Skill in Curriculum Development.
7. School and Community Relations.
8. Classroom Guidance.
9. Classroom Methods, Management, and Materials.
10. Observation and Student Teaching.

Tennessee State Certification requirements expect that all teachers should be offered courses that will enlarge upon the designated areas and enable teachers to assist pupils with subject matter content and personal experiences in the best possible manner. In terms of quarter-hour credit the State of Tennessee Certification Authorities have recommended that a *minimum* program totalling 36 quarter hours of credit in professional education should be offered.

The pattern of course work offered in Secondary Education to meet the State requirements for the professional core is presented to prospective teachers in a sequence best suited to dovetail acceptably with general education and specialized departmental requirements as well as the professional competencies enumerated by the State Board of Education. Course offerings to prepare the prospective teacher are offered in Secondary Education and in the Department of Psychology.

#### Professional Educational Core and Sequence of Course Work

##### Core Professional Education Courses:

1. Educ. 201—Foundations of Education
2. Psych. 242—Educational Psychology I, Human Growth and Development
3. Psych. 243—Educational Psychology II, Psychology of Learning
4. Educ. 301—School Organization, Administration and Management
5. Psych. 312—Measurement and Evaluation
6. Educ. 387—Curriculum Development
7. Educ. 462—School and Community Relations
8. Psych. 463—Classroom Guidance

##### Specialized Professional Education Courses:

1. Educ. 371—General Methods and Classroom Management
2. Educ. 471—Methods Courses in Areas of Endorsement:
 

Aeronautics	Foreign Language
Art	Mathematics
Business and Economics	Music
English	Science
Health Instruction	Social Studies (History, Geography, Political Science, Social Science)
Health and Physical Education	Speech
Industrial Arts	Vocational Agriculture
	Vocational Home Economics
3. Educ. 472—Student Teaching in Area of Endorsement

The sequence of course work to be observed by students from year to year in terms of required and elective work within the 36 quarter hour pattern is shown below. The program outlined is merely suggestive for a typical student program. Note that the professional sequence starts in the sophomore year and that some courses serve as prerequisites for others.

##### Sophomore Year

- Educ. 201. Foundations of Education
- Psych. 242. Educational Psychology I
- Psych. 243. Educational Psychology II

##### Junior Year

- Educ. 301. School Organization, Administration, and Management
- Psych. 312. Measurement and Evaluation
- Educ. 371. General Methods
- Educ. 387. Curriculum Construction

##### Senior Year

- Educ. 462. School and Community Relations
- Psych. 463. Classroom Guidance
- 471. Methods Course in Area of Endorsement
- Educ. 472. Observation and Student Teaching

In following the minimum sequence presented above, it is important that students and their advisers note that the indicated prerequisite courses should be taken sequentially so that a continuous and well-integrated pattern of pre-professional experiences will be offered students.

#### Student Teaching

Students preparing to schedule observation and student teaching in the senior year should study carefully the general requirements for student teaching. In addition, the area of Secondary Education expects that the student will be able to (1) show evidence of emotional stability, (2) receive certification from health authorities that no serious physical condition detrimental to the welfare of children to be taught is present, (3) obtain certification from major departments as to readiness to engage in student teaching, and (4) be accepted as a student teacher by the cooperating school system.

#### Requirements for Student Teaching

Students enrolling for student teaching must be classified as seniors, i.e., having 144 quarter hours.

1. Candidates for student teaching should be required to show acceptable degree of proficiency on reading and writing tests devised or selected by the secondary committee a quarter preceding the student teaching courses.
2. No student classified on probation should be admitted to methods and student teaching courses.
3. Sequence of courses prerequisite to student teaching on the secondary level:

- (1) Educ. 201—Foundations of Education
- (2) Psych. 242—Educational Psychology I, Human Growth and Development
- (3) Psych. 243—Educational Psychology II, Psychology of Learning
- (4) Educ. 301—School Organization, Administration, and Management
- (5) Psych. 312—Measurement and Evaluation
- (6) Educ. 387—Curriculum Development
- (7) Educ. 371—General Methods

#### State Certification Requirements

After September 1955, the new State of Tennessee Regulations for Certification of Teachers is in effect. The rules governing transition to the new regulations and program are that:

1. All permanent certificates in effect September 1, 1953, remain in full force as provided by the certificate.
2. All persons who began college training before September 1, 1953, and who apply before September 1, 1955, may obtain a non-renewable elementary certificate valid for a period of five years by complying with statutes, rules and regulations which were in effect on January 1, 1951, for the permanent elementary certificate.

3. All persons who began college training before September 1, 1953, may obtain the Teachers Provisional Certificate endorsement including superintendent and supervisor in such subjects and/or areas where statutes, rules and regulations in effect on January 1, 1951, have been met, provided the Bachelor's degree has been obtained by September 1, 1958.

It is to be observed that prospective secondary school teachers who enter the University after September 1, 1953, will be required to present a *minimum* of 60 quarter hours of general education, a *minimum* of 36 hours of professional education, and specified minimum hours of work in the selected area or areas of endorsement. Students planning to become certified teachers in teaching areas are urged to consult the *Certification Rules and Regulations of Tennessee* regarding quarter hours of credit and courses required to meet the areas of endorsement.

**Suggestions Regarding Courses and Required Credit Hours in  
Specialized Academic Areas**

**Program for High School Teachers**

High School teachers need a broader preparation than those provided in a program of study which required rather high specialization in one or two subjects. The average high school teaching position in Tennessee requires certification in several subjects or teaching areas. To encourage broad professional training, the area of Secondary Education recommends that each student plan, with the help of his Education adviser, a program which will give adequate preparation in at least three fields of teaching.

Secondary school curricula are designed to give preparation for teaching in a large number of areas discussed below in terms of credit hour requirements.

While students planning to enter the teaching profession are urged to choose more than two areas of concentration it is to be noted that Home Economics, Agriculture and Business students are exempted from this rule and should consult the special programs provided them. The various University departments have enumerated the specific number of credit hours and courses required on a major or minor basis. The following are minimum hour requirements for certification to teach in specific areas of instruction in the public schools of the State of Tennessee:

(For more information see: "Tennessee Regulations for Certification of Teachers" [1955]).

**Business**

The applicant shall offer a minimum of 27 quarter hours, including 18 quarter hours in introduction to business, accounting, typewriting, business law, economic, business mathematics and be endorsed in General Business.

An applicant endorsed in General Business may secure additional single subject endorsements for the following subjects by the completion of the hours indicated including quarter hours completed for endorsement in General Business:

Bookkeeping	15 quarter hours
Typewriting	9 quarter hours including 3 hours of advanced typewriting
Shorthand	9 quarter hours including 3 hours of advanced shorthand
Business Law	9 quarter hours
Economics	18 quarter hours including principles and related subjects in that field
Salesmanship	9 quarter hours selected from salesmanship, marketing, merchandising, advertising, and retailing
Secretarial Practice	3 quarter hours of office practice plus certification in shorthand and typewriting.
Business Machines	3 quarter hours
Business English	3 quarter hours
Business Arithmetic	9 quarter hours (6 in mathematics and 3 in business mathematics, or 9 in business mathematics.)
Office or Clerical Practice	3 quarter hours in office, secretarial or clerical practice
Consumer Education	3 quarter hours in consumer economics or consumer education

NOTE: Institutions which use adequate means of testing proficiency in these areas may submit a record of performance in lieu of required credit, provided that the most advanced course for which credit is presented is taken in the institution.

**Health Instruction**

The applicant shall offer a minimum of 24 quarter hours of health to include the areas listed below:

1. Foods and nutrition.
2. Safety education and first aid.
3. Communicable disease control.
4. Body use and care, including such areas as personal hygiene, diseases and disabilities other than those classed as communicable.
5. Human relations, including such areas as mental hygiene, family relations, and community relations.
6. Sanitation of the home, school and community.

**ENDORSEMENTS IN SUBJECTS, GRADES 1-12**

The applicant shall meet the general education requirement and the professional education requirement for grades 1-9 or grades 7-12.

**Art:**

The applicant shall offer a minimum of 36 quarter hours, with at least 18 quarter hours in techniques, at least 6 quarter hours in appreciation, and at least 6 quarter hours in appropriate methods and materials of teaching.

**Health and Physical Education**

The applicant shall offer a minimum of 36 quarter hours of health and physical education divided as follows:

Eighteen quarter hours of health which must include the areas listed below:

1. Foods and nutrition.
2. Safety education and first aid.
3. Communicable disease control.
4. Body use and care, including such areas as personal hygiene, diseases and disabilities other than those classed as communicable.
5. Human relations, including such areas as mental hygiene, family relations and community relations.
6. Sanitation of the home, school and community.

Eighteen quarter hours in physical education which must include the areas listed below:

1. Mass gymnastics and conditioning activities.
2. Informal games and relays.
3. Singing games and rhythmic activities.
4. Team games.
5. Individual and dual sports.
6. Safety skills in outdoor and aquatic activities.
7. Mimetics and story plays.
8. Stunts and tumbling.
9. Modified or adapted activities for the handicapped student.

NOTE: Credit on required activity courses and/or military service may not apply towards this minimum.

**Library Service**

The applicant shall meet all requirements for the endorsement in grades 1-9 or an endorsement in a subject area in grades 7-12, and in addition shall meet the following requirements in the field of library service:

1. Teacher-Librarian. The applicant shall offer a minimum of 18 quarter hours of library service in the following:
  - Books and Related Materials for Children and Young People
  - Reference Materials
  - Organization of Materials
  - School Library Administration

2. Librarian. The applicant shall offer a minimum of 27 quarter hours of library service. This shall include, in addition to the above 18 quarter hours, work in:

Books and Related Materials for Adults  
 Audio-Visual materials  
 Principles of Librarianship

**Music**

The applicant may apply for endorsement in Public School Music, and/or Instrumental Music.

The applicant for either endorsement in music shall offer a minimum core of music theory and harmony, 18 quarter hours; instrumentation or orchestration, 3 quarter hours; applied music, 18 quarter hours; conducting, 3 quarter hours; history and appreciation, 3 quarter hours; a minimum total of 45 quarter hours.

The applicant for the Public School Music endorsement shall meet the core music requirements listed above, and shall offer 9 quarter hours of appropriate methods and materials of teaching, a minimum total of 54 quarter hours.

The applicant for the Instrumental Music endorsement shall meet the core music requirements listed above, and shall offer 9 quarter hours of appropriate methods and materials of teaching and 9 quarter hours of applied music beyond the 18 quarter hours in core, a minimum total of 63 quarter hours.

**COURSES IN SECONDARY EDUCATION**

**Undergraduate**

201. *Foundations of Education.* (3) A study of the historical, philosophical, and sociological foundations of the American public schools, with emphasis on the traditional function of the American public school as a local community institution.

242. *Educational Psychology I.* (3) See description under Psychology Department.

243. *Educational Psychology III.* (3) See description under Psychology Department.

312. *Measurement and Evaluation in Public Schools.* (3) See description under Psychology Department.

371. *General Methods and Class Management in the Secondary Schools.* (3) Classroom management, unit and lesson planning, direction of the various learning activities, selection and use of instructional materials and evaluation of the teacher-learning process. Prerequisite for student teaching. Prerequisite: Psych. 242, 243.

387. *Curriculum Development.* (3) A critical study of the reorganization, construction, and administration of the high school curriculum in the light of modern educational principles and objectives. Prerequisites: Education, 201, Psychology 242, 243.

414. *Principles of Teaching.* (3) The formulation of basic principles of teaching and a study of how these principles are applied in the classroom. This course is taken concurrently with student teaching.

426. *Philosophy of Education.* (3) A consideration of the function or purpose of education in American schools and the bearing of this purpose on problems of organization and administration; the selection of the subject matter to classroom practice. Prerequisite: Junior or Senior classification.

462. *School and Community Relations.* (3) Designed to alert the student to the relationship of school and community in building citizens (1) by developing in the student increased awareness of the local community and its role on the national and international scene, (2) by creating in the student greater sensitivity and insight into social processes and problems, (3) by reviewing the

rights, privileges, responsibilities and duties of mature citizens, and (4) by exploring techniques aimed at effective use of community and community resources to provide life experiences for developing citizens.

463. *Classroom Guidance.* (3) See description under Psychology Department.

471. *Special Materials and Methods in the Certified Area.* (3) Each University department preparing the prospective secondary school teacher offers a course designed to familiarize students with teaching techniques and information of special interest to the particular subject-matter area. Generally, it is best to schedule this course during the quarter preceding Education 472. Examples of departmental offerings are: History 471, Teaching History in Secondary Schools, etc. Students should consult their departmental offerings for the appropriate course to be scheduled.

472. *Observation and Student Teaching in the Secondary Schools.* (6-12) Actual classroom experience in secondary schools under the charge of expert teachers in nearby cooperating schools. Student teacher schedules should be arranged well in advance of the senior year and planned so as to enable the student to devote a half day to student teaching during the quarter in which the course is to be completed. Required for all students who are following the professional education core that leads to teaching as a career. Prerequisites: Ed 201, Psy 242-243, Ed 301, Psy 312, Ed 387, Ed 371, and Specific Methods.

\*473. *Audio-Visual Aids in Education.* (3) A survey course designed to acquaint the student with audio-visual materials of instruction. Proper classroom utilization of film strips, 16mm motion pictures, slides, graphic materials, field trips, exhibits and models is studied.

**GRADUATE COURSES**

**Secondary Education Instruction**

525. *Problems in Secondary Education.* (3) Considers secondary school problems in the fields of curriculum materials and patterns, general techniques and evaluation of the outcome of instruction.

528. *The Junior High School.* (3) Designed for students who are looking forward to securing teaching positions in the junior high school and for in-service teachers who would like to concentrate their work around the problems of instruction, organization of materials, selection of materials, and evaluation of pupil growth.

601-602. *Departmental and Project Seminars.* (6) Consists of information and experiences concerning the general area being studied. The project seminar consists of the writing of the project; final examinations on the projects; and graduate courses studied for the desired master's degree.

**SECONDARY EDUCATION**

*General Education Core:*

Education 502  
 Education 511  
 Education 526  
 Psychology 502  
 Psychology 543

\**Secondary Education Core:*

Education 500  
 Education 512 (Master of Science)  
 Education 514  
 Education 601-602  
 (Master of Education)

*Five Courses in Secondary major*

*Electives (6 quarter hours):*  
 Education 505  
 Education 524

Education 525  
 Education 473  
 Education 528  
 Education 551  
 Education 564  
 Education 573  
 Education 581  
 Education 587  
 Psychology 532  
 Psychology 551  
 Psychology 555  
 Sociology 451  
 Sociology 521  
 Sociology 533  
 Sociology 542  
 Sp. Ed. 465

\*Approved for graduate credit.

## SPECIAL EDUCATION

The education for teachers of exceptional children satisfies one of the great needs of our present day society, in that it provides for adequate training and experiences which will enable the prospective teacher to understand and guide the exceptional child adequately. Every child must have equal educational opportunities to develop to his maximum potentialities. The exceptional child is no exception, but needs special educational services in accordance with his peculiar needs and abilities. According to recent statistical reports there is an increasing demand for well qualified teachers in all areas of exceptionality, and most especially the area of the educable mentally retarded. The School of Education, Tennessee A. and I. State University, in accordance with its ideals and purposes, has expanded its teacher education offerings in the area of mental retardation.

Students who pursue the course in special education will be able to meet the requirements for State certification. Each prospective teacher qualifying for a certificate in mental retardation should have completed requirements for a degree in either elementary or secondary education (endorsement grades 1-12). Those who have certificates on the secondary level must also hold an elementary certificate. Specialized courses for certification are taken at the undergraduate level.

Students may also take additional specialized courses, courses in the related fields, and the professional "core" to fulfill the requirements for a Master's degree in the educable mentally retarded. For general requirements of admission see catalogue section on "general requirements." Students desiring to pursue work toward the Master's degree in special education must have graduated from a recognized college, and have completed the required undergraduate courses in special education (Special Education 465, 467, 471, 473).

### COURSES FOR CERTIFICATION

#### Specialized Courses—

*Sp. Ed. 465	Introduction to Special Education.....	3 hrs.
Sp. Ed. 467	Characteristics and Needs of the Mentally Retarded .....	3 hrs.
Sp. Ed. 469	Vocational Guidance of the Mentally Retarded....	3 hrs.
Sp. Ed. 471	Methods and Materials for Teaching the Mentally Retarded .....	3 hrs.
Sp. Ed. 473	Observation, Participation, and Teaching Mentally Retarded .....	3 hrs.

#### Related Courses (6 hours of Electives)

Psy. 323	Mental Hygiene .....	3 hrs.
Soc. 452	Sociology of Child Development.....	3 hrs.
Psy. 461	Psychometrics (Required).....	3 hrs.
Sp. Ed. 486	Psychology of Exceptional Children.....	3 hrs.
Sp. Ed. 487	The Crippled Child.....	3 hrs.
Sp. Ed. 488	Problems, Methods, and Materials for Teaching the Slow Learner .....	3 hrs.
Sp. Ed. 489	The Gifted Child .....	3 hrs.

(The prospective teacher must have completed at least 3 hours of teaching the normal child; this is included in the requirements for the elementary certificate.)

### COURSES IN SPECIAL EDUCATION

\*465. *Introduction to Special Education.* (3) Designed to acquaint the student with the general field of special education—its purpose and scope. The course is a pre-requisite to all courses either graduate or undergraduate credit. Offered each quarter.

Approved for graduate credit.

\*467. *Characteristics and Needs of the Mentally Retarded.* (3) A critical study of the classifications, etiology and specific characteristics of the various types of children with low intelligence. Prerequisite: Sp. Ed. 465.

\*469. *Vocational Guidance and Placement of the Mentally Retarded.* (3) Designed to acquaint the student with the duties and responsibilities of a rehabilitation counselor of a client who has a disability of mental retardation. Prerequisite: Sp. Ed. 465 or 467.

\*471. *Methods and Materials for Teaching the Mentally Retarded Child.* (3) Designed to acquaint the students with the principles underlying the methods and materials for teaching the children with low intelligence. Prerequisite: Sp. Ed. 465, 467 or 567.

\*473. *Observation, Participation and Teaching the Mentally Retarded.* (3) A practicum in actual classroom situations, guiding the learning experiences of the mentally retarded child. Frequent conferences and reference readings will aid in the interpretation and solution of existing problems, as well as improving teacher-learning situation. Students must have completed the sequence of courses listed in the specialized area.

\*486. *Psychology of Exceptional Children.* (3) Acquaints students with facts concerning the behavior characteristics of various types of exceptional children. Prerequisite: Sp. Ed. 465.

\*487. *The Crippled Child.* (3) A study of the common orthopedic deviations, their problems, care, education, and the auxiliary services and agencies.

\*488. *Problems, Methods and Materials for Teaching Slow Learners.* (3) Designed for experienced teachers.

\*489. *The Gifted Child.* (3) A general study of the gifted child's nature and development problems, curriculum needs and methods of teaching.

## LIBRARY SERVICE

The Library Service program may be elected as a minor field of concentration by students taking a major in any department of the institution. In general the student begins his library training at the junior level. However, upon approval of his major advisor and in collaboration with the head of Library Service, he may be permitted to take no more than two courses at the advanced sophomore level. During his junior and senior years he can complete requirements by taking one or two courses in each term.

Students who elect library service for purpose of certification shall meet all requirements for endorsement as a teacher in grades one through nine or seven through twelve, and in addition, shall complete either eighteen quarter hours (six courses) for endorsement as a teacher-librarian or twenty-seven quarter hours (nine courses) for endorsement as a school librarian. No delineation is made between the training program for elementary school librarians and secondary school librarians since the basic knowledge and skills are comparable for work on either grade level. In-service teachers, administrators, and prospective teachers may elect materials courses related to their teaching needs. Students who plan to enter library schools after graduation are given guidance in planning their programs so as to meet minimum admission requirements.

The library service curriculum provides training for the following groups: (I) students who wish to prepare for library positions in elementary and secondary schools; (II) students who plan to enter a graduate library school after receiving the bachelor degree; (III) in-service teachers, administrators, and prospective teachers who desire information on library materials related to their teaching needs; (IV) students who wish guidance in the use of library resources.

\*Approved for graduate credit.

#### Group I—Requirements

Students who elect library service as a minor shall complete first the following basic courses required for certification as a teacher-librarian: Library Service 361, 362, 363, 441, 451 and 452. For certification as a school librarian he must complete the following additional courses: Library Service 341, 463 and 483. It is recommended that Library Service 211—Use of Library Resources, be taken during the freshman or first two quarters of the sophomore year. Other desirable courses include Office Administration 211—Typewriting; English 261—Children's Literature; and the required sophomore psychology courses.

#### Group II—Requirements

Students preparing to enter a graduate library school for further training should complete all courses offered in the department. In addition they should acquire at least a reading knowledge of two modern foreign languages, preferably French and German. Language requirements vary in graduate library schools. Some schools require two years of college credit in the designated languages, while others may waive such requirements altogether, depending upon the kind of library work the student chooses for specialization.

#### Group III—Requirements

In-service teachers, administrators, and prospective teachers may enroll in library service courses even though they do not plan to complete a minor. It is recommended that they take courses dealing with materials.

#### Group IV—Requirements

Students seeking guidance in the use of library resources should elect Library Service 211 as early as possible in their first two years of academic training.

### COURSES IN LIBRARY SERVICE

#### Undergraduate

211. *Use of Library Resources.* (3) A general course on the use of library facilities including the card catalog, periodical indexes, bibliographies, encyclopedias and other reference tools. Designed primarily to aid students in developing a systematic approach to using library materials. Students from any department may elect this course which is not included in courses required for certification. Three lectures.

341. *Introduction to Librarianship.* (3) Planned for the orientation of students in the broad field of library service. Includes an introduction to the development and function of libraries, types of services, types of library work and opportunities in librarianship. Field trips will be made in the city to libraries, bookstores, publishing houses and book binderies. Three lectures.

361. *Reference Materials.* (3) Embraces a study of basic reference books and other reference materials particularly for the school library or small library. Also includes the organization and administration of reference services. Three lectures.

362. *Books and Related Materials for Young People.* (3) Principles of selection, aids for selection, evaluation and use of books and related materials for young people. Emphasizes reading of books and an examination of materials for curricular needs, reading interests and personal growth of adolescent students. Attention also given to development of promotional activities aimed at stimulating use of materials by students and teachers. Three lectures.

363. *Books and Related Materials for Children.* (3) Principles of selection, aids for selection, evaluation and use of books and related materials for children. Emphasis placed on required readings for acquainting students with children's books and writers in the field. Attention given to an examination of materials for curricular needs, reading interests, and personal growth, and to the development of promotional activities aimed at stimulating use of materials by students and teachers. Three lectures.

441. *Classification and Cataloging.* (3) Introduction to principles underlying the classification and simplified techniques of cataloging books. The abridged Dewey Decimal Classification scheme used and printed cards stressed. Making of unit cards, filing, and other essential procedures of organizing the book collection are included. Three lectures and one laboratory period.

451. *Organizing Library Materials.* (3) The organization of non-book materials including periodicals, vertical file and audio-visual materials such as filmstrips, films and recordings. Attention also given to weeding, inventory and care of books, and other procedures involved in developing a systematic program of acquisition, upkeep and use of library materials. Prerequisite 441. Three lectures.

452. *School Library Administration.* (3) Principles, objectives and procedures involved in administering the small library. Standards and evaluation, housing and equipment, personnel, financial support, budgeting, loan systems, reports and other administrative procedures included. Three lectures and one laboratory period.

463. *Books and Related Materials for Adults.* (3) Special attention given to reading interests of adults, principles of selection, evaluation, and use of books and related materials for adults. Development of reading lists based on adult interests and activities such as book reviews, forums and book discussions included. Three lectures.

483. *Non-book Materials.* (3) Emphasis on selection, aids for selection, evaluation and use of non-book materials in the library program in relation to the entire school program. Problems involved in developing the library as a materials center that is responsible for films, filmstrips, recordings and other non-book materials is included. Three lectures.

### THE DEPARTMENT OF ART AND MUSIC EDUCATION

EDWARD C. LEWIS, JR., Ph.D., *Head*

#### General Statement

The Department of Art and Music Education is organized to serve the State's art and music education structure through teacher education, leadership, and statewide cooperation; to provide sound guidance and thorough training for its gifted students whose career goal is professional music; and to prepare students interested in art to continue art study and to meet the requirements for teaching art in the schools of the state; and to bring the gifts of art and music in exhibits, lecture demonstrations, concert offerings and participation opportunities to all its people, as its contribution to the cultural enrichment of the campus, the community, and the state families.

The courses are designed to provide experiences leading to general culture, a mastery of fundamental tools, adequate performance ability, and the science and art of teaching. A curriculum in music education and courses in art education are offered to prepare the student in that area of teaching for which he is best suited.

The undergraduate program in Music leads to the Bachelor of Science Degree in Music Education. The minimum number of quarter hours required for the Bachelor of Science Degree in Music Education is 200. The minimum number of quarter hours in Music required is 110. The minimum of quarter hours in 300 and 400 level courses required for both the major in music education and for graduation is 47. Total number of quarter hours in 300 and 400 level courses required for graduation is 68.

## MUSIC EDUCATION

### Method of Instruction

Courses in applied music are taught by means of private lessons. Beginning instruction in voice, piano, and in the string and wind instruments is offered in the group instruction method. Academic classes are taught by means of the lecture and project system with laboratory sessions as required or desirable. Upon entry and at the end of each academic year the student's accomplishment level or potential is evaluated by a jury of staff members and he is assigned to a teacher for private or class instruction. Progress is determined through examination by a jury and is based upon the student's native talent, technical advancement, and repertoire. All courses in music, whether applied or academic, must be passed with a grade of "C" or above. Each student will be expected to repeat courses in which a grade of "D" or below is earned until the grade of "C" or above is achieved. All music majors must take Comprehensive examinations in music theory, music history, music education, and applied music prior to practice teaching or during the final quarter of matriculation at the University. The time and place of these examinations will be announced periodically.

### Applied Music

Applied music is defined as instruction and preparation in voice and the various instruments. Courses are offered in voice, piano, organ, violin, viola, violincello, string, bass, flute, oboe, clarinet, bassoon, saxophone, French horn, cornet (trumpet), trombone, tuba, and the percussion instruments. Each student must declare a major applied area of performance and must concentrate in this area for the equivalent of four years, and must present a senior recital during the senior year. It is expected that each student will make numerous appearances on seminars and student recitals during the freshman, sophomore, and junior years. For all students majoring in some instrument other than piano, it is expected that piano will be the minor performance area. In most instances the choice of the major applied area and curriculum will be governed by the proficiency that the student has achieved prior to entering the University.

For those new students who demonstrate talent but are lacking in formal training, the department offers courses in theory and applied music for no credit, and these courses must be pursued until credit level of proficiency is attained. All students enrolled in theory or applied courses for no credit are probationary students and may be advised to change to another academic curriculum.

### Ensemble

Membership in music ensemble groups is open to all students of the University who qualify for admission and participation. Each music major is required to participate in a major ensemble group for the entire four years of his matriculation. Membership is not limited to one ensemble, but instrumental majors must participate in University Band and Vocal majors must participate in University Choirs. One credit per quarter is offered for each group.

The following ensembles are offered:

University Choir, University Band, Meistersingers, and String Ensemble. These groups are organized to study and perform the standard repertoire for the various combinations of voice or instrument.

### Concerts and Recitals

Organized music groups, small ensemble groups, faculty and student soloists offer concerts and recitals frequently in the University auditorium. These are open to the public without charge, and students are particularly encouraged to attend.

## Lyceum Series

Each year the University Lyceum Series sponsors an Artist Course, bringing to the campus and the community artists and ensembles of national prominence. This series along with the Faculty series provides a full and diversified musical calendar.

### Teacher Education

The essential orientation of the curriculum in music is that of the teacher education program. Opportunities for professional development and for artistic preparation are amply provided for within the general pedagogical framework.

## CURRICULUM IN MUSIC EDUCATION

EDWARD C. LEWIS, *Coordinator*

### CURRICULUM I

#### Public School Endorsement

#### Piano Major

Freshman Year	Quarter			Sophomore Year	Quarter		
	Hours	Credit			Hours	Credit	
<i>Name of Course</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>Name of Course</i>	<i>I</i>	<i>II</i>	<i>III</i>
English 101-2-3.....	3	3	3	Science 121-2-3.....	4	4	4
Social Studies				Music 220-1-2.....	3	3	3
111-2-3.....	3	3	3	Mathematics 200..	3		
Music 120-1-2.....	4	4	4	Music 131.....			3
P. E., AFROTC... 1 1/3	1 1/3	1 1/3	1 1/3	Soc. Std. 114.....	3		
Music 104-5-7.....	1	1	1	Ed 201,			
Choir or Band....	1	1	1	Psy 242-243.....	3	3	3
Music 11a, b, c....	1	1	1	P. E., AFROTC... 1 1/3	1 1/3	1 1/3	1 1/3
Music 191-2-3.....	1	1	1	Choir or Band....	1	1	1
				Music 21a, b, c... 1	1	1	1
	15 1/3	15 1/3	15 1/3		16 1/3	16 1/3	16 1/3

Junior Year	Quarter			Senior Year	Quarter		
	Hours	Credit			Hours	Credit	
<i>Name of Course</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>Name of Course</i>	<i>I</i>	<i>II</i>	<i>III</i>
Music 137-8-9.....	3	3	3	Music 420-21-51.....	3	3	2
English 211-2-3.....	3	3	3	Music 430.....	3		
Ed. 301, Psy 312,				Elective.....		3	
Ed. 387.....	3	3	3	Elective (Music).....			3
Music 108-134-135.....	1	1	1	Health 211-2, Art 133..	3	3	3
Music 320-21.....	3	3		Ed. 371.....		3	
Choir or Band.....	1	1	1	Ed 462, 463, Ed. 472....	3	3	6
Music 31a, b, c....	2	2	2	Choir or Band.....	1	1	1
Mus. 471a, 471b, 304				Music 41a, b.....	2	2	
or 305.....	3	3	3				
	19	19	19		15	18	15

CURRICULUM II

Public School Endorsement

Voice Major

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3	3	3	3	Science 121-2-3	4	4	4
Social Studies 111-2-3	3	3	3	Music 220-1-2	3	3	3
Music 120-1-2	4	4	4	Mathematics 200	3		3
P.E., AFROTC	1 1/3	1 1/3	1 1/3	Music 131		3	
Music 104-5-7	1	1	1	Soc. Stu. 114		3	
Choir	1	1	1	Ed. 201, Psy 242, 243	3	3	3
Music 14a, b, c	2	2	2	P.E. AFROTC	1 1/3	1 1/3	1 1/3
Music 11a, b, c	1	1	1	Choir	1	1	1
				Music 24a, b, c	2	2	2
				Music 21a, b, c	1	1	1
	16 1/3	16 1/3	16 1/3		18 1/3	18 1/3	18 1/3

Junior				Senior Year			
Name of Course	Hours Credit			Name of Course	Hours Credit		
	I	II	III		I	II	III
Music 137-8-9	3	3	3	Music 420-21-51	3	3	2
English 211-2-3	3	3	3	Music 430	3		
Ed. 301, Psy. 312, Ed. 387	3	3	3	Health 211-2, Art 133	3	3	3
Music 108-134-135	1	1	1	Music 428	3		
Music 320-21, Ed 371	3	3	3	Psy 462, 463, Ed. 472	3	3	6
Choir	1	1	1	Choir	1	1	1
Music 34a, b, c	2	2	2	Music 44a, b	2	2	
Mus. 471a, 471b, Mus. 304	3	3	3				
	19	19	19		16	15	12

CURRICULUM III

Instrumental Endorsement

Instrumental Major

Freshman Year				Sophomore Year			
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3	3	3	3	Science 121-2-3	4	4	4
Social Studies 111-2-3	3	3	3	Music 220-1-2	3	3	3
Music 120-1-2	4	4	4	Mathematics 200	3		3
P. E. AFROTC	1 1/3	1 1/3	1 1/3	Music 131		3	
Music 104-5-7	1	1	1	Soc. Studies		3	
Band	1	1	1	Ed. 201, Psy. 242-243	3	3	3
Music 11a, b, c	1	1	1	P. E. AFROTC	1 1/3	1 1/3	1 1/3
Major Applied	2	2	2	Band	1	1	1
				Music, 21a, b, c	1	1	1
				Major Applied	2	2	2
	16 1/3	16 1/3	16 1/3		18 1/3	18 1/3	18 1/3

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Hours Credit		
	I	II	III		I	II	III
Music 137-8-9	3	3	3	Music 420-21-51	3	3	2
English 211-2-3	3	3	3	Music 430	3		
Ed. 301, Psy 312, Ed. 387	3	3	3	Health 211-2	3	3	
Music 108-134-135	1	1	1	Art 133			3
Music 320-21, Ed. 371	3	3	3	Music 428		3	
Band	1	1	1	Psy 462, 463, Ed 472	3	3	6
Mus. 471b, 471c, Music 305	3	3	3	Band	1	1	1
Major Applied	2	2	2	Major Applied	2	2	
	19	19	19		16	15	12

COURSES IN MUSIC

Undergraduate

Applied Music Courses

The laboratory fees, unless otherwise stated, are for each quarter.

10A, B, C. *Beginning Piano*. (0) Must be repeated each quarter until credit level is reached. Such level includes a satisfactory performance for the music staff of some of the easier works of Bach, and other major composers, and the major and minor scales. Two one-half hour periods. Laboratory fee \$7.00.

11A, B, C. *First Year Piano*. (3) Some of the easier works of Bach, Haydn, Mozart, Beethoven, and others whose work are of equivalent technical value together with purely technical materials including all major and minor scales. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

21A, B, C. *Second Year Piano*. (3) Selected works from Bach, and other composers. Prerequisite: Permission from the Office of the Music Department, and Piano 11C. Two one-half hour periods. Laboratory fee \$7.00.

31A, B, C. *Third Year Piano*. (6) A major concerto, and other exacting materials requiring excellent musicianship, skills and techniques are used. Prerequisite: Music 21C. Two one-half hour periods. Laboratory fee \$7.00.

\*41A, B, C. *Fourth Year Piano*. (6) The study of advanced piano materials. Prerequisite: Music 41C. Two one-half hour periods. Laboratory fee \$7.00.

12A, B, C. *First Year Organ*. (6) Pedal studies, major and minor scales, legato studies, little preludes and fugues of Bach, trios by Stainer Rheinberger, and others, and selected books of Guilmant, Mendelssohn and other reputable composers. Prerequisite: The highest non-credit level of piano 10, and permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$20.00.

22A, B, C. *Second Year Organ*. (6) Advanced pedal studies and scales. Prerequisite: Music 12C. Two one-half hour periods. Laboratory fee \$20.00.

32A, B, C. *Third Year Organ*. (6) A continuation of pedal studies and scales in addition to the Toccate and Fugue in D Minor, and other major works, some from modern composers. Prerequisite: Music 22C. Two one-half hour periods. Laboratory fee \$20.00.

\*42A, B, C. *Fourth Year Organ*. (-6) A continuation of Music 32C with special emphasis on representative works from the various schools of composition including 20th Century composers. Two one-half hour periods. Laboratory fee \$20.00.

13A, B, C. *First Year Violin or Viola*. (6) Instruction with standard elementary violin or viola materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour-periods. Laboratory fee \$7.00.

\*Approved for graduate credit.

23A, B, C. *Second Year Violin or Viola.* (6) Instruction with standard elementary violin or viola materials. Prerequisite: Music 13C. Two one-half hours periods. Laboratory fee \$7.00.

33A, B, C. } *Advanced Violin or Viola.* (6) Instruction with standard  
\*43A, B, C. } advanced violin or viola materials. Prerequisite: Music 23C.  
Two one-half hour periods. Laboratory fee \$7.00.

14A, B, C. *First Year Voice.* (6) The study of breath control, and voice placement in tone production. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

24A, B, C. *Second Year Voice.* (6) The study of voice drills in voice placement, intonation, breathing, phrasing, diction, etc. Prerequisite: Music 14C. Two one-half hour periods. Laboratory fee \$7.00.

34A, B, C. } *Third and Fourth Year Voice.* (6) The study of drills in  
\*44A, B, C. } vocal techniques. Prerequisites: Music 24C. Two one-half  
hour periods. Laboratory fee \$7.00.

191-2-3. *Voice Class.* (3) The study of breath control, voice placement, in tone production, intonation and repertoire. Prerequisite: Permission from the Office of the Music Department. Two one-hour periods per week. Laboratory fee \$3.50.

15A, B, C. *First Year Cornet.* (6) Instruction with standard elementary materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

25A, B, C. *Second Year Cornet.* (6) The study of standard intermediate materials. Prerequisite: Music 15C. Two one-half hour periods. Laboratory fee \$7.00.

35A, B, C. } *Third and Fourth Year Advanced Cornet.* (6) Instruction  
\*35A, B, C. } with standard advanced materials. Two one-half hour periods.  
Laboratory fee \$7.00.

16A, B, C. *First Year Trombone.* (6) Instruction with standard elementary materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

26A, B, C. *Second Year Trombone.* (6) The study of standard intermediate materials. Prerequisite: Trombone 16C. Two one-half hour periods. Laboratory fee \$7.00.

36A, B, C. } *Third and Fourth Year Trombone.* (6) Instruction with  
\*46A, B, C. } standard advanced materials. Two one-half hour periods. Lab-  
oratory fee \$7.00.

17A, B, C. *First Year Clarinet.* (6) Instruction with standard elementary materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

27A, B, C. *Second Year Clarinet.* (6) The study of standard intermediate materials. Prerequisite: 17C. Two one-half hour periods. Laboratory fee \$7.00.

37A, B, C. } *Third and Fourth Year Clarinet.* (6) Instruction with stan-  
\*47A, B, C. } dard advanced materials. Two one-half hour periods. Lab-  
oratory fee \$7.00.

18A, B, C. *First Year Flute.* (6) The study of standard elementary materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

28A, B, C. *Second Year Flute.* (6) Instruction with standard intermediate materials. Prerequisite: Flute 18C. Two one-half hour periods. Laboratory fee \$7.00.

38A, B, C. } *Third and Fourth Year Flute.* (6) Individual instruction  
\*48, B, C. } with standard advanced materials. Two one-half hour periods.  
Laboratory fee \$7.00.

19A, B, C. *First Year Saxophone.* (6) The study of standard elementary materials. Prerequisite: Permission from the Office of the Music Department. Two one-half hour periods. Laboratory fee \$7.00.

29A, B, C. *Second Year Saxophone.* (6) The study of standard elementary Materials. Prerequisite: Saxophone 19C. Two one-half hour periods. Laboratory fee \$7.00.

39A, B, C. } *Third and Fourth Year Saxophone.* (6) Instruction with  
\*49A, B, C. } standard advanced materials. Two one-half hour periods.  
Laboratory fee \$7.00.

*Note:* Students receive two hours credit per quarter in the major applied and one hour credit for all other applied music courses.

*University Choir.* (1) The study of a variety of the finest choral literature. Prerequisite: Permission from the Office of the Music Department. Five or more periods.

*University Band.* (1) The study and performance of the finest band literature. (After the football season, the University Band becomes the Concert Band. For membership requirements see Band Director.) Prerequisite: Ability to satisfactorily play an instrument. Five or more periods.

134-5-6. *String Instrument Class.* (3) The study of the fundamentals of bowling, fingering, construction and care of string instruments. Three periods.

104. *Woodwind Class (Clarinet).* (1) Fundamentals of tone production, technic, care, construction, and minor repair. Prerequisite: Permission of the Office of the Music Department. Two periods.

105. *Woodwind Class (Flute).* (1)

106. *Woodwind Class (Saxophone).* (1)

107. *Brass Class (Trombone).* (1) Fundamentals of care, construction, minor repair, and performance.

108. *Brass Class (Cornet).* (1)

109. *Percussion Class.* (1) Fundamentals of care and minor repair; study of technic of performance on most percussion instruments with emphasis on the snare drum. Two periods.

#### Music Education

100. *Piano Class.* (1) An introductory course in piano for students in elementary education. Prerequisite: Recommendation of Elementary Education Department. Three periods.

101-2-3. *Introduction to Public School Music.* (9) An introductory course in music for students in elementary education. Consists of a thorough study in music fundamentals, terminology, scales, keys, rhythms, and sight singing drills and dictation. Prerequisite: Permission from the Office of the Music Department. Three lectures.

471a. *Music Education.* (3) A study of principles, methods, materials, objectives, and procedures for teaching music in elementary schools. Prerequisite: Junior standing in Department of Music. Three lectures.

471b. *Music Education.* (3) A study of principles, methods, materials, objectives, and procedures for teaching music in secondary schools. Prerequisite: Junior standing in Department of Music. Three lectures.

471c. *Instrumental Methods.* (3) A study of methods, philosophies, materials, and objectives for teaching instrumental music from grade four (4) through grade twelve (12). Prerequisite: Junior standing in Department of Music. Three lectures.

304. *Choral Methods and Materials.* (3) A study of the principles and problems of teaching voice, managing and directing choral organizations, and the analysis and evaluation of choral materials. Prerequisite: Permission from the Office of the Music Department. Three lectures.

305. *Conducting Methods and Materials.* (3) A study of the technic of conducting with particular emphasis on the use of the baton, score reading, program planning, and rehearsal procedures. An evaluation of orchestral and

\*Approved for graduate credit.

\*Approved for graduate credit.

other instrumental music suitable for use in secondary schools. Prerequisite: Junior standing in Department of Music. Three lectures.

#### Music History, Literature, and Appreciation

131. *Music Appreciation, History, and Literature.* (3) Emphasis on the development of the student's appreciation for the finest musical literature, and a constant extension of his listening repertoire. Only that history which will serve to make what he hears more meaningful to him is included. Three lectures.

137-8-9. *Music History and Literature.* (9) General information concerning the history of music. Embodies an analytical approach to music history, its growth and development. Prerequisite: Permission from the Office of the Music Department. Three lectures.

#### Theory and Composition

119. *Orientation to Music.* (2) Elementary instruction in basic language of music, scale formation, rhythms, sight singing, melodic dictation. Attention given to practice and study habits for music majors.

120-1-2. *Freshman Theory.* (12) Basic notation, intervals, scales and modes, rhythms, contrapuntal harmony, written and keyboard, sight singing and ear training; harmonic and form analysis. Prerequisite: Pass the basic Theory Test. Three lectures.

220-1-2. *Sophomore Theory.* (9) Aural and written harmony; keyboard harmony; figured bass; counterpoint; sight singing; ear training; analysis. Prerequisite: Music 122. Three lectures.

320-1. *Counterpoint.* (6) A study of the techniques underlying the principles used in writing good melodies and their association without losing independence. Prerequisite: Music 222. Three lectures.

420-1. *Forms and Analysis.* (6) A study of composition in the smaller and larger forms. Prerequisite: Music 321. Three lectures.

\*430. *Orchestration.* (3) A systematic study and application of the techniques for utilizing the capabilities of orchestral and band instruments in Music Composition. Prerequisite: Music 321. Three lectures.

428. *Physics of Music.* (3) Theoretical considerations of sound production and promulgation; the tempered scale, and other scales; the acoustical basis of wind and stringed instruments; analysis of complex tones produced by human voice and certain wind instruments. Prerequisite: Music 222. Three lectures.

433. *Composition.* (3) A study of composition and the application of creative ability along systematic lines in writing original larger forms. Prerequisite: Permission from the Office of the Music Department. Three lectures.

450. *Senior Project.* (3)

451. *Senior Recital.* (2) Credit given only upon successful completion of public senior recital. Prerequisite: Permission of major applied instructor.

#### Art Education

The program is designed for the preparation of students who wish to continue the study of art and art education, and for those prospective teachers who wish to teach art to achieve the necessary competencies for intelligent performance as a teacher of art.

The State requirement for certification in Art is 35 quarter hours: at least 18 quarter hours with emphasis on techniques, 6 quarter hours of art appreciation and 6 quarter hours of understandings in methods and materials. It is suggested that 6 quarter hours of Art history be taken to complete the 36 hours.

A diligent student will manage his program so that he learns as much about Art as he can so that his performance will be worthy and so that he can teach with a degree of security.

\*Approved for graduate credit.

#### Courses in Art and Art Education

133. *Man and Materials.* (3) The course is concerned with the investigation of man's experience with materials in the development of visual and plastic arts and their place in the environment.

102-3. *Art Appreciation.* (6) An opportunity to explore both historic and present day art through reading, through pictures and objects, and to investigate the influence of art on our present day living and thinking.

121-22-23. *Fundamentals of Drawing.* (9) Students work for the understanding of one and two point perspective and the function of line, shape, form, light and shade in composition. Laboratory.

131. *Design Fundamentals.* (3) Study of principles of structural and decorative design, giving opportunity for creative experiment with materials, structural form, and surface decoration.

203. *Lettering and Design.* (3) Students work freely with pens, brushes. Exercises encourage individuality and creativeness.

221-22-23. *Painting in various Media.* (9) The student has the privilege of concentrating in a chosen medium. Emphasis on the study of the environment. Creative composition from inspiration. Laboratory.

241. *Hobby Crafts.* (3) A crafts course giving art experience useful in community activities: recreation centers, camps, vacation Bible schools, Scout programs, and for individuals seeking a hobby in the plastic arts. Processes are simple, direct, modern.

321-22-23. *Painting in Oils.* (3) Creative approach, study of form, color, technique.

301. *Pottery Crafts.* (3) A beginner's course in hand built clay construction in two and three dimensions. Slab and coil methods. Decoration by low relief, incising and colored glazes.

302-3. *Clay Modeling.* (6) Clay sculptures built in two and three dimensions. Traditional methods, and push and squeeze methods produce interesting unobjective forms. Emphasis on individual design in form and decoration. Articles are cast in plaster, or fired and glazed.

401-2-3. *Art History.* (9) Survey courses from early Egyptian through the arts of Mesopotamia, Crete, Greece, Rome, Early Christian and Byzantine times.

450. *Senior Project.* (3) Gives student opportunity to express himself in writing form related to a project of his choice.

471a-71b. *Materials and Methods-Art Education.* (6) Experience in understanding the methods and materials for teaching art-grades 1-12.

#### Courses in Art for Elementary Education Majors

201-2. *Manuscript Writing, and Expression in Two and Three Dimensions.* (6) Develops skill in simple letter forms; upper and lower case letters to facilitate the teaching of reading in the first elementary grades, for chart making and chalk-board work. Aids students in understanding the art productions of children at various levels of growth, and to realize that the child's general growth is tied up with his creative development, and visa-versa.

Students experiment with devices useful in aiding release of the child's creative impulses. Students study examples of children's work for experience in evaluation of art performance at various levels of growth.

#### Course in Art for Business Education Majors

203. *Lettering and Design.* (3)

#### Related Courses in Art for Home Economics Majors

201. *Color and Design.* (3) Good taste as it applies in personal grooming. Problems of color and design as related to the person with the home as a background, i.e., the study of art principles and certain accepted rules governing their

application to personal grooming with regard to size, complexion, personality, function, occasion and other areas of importance.

202. *Color and Design.* (3) Students who have had Related Art 201 may elect 202 for guidance, and experience in further application of art principles.

203. *Costume Design.* (3) Study of historic costumes as a background and inspiration for modern costume. Does not emphasize original designing and drafting although individual ideas in keeping with good taste encouraged. Emphasis placed on the application of design principles to garment selection with reference to the figure: size, form, age, good points, points not so good, function, occasion. Problems of dress of the average wage or below-average wage consumer with suggestions for ways to be well dressed on a limited budget. Prerequisite: Related Art 201.

204. *Costume Design.* (3) Continued experience in color with the use of pigments and colored cloth. Color schemes for various complexions. Experiments with complexion color charts. Guidance in appreciation for and understanding of design principles applied in the creation of the best commercial dress designs. Prerequisite: Related Art 201-203.

421. *House Planning.* (3) Brief study of American contribution to domestic architecture and interior decoration fixtures: panels, stairways, cornices, cabinets. Planning the small house for comfort and convenience. Appreciation for aesthetic qualities in home planning through the understanding of art principles and how to apply them; and fundamentals of blue print reading. Usually offered in the spring and summer quarters.

## DIVISION OF BUSINESS

L. H. SCHUSTER, Ph.D., *Director*

### Objectives

The primary objectives of the Division of Business are: (1) provide training in the methods, techniques, and principles underlying modern business as a foundation for business careers; (2) to provide students with a knowledge and understanding of the changing and developing character of our economic society and the responsibility incumbent upon educated men and women engaged in economic activity; (3) to provide training in those phases of business that concern every member of organized society; and (4) to train students for the teaching of business subjects on the secondary and collegiate levels.

### Organization

The Division of Business offers two curricula: General Business Administration and Business Teacher Education. Special curricula may be followed by students who do not wish to obtain college degrees. A Master of Science and a Master of Education degrees are offered in the department.

The Department of Business sponsors Future Business Leaders of America—an organization open to all students of the department, beginning in the freshman year. Students majoring in business education may become members of Pi Omega Pi, a national scholastic business education fraternity, and the Flash Writer's Transcription Club.

## DEPARTMENT OF BUSINESS ADMINISTRATION

L. H. SCHUSTER, Ph.D., *Head*

The curriculum in Business Administration is offered to those students who are planning for careers in accounting, insurance, finance, marketing, real estate, salesmanship, and other general business pursuits. The courses are designed to prepare students for leadership in our complex economy, as well as for graduate study and professional training in the area of their choice.

## Requirements for the Degree

The Bachelor's degree is offered in business administration. The bachelor's degree is awarded for the attainment of knowledge and skills in the fields of business and related fields demonstrated to the satisfaction of the university.

A flexible program of study must be followed. The nature and extent of this program, in general, depends upon the student's previous training and experience. Normally, one-third is in the field of concentration, one-third in related fields, and one-third general education and electives.

The student must complete at least forty-eight quarter hours in the field of Business Administration, with a major emphasis in accounting, finance, insurance, or marketing, twenty-seven hours of which must be completed in courses on the 300 and 400 level. 197 hours are required for graduation.

A total of 197 hours are required for graduation, of which 72 hours must be completed in the 300 and 400 level courses. A total of 48 hours is required for a major in Business Administration, of which 24 hours must be completed in the 300 and 400 level courses. A total of 36 hours is required for a major of which 18 hours must be completed in the 300 and 400 level courses.

## CURRICULUM FOR MAJORS IN BUSINESS EDUCATION

### Bachelor of Science Degree

Freshman Year Name of Course	Quarter Hours of Credit			Sophomore Year Name of Course	Hours of Credit		
	I	II	III		I	II	III
English 101-2-3	3	3	3	English 211-12-12	3	3	3
Science 121-22-23	4	4	4	Polit. Sci. 221-22-23	3	3	3
Bus. Math. 171-2-3	3	3	3	Econ. Geog. 271-72-73	3	3	3
Business Orient 101-2-3	1	1	1	Accounting 211-12-13	3	3	3
Typing 211-12-13	3	3	3	Economics 201-2-3	3	3	3
Phys. Ed. (Men)	1/3	1/3	1/3	Phys. Ed. (Men)	1/3	1/3	1/3
Phys. Ed. (Women)	1 1/3	1 1/3	1 1/3	Phys. Ed. (Women)	1 1/3	1 1/3	1 1/3
Air Science 151-2-3	1	1	1	Air Science 251-2-3	1	1	1
	15 1/3	15 1/3	15 1/3		16 1/3	16 1/3	16 1/3
	Quarter				Quarter		

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours of Credit		
	I	II	III		I	II	III
Psychology 221-22	3	3		Personnel Adm. 423-24	3	3	
Business English 321	3			Insur. Prin. 433-34		3	3
Accounting 216			3	Money & Banking 420-21	3	3	
Bus. Org. & Mgt. 331-32	3	3		Sr. Project 450	3		
Business Stat. 321-33		3	3	Electives	9	9	12
Business Law 323-24-25	3	3	3				
Marketing 326-27	3	3					
Electives			5				
American Hist. 201-202-203	3	3	3				
	18	18	18		18	18	15

#### Undergraduate Courses

211-12-13. *Elements of Accounting.* (9) A basic course in bookkeeping, accounting theory and practice. A prerequisite to all other courses in accounting. Two one-hour laboratory periods.

311-12. *Intermediate Accounting.* (6) Theory and practice relating to the theory of the various balance sheet accounts, working papers, and statements. Prerequisite: Accounting 213. Two one-hour laboratory periods.

313-14-15. *Cost Accounting.* (9) A study of the principles of manufacturing and distribution cost accounting. Materials, labor, and overhead costs in job order and process cost accounting; determination analysis of costs of distribution; and related problems treated. Prerequisite: Accounting 312.

316. *Administrative Aspects of Accounting.* (3) Designed to aid students who expect to become managers; provide information concerning the meaning of accounting figures, terms, and techniques of analysis of reports; provide applications of these techniques in making managerial decisions and judging performance.

400. *Advanced Accounting Problems.* (3) Theory and problems in advanced topics, including partnership problems, insolvency, estates and trusts and consolidated statements. Prerequisite: Accounting 312.

411-12. *Federal Tax Accounting.* (6) Designed to provide a comprehensive explanation of the Federal tax structure and to provide training in the application of tax principles to specific problems.

413. *Auditing Procedures.* (3) Principles of auditing which include a critical examination of financial statements. The text materials are amplified by special problems. Prerequisite: Advanced status in Accounting.

414. *Accounting Systems.* (3) A study of the problems involved in the design and installation of accounting systems, including systematizing the clerical department of business. Prerequisite: Advanced status in Accounting.

415. *Comptrollership.* (3) A study of the fiscal functions assigned the comptroller in a large enterprise in connection with construction, control and interpretation of accounts for internal use.

321-22. *Business Statistics.* (6) A study of statistical sources and collection of data, the presentation of data in tables, charts, and reports; the computation of ratios and percentages, averages, dispersion and sampling errors. Statistical theory and methods directly applicable to the solution of business and economic problems.

323-24-25. *Business Law.* (9) Fundamental principles of law most frequently involved in business transactions, including contracts, sales, partnerships, master and servant, principal and agent, corporations, negotiable instruments, property, bailments, and common carriers, with the view of enabling businessmen to avoid litigation.

326-27. *Marketing Principles.* (6) A general survey of the marketing structure as it exists and functions. Problems involving marketing procedures, policies, and techniques are considered.

328. *Principles of Retailing.* (3) A basic survey course for students interested in retailing. Special consideration given to store organization, operation, and current distribution problems.

329. *Salesmanship.* (3) A study of the basic principles underlying the sales process and their application to the problems of salesmen. Prerequisite: Psychology 221-22 or registered therein.

331-32. *Business Organization and Management.* (6) A study of the various types of business organizations and management with special emphasis on their financing by means of stock, bonds, and other instruments of finance. The work of promotion, underwriting securities, internal financial management, reorganization and receivership treated.

420-21. *Money and Banking.* (6) Develop a sound understanding of the role of banks in our economy. Specific emphasis on central bank functions such

as: the control of reserves, the supervising of bank operations, controlling the supply of money, and carrying out the fiscal functions of the government.

422. *Corporation Finance.* (3) Corporate organization and control; corporate securities; the management of fixed capital, working capital and income; reserve, surplus, and undivided profits; investment banking and the securities market; failure and reorganization. Prerequisites: 331-32.

423-24. *Personnel Administration.* (6) An examination of the principles and methods of efficient labor management in the maintenance of harmonious relationships between management and employees, personnel organization and procedures, employee relationships.

431-32. *Advertising Principles.* (6) A study of the economics of advertising, the use of research in advertising, analysis of current advertising policy and methods of procedure in selecting appeals and media, writing copy, and constructing layouts. Prerequisites: Marketing 311-12.

433-34. *Principles of Insurance.* (6) Designed to precede advanced work in insurance and to acquaint the non-specialist with the economic and social services of the institution of insurance.

435-36. *Life Insurance.* (6) A consideration of the various types of life insurance policies and companies; personal and business uses of insurance; rates; reserves, surrender value. Prerequisites: Insurance 433-34.

437. *Real Estate.* (3) Land economics; real estate contracts, deeds, and mortgages, value of leases nad leaseholds; valuation of real estate; questions of title and title insurance; brokerage; Tennessee law.

450. *Senior Project.* (3)

#### DEPARTMENT OF BUSINESS EDUCATION

MARY CLAY PINKSTON, Ed.D., *Head*

The program of instruction in the curriculum of Business Education prepares teachers of business subjects and professional secretaries. Two degree programs of instruction are offered: program of work leading to the Bachelor of Science degree in Teacher Education; and a program of work leading to the Bachelor of Science degree in Office Administration (Secretarial Science).

The Department is a member of the National Association of Business Teacher Education. Membership in Beta Psi Chapter of Pi Omega Pi, national honorary scholastic fraternity in Business Education, is available to all students in Business Education on the basis of superior attainment in the first two years of college work.

#### Requirements for Undergraduate Degree

A total of 197 hours is required for graduation, of which 70 hours must be completed in the 300 and 400 level courses. A minimum of 45 hours is required for a major in Business Education and/or Office Administration, of which 30 hours must be completed in the 300 and 400 level courses.

Students following the program of study for Office Administration will obtain a 45-quarter hour minor in English and 36-quarter hour minor in Business Administration. Students following the program of study for Business Education may obtain state certification in business subjects.

#### Certification in Tennessee

There are 197 quarter hours required for graduation in the Division of Business. Students majoring in either department qualify for certification in one of several of the 13 subjects listed as business, provided that they follow the prescribed curriculum for General Education, Professional Education, and the specific hours required for each subject listed below.

The applicant shall offer a minimum of 27 quarter hours, including 18 quarter hours in introduction to business, accounting, typewriting, business law, economics, business mathematics and be endorsed in General Business.

An applicant endorsed in General Business may secure additional single subject endorsements for the following subjects by the completion of the hours indicated including quarter hours completed for endorsement in General Business:

Bookkeeping .....	15	quarter hours
Typewriting .....	9	quarter hours including 3 hours of advanced typewriting
Shorthand .....	9	quarter hours including 3 hours of advanced shorthand
Business Law .....	9	quarter hours
Economics .....	18	quarter hours including principles and related subjects in that field
Salesmanship .....	9	quarter hours in marketing
Secretarial Practice .....	3	quarter hours of office practice plus certification in shorthand and typewriting
Business Machines .....	3	quarter hours
Business English .....	3	quarter hours
Business Arithmetic .....	9	quarter hours (6 in mathematics and 3 in business mathematics, or 9 in business mathematics)
Office or Clerical Practice .....	3	quarter hours in office, secretarial or clerical practice
Consumer Education .....	3	quarter hours in consumer economics or consumer education

Students desiring certification in other states should check the respective state bulletins in the division office.

#### DESCRIPTION OF PLANS FOR SUPERVISED STUDENT TEACHING

In the senior year, students are required to register in BE 472, Student Teaching in Business Subjects for one quarter (9 hours credit) and OA 402-403, Office Internship (6 hours credit), totaling 15 quarter hours credit, the equivalent to a full load. Students must spend a total of 240 clock hours in actual office experience.

During this quarter, prospective business teachers spend six weeks at an off-campus student teaching center, and six weeks in one of the large cities offering opportunity for employment under our training organization.

Off-campus student teaching centers are selected on the following basis:

1. The High School must offer business subjects (at least two or more).
2. The High School must be accredited by the State.
3. There must be a full-time business education teacher with the following qualifications:
  - a. At least two years teaching experience
  - b. Holds the Bachelor's degree in Business Education
  - c. Cooperative attitude with the training program

Offices selected for Office Internship are provided as follows:

1. Those offices requiring the services of a full-time secretary.
2. Offices furnishing minimum wages.
3. Offices with necessary and up-to-date equipment.
4. Offices with employers willing to cooperate with our training program.

#### Minor

The Division of Business offers a minor to students in other divisions or departments of the University. Thirty-six (36) quarter hours in Business Education and Office Administration courses are required for the minor. The minor may be in Secretarial Training or Teacher Education. Advisers in the Division should be consulted early in the four-year college period concerning a course of study.

#### Bachelor of Science Degree Curriculum in Business Education (Teacher Training)

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Eng. 101-2-3.....	3	3	3	Eng. 211-2-3.....	3	3	3
Sci. 121-2-3.....	4	4	4	Social Studies 111, 112, 113....	3	3	3
Math. 171-2-200 ..	3	3	3	Econ. 211-2-3....	3	3	3
Mus. 131, Art. 133, *Hlth. 151 .....	3	3	3	Psych. 221-42-43...	3	3	3
Typing .....	3	3	3	OA 204-5-6.....	3	3	3
BE 101-2-3.....	1	1	1	Phy. Ed.....	11/3	11/3	11/3
Phy. Ed. 11-12-13.	1 1/3	1 1/3	1 1/3				
	18 1/3	18 1/3	18 1/3		16 1/3	16 1/3	16 1/3
Junior Year Name of Course				Senior Year Name of Course			
Hours Credit				Hours Credit			
I	II	III	I	II	III		
OA 304-5-6.....	3	3	3	BE 471A, B, C.....	6		
Eng. 321-22, OA 201.....	3	3	3	OA 401-2-3.....	3	6	
BL 311-2-3.....	3	3	3	BE 472, 413.....		9 3	
Acct. 211-2-3.....	3	3	3	BA 331-2, 450.....	3	3 3	
Ed. 201-301, BE 400.....	3	3	3	Psych. 463, 312.....	3	3	
Soc. Stud. 114, OA 222				Statistics .....		3	
Ec. Geo. 272.....	3	3	3	Electives .....	3	6	
	18	18	18		18	18 18	

#### Suggested Electives—18 hours

- OA 434—Office Management
- Ec. 312—Money and Banking
- Additional Accounting
- Additional Office Machines
- Additional English

#### Short Programs of Training

Short programs of training leading to a certificate may be followed by students who do not wish to matriculate for a college degree. Academic credit will be granted for these courses. This training is designed on a two year terminal basis, leading to a certificate of proficiency in one of the following curricula:

- A—Secretarial Science
- B—General Clerical and Office Machines
- C—Clerk-Typist

#### DESCRIPTION OF COURSES

##### Business Education

**BE 101-2-3. Guidance and Orientation to Business.** (1) A guidance, business and library orientation course for freshmen and new students. Includes orientation to the University, to the area of business, and survey of library resources and techniques.

**\*\*BE 40. Principles of Business Education.** (3) A study of the basic principles and trends in business education. Topics include the purpose and relationships of business education, curriculum evaluation and current problems in the field.

\*Three additional hours in Health are required of men.  
\*\*Approved for graduate credit.

BE 471A. *Methods of Teaching Typewriting.* ( $\frac{2}{3}$ ) Methods and materials in teaching typewriting. (Pre-requisite, BE 400, courses in typewriting and all education courses). Seniors only. See requirements for student teaching.

BE 471B. *Methods of Teaching Shorthand.* ( $\frac{2}{3}$ ) Methods and materials of teaching Gregg Shorthand and transcription. (Pre-requisites: BE 400, shorthand courses, and all other education courses). Seniors only.

BE 471C. *Teaching the Social Business Subjects.* ( $\frac{2}{3}$ ) Methods of classroom procedure in the teaching of general business subjects, business law, business organization, elementary economics, bookkeeping, and other business subjects.

\*BE 413. *Curriculum Construction in Business Education.* (3) Aims, principles, practices, and problems involved in the construction of business curricula for the various types of educational institutions in which business subjects are taught.

BE 414. *Teaching of Bookkeeping and Business Arithmetic.* (3) Methods of teaching and classroom procedures in bookkeeping, accounting, and business arithmetic on the secondary level.

BE 450. *Senior Project Writing.* (3) Designed to aid the senior student in writing the project required for graduation.

BE 472. *Observation and Practice Teaching in Shorthand and Typewriting.* (9) Student teaching in the field in an accredited high school, in shorthand, typewriting, and other business subjects. (Prerequisite: methods courses).

BE 473. *Observation and Practice Teaching in Social and General Business Subjects.* (6) Students teaching in an accredited high school in bookkeeping, and/or accounting, and/or business arithmetic, general business subjects which may include: economics, business law, general business, business organization, and other business subjects.

#### GRADUATE CURRICULUM IN BUSINESS EDUCATION

##### Requirements for Graduate Degree

The graduate curriculum in Business Education, leading to the Master of Science degree or Master of Education degree, is designed to give instruction in the improvement of teaching in business subjects, to offer opportunity for guided research in experimental problems, and to develop leaders in Business Education throughout the state and nation. The program contains courses primarily to train business teachers in secondary schools.

The distribution of the 45 minimum required hours in business education for the *Master of Science* degree is as follows:

	<i>Hours</i>
Business Education courses.....	15
Core Education courses .....	15
Business Adm. & Economics .....	15
(minor or cognate)	
<b>Total .....</b>	<b>45</b>

The distribution of the 48 minimum required hours for the Master of Education degree is as follows:

Business Education courses .....	18-21
(Six of which are seminar courses B. E. 601-602)	
Core Education courses .....	15
Cognate or minor .....	12-15
<b>Total .....</b>	<b>48</b>

\*Approved for graduate credit.

A student must have completed at least 45 quarter hours of undergraduate work in Business with not less than a 2.50 average. A student pursuing this Curriculum must have the following undergraduate courses or equivalents:\*

Shorthand .....	9 quarter hours
Typewriting .....	9 quarter hours
Methods of Teaching.....	9 quarter hours
Student Teaching (or teaching experience).....	6 quarter hours
Principles of Business Education.....	3 quarter hours
Principles of Economics .....	9 quarter hours

\*Note: Equivalent is interpreted to mean teacher certification in the area.

##### Course Descriptions

###### Courses for Undergraduate and Graduate Credits\*

- BE 400. *Principles of Business Education.* (3)  
 BE 413. *Curriculum Construction in Business Education.* (3)

###### Courses for Graduate Credit Only

BE 504. *Teacher Training in Business Education.* (3) The improvement of teacher training programs for Business Education: recent trends; significant problems; suggested training patterns, and teacher aids and materials.

BE 512. *Research in Business Education.* (3) Study of significant research investigations in commercial education other than tests. Includes surveys, job analysis method investigations, and criteria of good research.

BE 514. *Special Experimental Problems in Business Education.* (3) Designed for students who wish to do a special research problem of a classroom nature in addition to the thesis.

BE 522. *Tests and Measurements in Business Education.* (3) Study of recent tests in commercial education; achievement, instructional predictive, and diagnostic. Evaluation and rating of tests; construction of objective tests.

BE 524. *The Administration and Supervision of Business Education.* (3) Deals with administration and supervisory problems; departmental organization; pupil records; rendering service to administrative officers and other school departments; guidance in business education; tests and measurements; placement and follow-up; equipment; in-service training of teachers; new materials; current publications; state and national testing programs.

#### DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION

LUA S. BARTLEY, Ph.D., *Head*

The undergraduate curriculum in the Department of Health and Physical Education is designed to serve all students in the University by contributing to their health, organic vigor, and good mental and physical habits. The department aims (1) to provide incentives for students to engage in some physical activities as a balance to the demands of college life; (2) to provide opportunities for students to develop a reasonable degree of skill in a variety of leisure-time activities both for immediate and later use; (3) to offer opportunities for worthwhile social contacts in the activities of the service program, in intramural activities, and in intercollegiate athletics; and (4) to prepare prospective teachers in the field of health education, physical education, and athletic coaching and to train leaders in the field of recreation.

A minimum total of 192 quarter hours is required for graduation with a major in health and physical education of which 66 quarter hours must be on the 300-400 levels. Students who qualify for the bachelor's degree with a major in this department and plan to teach on the secondary school level must earn

\*See Undergraduate course description.

61 quarter hours in the General Education Curriculum and 36 quarter hours in Core Professional Education as outlined and prescribed by the University.

A *major in health and physical education* requires sixty-six (66) quarter hours distributed as follows: thirty-six (36) quarter hours in physical education theory; eighteen (18) quarter hours in health education; and twelve (12) quarter hours in physical education fundamentals and techniques. Of the sixty-six (66) quarter hours thirty-six (36) quarter hours must be in courses numbered in the 300 and 400 series.

A *minor in health education* requires thirty-three (33) quarter hours as outlined. A *minor in physical education* requires thirty-six (36) quarter hours as outlined.

An applicant for *certification in health and physical education* must complete a total of thirty-six (36) quarter hours of which eighteen (18) quarter hours are in health education and eighteen (18) quarter hours are in physical education as outlined.

### THE PHYSICAL EDUCATION SERVICE PROGRAM

All freshman and sophomore men are required to take two hours of physical education activity each week until six quarters of work have been completed. All freshman and sophomore women are required to take three hours of physical education activity each week until six quarters of work have been completed. A student is not admitted to the upper division of the University until he has fulfilled his physical education requirements. Students whose physical conditions do not permit them to pursue the regular activity courses must take courses in "adapted physical education." These students must secure an admit through the University Physician following a health examination.

Required Courses for All Freshman Students:	Credit	
	Men	Women
P.E. 11 Body Conditioning and Group Games.....	1/3	1 1/3
P.E. 12 Elementary Swimming.....	1/3	1 1/3
P.E. 13 Volleyball.....	1/3	1 1/3

#### Required Courses for All Sophomore Students—Select any three:

P.E. 21 Basketball.....	1/3	1 1/3
P.E. 22 Folk and Square Dancing.....	1/3	1 1/3
P.E. 23 Soccer and Speedball.....	1/3	1 1/3
P.E. 26 Tennis.....	1/3	1 1/3
P.E. 27 Clog and Tap Dancing.....	1/3	1 1/3
P.E. 28 Modern Dance.....	1/3	1 1/3
P.E. 29 Softball.....	1/3	1 1/3
P.E. 30 Touch Football.....	1/3	1 1/3
P.E. 31 Archery.....	1/3	1 1/3
P.E. 32 Badminton and Deck Tennis.....	1/3	1 1/3
P.E. 33 Boxing.....	1/3	1 1/3
P.E. 34 Track and Field.....	1/3	1 1/3
P.E. 35 Wrestling.....	1/3	1 1/3
P.E. 36 Field Hockey.....	1/3	1 1/3
P.E. 38 Bowling.....	1/3	1 1/3
P.E. 39 Handball and Shuffleboard.....	1/3	1 1/3
P.E. 41 Golf.....	1/3	1 1/3
P.E. 42 Social Dancing.....	1/3	1 1/3
P.E. 91-96 (incl.) Individually—Adapted Physical Education.....	1 1/3	1 1/3

**Uniform Regulations.**—Students enrolled in physical education activity courses are required to provide themselves with the following apparels to be secured through the channel set up by the University:

#### Women

One regulation gymnasium suit.....	\$ 4.00
One pair of socks.....	.50
One pair of gymnasium shoes.....	3.50

One swimming suit.....	3.00
One bathing cap.....	1.00
<b>Total</b> .....	<b>\$12.00</b>

#### Men

One white "T" shirt.....	\$ 1.00
One pair of blue shorts.....	1.50
One pair of socks.....	.50
One pair of gymnasium shoes.....	4.00
One pair of swimming trunks.....	2.50
One athletic supporter.....	.75
<b>Total</b> .....	<b>\$10.25</b>

These prices are subject to change. Uniform regulations for elected courses as bowling, dancing, and golf are governed by the activity (for example: Leotards \$4.25, Bowling shoes \$4.95).

*Courses Required for Health Instruction as a Minor.* In addition to certain prescribed courses, a minor in health education must include 33 quarter hours of work as follows.

Course	Credit
Health 151 Personal Hygiene.....	3
Health 211 Health Examination.....	3
Health 212 School Hygiene.....	3
Health 213 Health Instruction.....	3
Health 301 Community Hygiene and Sanitation.....	3
Health 302 First Aid and Care of Injuries.....	3
Health 304 Family Health.....	3
Nutrition 212 Nutrition for Teachers.....	3
HPE 401 Seminar in Health and Physical Educ.....	3
HPE 402 Organization and Administration of Health and Physical Education.....	3
HPE 403 Individual Physical Education for Handicapped Students.....	3
<b>Total</b> .....	<b>33</b>

#### Courses Required for Certification in the Area of Health Instruction

Course	Credit
Health 151 Personal Hygiene.....	3
Health 211 Health Examination.....	3
Health 212 School Hygiene.....	3
Health 213 Health Instruction.....	3
Nutrition 212 Nutrition for Teachers.....	3
Health 301 Community Hygiene and Sanitation.....	3
Health 302 First Aid and Care of Injuries.....	3
Health 304 Family Health.....	3
<b>Total</b> .....	<b>24</b>

#### Courses in Health Education

##### Undergraduate

111. *Orientation in Health Education.* (2) A broad overview of the field of health education and its contributions to healthful living. Learning experiences in health provided to orient the student to the relationships which exist among the home, school, and community. The role of the health education teacher in helping the school to realize the broad objectives of education emphasized. Opportunities for service in the recognized areas of health education surveyed in addition to training requisites. Required of all majors in health and physical education.

151. *Personal Hygiene.* (3) Emphasis placed on positive health through a consideration of various conditions which affect health. A study of the care of the various systems of the body. Discussions center around food and nutrition; recreation and rest; care of the feet, hair, and skin; clothing; fads; and disease prevention. An elective for students fulfilling the 60-hour core curriculum in general education.

211. *Health Examination.* (3) Designed to give a general knowledge of those procedures set up to determine the health status of the child and to relate ways and means of enlisting the cooperation of pupils, teachers, and parents in health protection. Required of all majors in health and physical education.

212. *Nutrition for Teachers.* (3) See Curriculum of Foods and Nutrition for description. Required of all majors in health and physical education.

212. *School Hygiene.* (3) Concerned with giving general information concerning the total environment in which the child lives while at school. Stress placed on classroom conditions that are conducive to healthful living and the part the teacher, pupil, and janitor play in maintaining a healthful situation. Required of all majors in health and physical education.

213. *Health Instruction.* (3) Emphasis placed on a knowledge of child nature, sources of health information and materials, and ways of gathering such information. Suggestions made regarding techniques and procedures for discovering health needs, with special stress on practice in methods of planning, preparing, and presenting instructional units. Required of all majors in health and physical education.

301. *Community Hygiene and Sanitation.* (3) Designed to acquaint students and teachers with practices and procedures in controlling the environment, especially such practices as are now used in the control of communicable diseases, food, water, waste materials, and other sanitation problems arising in suburban areas. Various methods of ventilating, heating, and lighting in their relationships to health stressed. An elective for students fulfilling the 60-hour core curriculum in general education. Required of majors.

302. *First Aid and Care of Injuries.* (3) Planned for students, teachers, and athletic coaches who often are faced with common emergencies that may arise in the home, school, and gymnasium or on the athletic field and playground. Special emphasis placed on safety procedures to prevent common accidents that arise in these areas. Major consideration given to demonstration and practice of general first aid care of emergencies with specific stress placed on bandaging, the controlling of bleeding, administering artificial respiration, and the treatment of strains, bruises, sprains, wounds, and shocks. A Red Cross certificate is given for successful completion of the course. Required of all majors in health education and physical education.

304. *Family Health.* (3) Aims to acquaint the student with the important individual, family, and community factors essential to healthful living. The significance of heredity, nutrition, and housing in effective family living emphasized. Stress placed upon the provision and use of health services for material and child care, and for the prevention of illness. The mental, physical, and emotional aspects of family health also considered. Prerequisites: Nine quarter hours in health education. Required of all majors in health and physical education.

401. *Seminar in Health and Physical Education.* (3) Designed to acquaint the prospective teacher with changing trends in health education and in physical education as related to present educational practices. Conducted on a problem-project basis. Required of all majors in health and physical education and minors in health education or physical education. Prerequisites: Twenty-one quarter hours in health education and physical education courses.

402. *Organization and Administration of Health and Physical Education.* (3) Considers the philosophies, policies, procedures, and financing of school health services and of the physical education program. Effective approaches are discussed for setting up a program and initiating it in relation to the entire

curriculum of the school and community needs. Includes utilization and care of facilities and equipment, scheduling of classes, teaching loads, classification of pupils, selection of content, record keeping, and evaluation. Required of all majors in health and physical education and minors in health education or physical education. Prerequisite: Twenty-one quarter hours in health education and physical education courses.

403. *Individual Physical Education for Handicapped Students.* (3) A study of the types of cases requiring modified physical education activity with instruction in specific activities for each type. Class work is organized on a laboratory basis to provide practical experience in conducting the program. Required of majors in health and physical education and minors in health education or physical education. Prerequisite: Health Education 302 and twenty-one quarter hours in health and physical education courses.

CURRICULUM FOR BACHELOR OF SCIENCE WITH A MAJOR IN HEALTH AND PHYSICAL EDUCATION

Freshman Year				Sophomore Year			
Name of Course	Hours of Credit			Name of Course	Hours of Credit		
	I	II	III		I	II	III
English 101, 102, 103..	3	3	3	Literature 211, 212, 213	3	3	3
Social Studies 111, 112, 113 .....	3	3	3	Social Studies 114.....	3		
Biology 101, 102, 103..	4	4	4	Zoology 202, 203 .....		4	4
Health 151 .....				Health 211, 212, 213....	3	3	3
Art 133 .....		3		Mathematics 200 .....	3		
Music 131 .....			3	Education 201 .....	3		
HPER Orientation 111, 112, 113.....	2	2	2	Psychology 242, 243....		3	3
Required P.E. (W) 11, 12, 13.....	1 1/3	1 1/3	1 1/3	Nutrition 212 .....		3	
Required P.E. (Men) 11, 12, 13....	1/3	1/3	1/3	Physical Educ. 243....			3
Air Science 151, 152, 153 .....	1	1	1	Physical Educ. 103, 202 .....	2	1	
				Required P.E. (W)....	1 1/3	1 1/3	1 1/3
				Required P.E. (Men)..	1/3	1/3	1/3
				Air Science 251, 252, 253 .....	1	1	1
	16 1/3	16 1/3	16 1/3		18 1/3	18 1/3	18 1/3

  

Junior Year				Senior Year			
Name of Course	Hours Credit			Name of Course	Hours of Credit		
	I	II	III		I	II	III
Education 301, 371, 387.	3	3	3	Educa. 472, 462 .....	6	3	
Psychology 312 or Phys. Educ. 331.....	3			Psychology 463 .....			3
Phys. Educ. 311, 312, 333 .....	3	3	3	Phys. Educ. 421, 422, 323 or 434.....	2		2
HPE 471 .....			3	HPE 450 .....		3	
Phys. Educ. (Fund & Tech) .....	2	2	2	HPE 401, 402, 403....	3	3	3
Minor or Electives....	3	6	3	Phys. Educ. (Fund & Tech).....	2	2	2
	17	17	17	Minor of Electives....	3	3	3

SUMMARY OF REQUIREMENTS FOR HEALTH AND PHYSICAL EDUCATION MAJORS

Area	Quarter Hours
General Education .....	61
Core Professional .....	36
Major: Health and Physical Education.....	66
Zoology 202, 203.....	8
Minor and/or Electives .....	21
Total .....	192

		Quarter Hours
Sophomore:	Health 211, 212, 213 Physical Education 103*, 202*, 221*, 243.....	17
Junior:	Health 301, 302, 304 Physical Education 311, 312, 333, 471 Fundamentals and Techniques 6 hrs.....	27
Senior:	HPE 401, 402, 403 Physical Education 421 or 422/423/434, 450 Fundamentals and Techniques 6 hrs.....	22
Total .....		66

A minimum of twelve (12) quarter hours is required in fundamentals and techniques from the three groups as outlined below in addition to PE 103 Conditioning, Apparatus, Stunts and Tumbling and PE 202 Intermediate Swimming.

GROUP I INDIVIDUAL AND DUAL SPORTS (any four)..... 4			
231	Archery	236	Golf
233	Tennis	235	Badminton
234	Track and Field	237	Handball and Shuffleboard
		239	Bowling
GROUP II TEAM SPORTS (any four)..... 4			
101M	Football	203	Volleyball and Deck Tennis
101W	Field Hockey	212	Basketball
201	Soccer and Speedball	213	Softball
GROUP III RHYTHMS .....			
211	Modern Dance	223	Modern Dance Composition
*221	Folk Rhythms	240	Social Dancing
222	Tap Rhythms		

Courses Required for Physical Education as a Minor: Thirty-six (36) quarter hours.

Course	Credit
Physical Education 103 Conditioning, Apparatus, Stunts and Tumbling .....	2
Physical Education 202 Intermediate Swimming .....	1
Physical Education 221 Folk Rhythms .....	2
Physical Education 243 Play and Games for Elementary Schools.....	3
Physical Education 333 Principles and Philosophy.....	3
Physical Education 421 Athletic Coaching and Officiating—Football	
or 422 Athletic Coaching and Officiating—Basketball	2
Physical Education 471 Methods in Physical Education.....	3
Health 302 First Aid and Care of Injuries.....	3
Health and Physical Educ. 402 Organization and Administration of Health and Physical Education.....	3
Health and Physical Educ. 403 Individual Physical Education for Handicapped Students.....	3
Electives from Rhythmic Activities.....	2
Physical Education 211 Fundamentals and Techniques—Modern Dance	
Physical Education 222 Tap Rhythms	
Physical Education 223 Modern Dance Composition	
Physical Education 240 Social Dancing	
Electives from Team Sports.....	4

\*Specifically required.

Physical Education 101M	Fundamentals and Techniques—Football or 101W Fundamentals and Techniques—Field Hockey	
Physical Education 201	Fundamentals and Techniques—Soccer and Speedball	
Physical Education 203	Fundamentals and Techniques—Volleyball and Deck Tennis	
Physical Education 212	Fundamentals and Techniques—Basketball	
Physical Education 213	Fundamentals and Techniques—Softball	
	Electives from Individual and Dual Sports.....	5
Physical Education 231	Fundamentals and Techniques—Archery	
Physical Education 233	Fundamentals and Techniques—Tennis	
Physical Education 234	Fundamentals and Techniques—Track and Field	
Physical Education 235	Fundamentals and Techniques—Badminton	
Physical Education 236	Fundamentals and Techniques—Golf	
Physical Education 237	Fundamentals and Techniques—Handball and Shuffleboard	
Physical Education 239	Fundamentals and Techniques—Bowling	
Physical Education 241	Fundamentals and Techniques—Boxing	
Physical Education 242	Fundamentals and Techniques—Wrestling	
Total .....		36

Courses Required for Certification in the Area of Health and Physical Education: Eighteen (18) quarter hours in Health Education and Eighteen (18) quarter hours in Physical Education.

Course	Credit
Nutrition 212 Nutrition for Teachers .....	3
Health 212 School Hygiene .....	3
Health 213 Health Instruction .....	3
Health 301 Community Hygiene and Sanitation.....	3
Health 302 First Aid and Care of Injuries.....	3
Health 304 Family Health .....	3
18	

Physical Education 103	Conditioning, Apparatus, Stunts and Tumbling .....	2
Physical Education 202	Intermediate Swimming .....	1
Physical Education 243	Play and Games for Elementary Schools.....	3
Health and Physical Educ. 403	Individual Physical Education for Handicapped Students .....	3
Electives from Rhythmic Activities one course:		
Physical Education 221	Folk Rhythms or	
Physical Education 222	Tap Rhythms.....	2
Electives from Team Sports four courses:.....		
Physical Education 101M	Fundamentals and Techniques—Football or	
	101W Fundamentals and Techniques—Field Hockey	
Physical Education 201	Fundamentals and Techniques—Soccer and Speedball	
Physical Education 203	Fundamentals and Techniques—Volleyball and Deck Tennis	
Physical Education 212	Fundamentals and Techniques—Basketball	
Physical Education 213	Fundamentals and Techniques—Softball	
	Electives from Individual and Dual Sports three courses:.....	3
Physical Education 231	Fundamentals and Techniques—Archery	
Physical Education 233	Fundamentals and Techniques—Tennis	
Physical Education 234	Fundamentals and Techniques—Track and Field	

Physical Education 235	Fundamentals and Techniques—Badminton
Physical Education 236	Fundamentals and Techniques—Golf
Physical Education 237	Fundamentals and Techniques— Handball and Shuffleboard

18

Total ..... 36

Courses in Physical Education

Undergraduate

Courses numbered in the 100's and 200's include theoretical and practical work and are designed for majors in health education, physical education and in recreation only.

101M. *Fundamentals and Techniques in Football.* (1) Required of men majors.

101W. *Fundamentals and Techniques in Field Hockey.* (1) An elective.

102. *Fundamentals and Techniques in Swimming.* (1) Required of majors.

103. *Conditioning, Apparatus Work, Stunts and Tumbling.* (2) Required of majors.

112. *Orientation in Physical Education.* (2) General introduction to physical education including a brief history, modern trends, professional organizations, and opportunities in the field. Acquaints the freshman student with the nature and content of course offerings of the department. Required of majors in health education, physical education, and recreation.

113. *Orientation in Recreation.* (2) An introductory survey of the field of recreation. Aims to give the student general information about the field of recreation and to emphasize the duties and responsibilities of all recreation personnel. Also attempts to acquaint the student with knowledge, skills, and techniques needed by recreation personnel, and the job opportunities for those successfully completing the recreation curriculum. Required of all majors in health and physical education.

201. *Fundamentals and Techniques in Soccer and Speedball.* (1) An elective for majors.

202. *Intermediate Swimming.* (1) Instruction in the fundamental arm and leg stroke techniques, plain diving, and elementary forms of rescue leading to Red Cross Certification. Required of majors and those seeking certification. Prerequisite: Ability to swim 60 feet.

203 *Fundamentals and Techniques in Volleyball and Deck Tennis.* (1) An elective for majors.

211. *Fundamentals and Techniques in Modern Dance.* (1) An elective for majors.

212. *Fundamentals and Techniques in Basketball.* (1) An elective for majors.

213. *Fundamentals and Techniques in Softball.* (1) An elective for majors.

221. *Folk Rhythms.* (2) Dances that are peculiar to foreign countries such as Hungary, Germany, Sweden, Russia, and England are taught with emphasis upon the relationship of movements to custom and habits of each particular country. Opportunity for participating in mixers, rounds, and square dances with stress on the western cowboy type suitable for use at the upper elementary and secondary school levels. Required of majors.

222. *Tap Rhythms.* (2) Materials included which serve as a functional basis both for in-school and out-of-school activities. Modern music used to

develop routine in slow and fast fox trot and waltz-time. An elective for majors in physical education.

223. *Modern Dance Composition.* (2) Experimentation in applying the basic laws of movement to contemporary dance and fundamental principles governing the development of dance movement into an art form for high school and college levels. An elective for majors. Prerequisite: P.E. 211.

231. *Fundamentals and Techniques in Archery.* (1) An elective for majors in physical education.

232. *Advanced Swimming and Life Saving.* (1) A professional course for training teachers. Practice provided for all coordinate styles of swimming, instruction in life saving and water safety skills, and in techniques leading to the American Red Cross Senior Life Saving and Water Safety Certificate. An elective. Prerequisite: P.E. 202 or equivalent.

233. *Fundamentals and Techniques in Tennis.* (1) An elective for majors.

234. *Fundamentals and Techniques in Track and Field.* (1) An elective for majors.

235. *Fundamentals and Techniques in Badminton.* (1) An elective for majors.

236. *Fundamentals and Techniques in Golf.* (1) An elective for majors.

237. *Fundamentals and Techniques in Handball and Shuffleboard.* (1) An elective for majors.

239. *Fundamentals and Techniques in Bowling.* (1) An elective for majors.

240. *Social Dancing.* (1) An elective for majors.

241. *Fundamentals and Techniques in Boxing.* (1) An elective for men majors.

242. *Fundamentals and Techniques in Wrestling.* (1) An elective for men majors.

243. *Play and Games for Elementary Schools.* Formerly P.E. 401. (3) Acquaints the student with a knowledge of the theory and practice of rhythmic activities, mimetic activities, hunting games, story plays, games, sports, athletic games, and other activities as they are related to the elementary school. Considers and explains different methods of teaching these activities at various age and grade levels. Provides a careful study of some factors that make up a well rounded physical education program in the elementary schools including objectives of the program, organization of the program, and activities of the program. Discussions of play areas, equipment, and supplies. Required of majors and minors in physical education.

253. *Principles of Recreation.* (3) Designed to acquaint the student with the fundamentals of recreation and the techniques for organizing and promoting leisure-time activities for home, school, and community. Aims to develop a philosophy of recreation consistent with the aims and objectives of education. An elective.

311. *General Anatomy.* (3) Elementary course in gross anatomy designed to offer the student in health education, physical education, and recreation an opportunity to acquire a general knowledge of the gross structure of the human body. Required of all majors.

312. *Kinesiology.* (3) A study of the bones, joints, ligaments, and muscles and their functions in the various movements involved in games, sports, and other physical education activities. Stresses ways of incorporating health education and physical education. Required of majors in physical education. Prerequisite: P.E. 311.

331. *Measurement and Education in Physical Education.* (3) Acquaints the student with tests available in physical education. Deals with the theory, application, and administration of tests for use in evaluating the content and methods, measuring students' achievements, and grading. An elective.

\*333. *Principles and Philosophy.* (3) An application of anatomy, physiology, psychology, and sociology to physical education methods and procedures. Required of majors in physical education. Prerequisites: Educ. 201, Psych. 242, and 243.

353. *Playground Management and Supervision.* (3) Proposes to equip the student to manage and supervise playgrounds. Emphasizes program planning, current trends in principles, philosophy, skills, and techniques in playground management and supervision. Required of majors in recreation.

381. *Organization and Administration of Intramural Activities.* (3) Lectures, discussions, and projects dealing with finance, equipment, types of tournaments, schedules, policies, and officiating. An elective.

383. *History of Physical Education.* (3) The evolution of the relationship of physical education to education and to national life and ideals during various historical periods. An elective.

401. *Seminar in Health and Physical Education.* (3) Designed to acquaint the prospective teacher with changing trends in health education and in physical education as related to present educational practices. Conducted on a problem-project basis. Required of all majors in health and physical education and minors in health education or physical education. Prerequisites: Twenty-one quarter hours in health education and physical education courses.

402. *Organization and Administration of Health and Physical Education.* (3) Considers the philosophies, policies, procedures, and financing of school health services and of the physical education program. Effective approaches are discussed for setting up a program and initiating it in relation to the entire curriculum of the school and community needs. Includes utilization and care of facilities and equipment, scheduling of classes, teaching loads, classification of pupils, selection of content, record keeping, and evaluating. Required of all majors in health and physical education and minors in health education or physical education. Prerequisites: Twenty-one quarter hours in health education and physical education courses.

403. *Individual Physical Education for Handicapped Students.* (3) A study of the types of cases requiring modified physical education activity with instruction in specific activities for each type. Class work organized on a laboratory basis to provide practiced experience in conducting the program. Required of majors in health and physical education and minors in health education or physical education. Prerequisite: Health Education 302 and twenty-one quarter hours in health and physical education courses.

412. *Organization and Administration of Recreation.* (3) Aims to give the student a knowledge of the organizational, administrative, and supervisory policies and procedures utilized in the field of recreation. This knowledge is further supplemented with the skills and techniques necessary to prepare the student to meet and solve the many problems to be encountered as an administrator of recreation in parks, playgrounds, churches, camps, settlement houses, Christian associations, clubs, and community centers. Required of majors in recreation.

\*413. *Program Planning in Physical Education.* (3) Acquaints the student with the state and recommended programs in physical education. Stresses ways of incorporating physical education into the total school program. Emphasis is placed on plans and procedures for adapting programs to local conditions. An elective for majors and minors in health and physical education. Prerequisites: P.E. 243, 333, and 471.

414. *Organization and Administration of Camping and Scouting.* (3) De-

\*May be taken for graduate credit.

signed to give the student a general background and information about the organization and administration of camping and scouting and suggests means of helping the community or neighborhood organize itself to utilize the program. It further emphasizes the physical aspects, especially in camping and outdoor activities. An elective.

421. *Athletic Coaching and Officiating in Football.* (2) Examinations and explanations of rules, methods of organizing, practice and handling of teams, strategy, team offense and defense, and various fundamentals and techniques in football. Required of men majors in health and physical education. Prerequisite: Approval of the instructor.

422M. *Athletic Coaching and Officiating in Basketball.* (2) Fundamentals of basketball from a coach's and an official's point of view. Required of men majors in health and physical education. Prerequisite: Approval of the instructor.

422W. *Athletic Coaching and Officiating in Basketball and Volleyball.* (2) Fundamentals of basketball and volleyball from a coach's and an official's point of view. An opportunity given for the student to qualify as a local or national official in basketball and/or volleyball. Required of women majors in physical education. Prerequisite: Approval of the instructor.

423. *Athletic Coaching and Officiating in Track and Field.* (2) Fundamentals of track and field are studied. Lectures, discussions, and practice of the form and conditioning included. An elective for men majors. Prerequisite: Approval of the instructor.

434. *Festivals and Demonstrations.* (2) Organized to acquaint the student with materials, methods, and techniques of presenting pageants, festivals, exhibitions, athletic events, special celebrations, and events of a similar nature. Includes a study and discussion of activities calling for a large number of participants and methods of combining a number of areas as dancing, dramatics, crafts, and athletics. Credit for this course satisfies two of the four hours required in athletic coaching.

450. *Senior Project.* (3) Designed to give the student an opportunity to work upon and develop a problem of interest to him in the area of physical education. A student may follow one of two plans: namely, (1) prepare a junior thesis utilizing the techniques of professional writing which adhere to an acceptable form or (2) present a laboratory problem which may be a dance recital, intramural or recreational program, pageant, or play day. If plan (2) is followed the student must write a synopsis of the project accompanied by photographs or drawing and diagrams. Required of prospective graduating seniors. A senior should enroll in this course at least one quarter prior to the expected date of graduation.

\*471. *Materials and Methods in Health and Physical Education.* (3) Special attention to content of the program methods, procedures, techniques, and devices relative to individual and dual sports, team games, rhythms, self-testing activities, and related events for boys and girls at the secondary school level. Required of majors and minors in physical education. Prerequisites: P.E. 221, 222, and 243.

## GRADUATE COURSES IN HEALTH AND PHYSICAL EDUCATION

ROBERT S. COBB, Ph.D., *Coordinator of Graduate Work in Health and Physical Education*

The graduate curriculum in the Department of Health and Physical Education is designed to prepare personnel for the educational and social institutions; to prepare research workers in each area and to prepare specialists for all positions which require advanced knowledge in these areas. The department's

\*May be taken for graduate credit.

objectives are: (1) to produce better teachers, leaders, administrators, coaches and creative scholars, (2) to stimulate and to improve the quality of research and its use in these areas of specialization, (3) to develop specialists who have preparation in particular areas beyond the baccalaureate degree. Two kinds of master's degree are offered Master of Science and Master of Education.

**Departmental Requirements:** To be admitted as a graduate major in the Department a student should have completed a minimum of 30 undergraduate quarter hours in this combined area of health and physical education prior to admission to the Graduate School. To be admitted as a graduate minor in the Department a student should have completed a minimum of 18 undergraduate quarter hours in this area prior to admission to the Graduate School.

The general requirements for admission to this Department are the same as those as specified for other departments in the Graduate School. (See section on General Requirements for Admission of this catalog.)

(a) In order to enroll in the Graduate Department of Health and Physical Education, a student must have successfully completed at least ten (10) of the courses listed below. The first three courses listed are required:

1. Principles of Physical Education
2. Organization and Administration of Health and Physical Education
3. The Teaching of Physical Education or Methods and Materials in Physical Education, or Practice Teaching in Physical Education
4. Applied Anatomy and/or Kinesiology
5. Athletic Coaching (Football and Basketball)
6. Group Games
7. Community Recreation
8. Conditioning Exercises, Stunts or Tumbling
9. First Aid and Safety, or Safety Education, or Treatment of Athletic Injuries
10. History of Physical Education
11. Health Instruction, or Materials and Methods in Health Education, or The Teaching of Health
12. Individual Physical Education, or Restricted, or Corrective Physical Education
13. Intramurals or Program Planning
14. Nutrition
15. Personal Hygiene and/or Community Hygiene
16. Playground Supervision or Camp Craft and/or Camping
17. Philosophy of Physical Education and/or Psychology of Physical Education
18. Physical Diagnosis or Anthropometry
19. Physiology of Exercise
20. Courses in Physical Therapy
21. Adult Sports and/or Recreational Games
22. Rhythms
23. Modern Dance and/or Social Dance
24. Dance Composition and Theory
25. Individual Sports
26. Swimming
27. Measurement in Physical Education
28. Measurement in Health Education

A student to be admitted to the graduate curriculum must also show proficiency in at least two of the following areas:

1. Team Sports
2. Individual Sports, or Self Testing Activities
3. Rhythms
4. Aquatics
5. Group Games

The Department reserves the right to determine proficiency by administering written and/or skill performance tests.

A student whose undergraduate record does not satisfy the above course requirements, or who has not pursued an undergraduate major or minor in health, physical education or recreation, but who has had six (6) or more courses in the combined areas; or who has done two or more years of successful teaching in physical education or the combined areas; or who has done two or more years of successful coaching, may be admitted to graduate preparation by special permission of the Department.

In such cases as specified above the student will be considered as a provisional student in the area and will be required to pursue specific undergraduate courses in addition to his graduate requirements. There is no language requirement for the graduate degree in this area. There is no comprehensive examination required for a master's degree in this area, however, the Department requires the candidate to successfully pass the Graduate Record Examination. (See requirements listed in this catalog.)

#### Courses on the 300 or 400 Levels Which May Be Taken for Graduate Credit\*

The following undergraduate courses may be taken for graduate credit, however, such credit as received will not be considered as satisfying the forty-five (45) hours required for the master's degree.

- P.E. 333 Principles and Philosophy of Physical Education
- P.E. 401 Seminar in Health and Physical Education
- P.E. 402 Organization and Administration of Health and Physical Education
- P.E. 403 Individual Physical Education for The Handicapped

#### The 500 Level Courses Required for the Graduate Minor in HPER (18 hours)

- Health 501 Materials and Methods in Health Education
- Health 502 School Health Problems
- Health 503 Communicable Disease Control
- P.E. 501 Seminar in the Administration of Physical Education
- P.E. 511 Methods of Instruction and Supervision in Physical Education
- P.E. 513 Tests and Measurements in Physical Education

#### The 500 Level Courses Offered in The Department

Health 501. *Materials and Methods in Health Education.* (3) Concerned with the more progressive methods used in the teaching of health education on the elementary and secondary school levels. The use of and the evaluation of appropriate teaching aids and materials are emphasized. The course is especially designed to acquaint prospective teachers with those fundamentals necessary for discovering those health needs, interests and problems that students or pupils may have. Emphasis is placed on the methods and techniques necessary for integrated and correlated teaching of health in all areas of the school curriculum as well as the utilization of health activities in schools as teaching aids. (Required of all graduate majors and minors in the Department—No graduate prerequisites.)

Health 502. *School Health Problems.* (2) Organized to acquaint the prospective teacher, the in service teacher, and the administrator with common health problems as may be found in schools. Special attention is given to the problems potentially inherent in a school's environment and in the utilization of and administration of school health services. There is discussion given to the protective and corrective services in the school health education program with emphasis given to the teacher's role in such a program. (Required of all graduate majors and minors in the Department—No graduate prerequisites.)

Health 503. *Communicable Disease Control.* (3) Covers the etiological and epidemiological factors in communicable diseases. All types of control

measures are discussed; special emphasis is given to the area of immunology. The course is primarily designed for teachers, school administrators and public health workers. (Required of all graduate majors and minors in the Department.—No graduate prerequisites.)

Health 512. *Thesis Seminar.* (3) Designed to assist students in the selection and adequate conduct of research problems in the area of school and public health education. Credit is given upon completion of the research problems and the submitting of the thesis. (Required of all graduate majors desirous of doing research in health education—Prerequisites are Education 511—*Elements of Research* and Health 502—*School Health Problems.*)

Physical Education 501. *Seminar in Administration.* (3) Consideration is given in this course to the operation of a physical education program in the public schools with emphasis upon the administrative aspects of such programs. A study of the objectives, principles and philosophy of physical education on the secondary school level is included. Emphasis is placed on the methods and procedures for selecting and including physical education activities in a program of physical education. Modern interpretations of program administration are emphasized. (Required of all graduate majors and minors—No graduate prerequisites.)

Physical Education 503. *Playground and Camp Supervision.* (3) Includes an interpretation of the theories of play, the role of play in learning experiences and the organization and supervision of playground and camp activities. Special emphasis is given to recreational activities for various age groups which would be compatible with the physical, mental and social characteristics of each group. The selecting, planning and equipping of playgrounds and camp sites are emphasized. Consideration is given to the planning and initiating of programs of activities for playgrounds and camps including nature study, first and safety factors, cooking and meal preparation, water sports and events, and general recreational activities. (Required of all graduate majors in the Department—No graduate prerequisites.)

Physical Education 511. *Methods of Instruction and Supervision in Physical Education.* (3) Practical methods and materials employed in the teaching of play activities, fundamental skills and athletic games are emphasized. Special attention is given to the in-service preparation of personnel. Program evaluation and improvement, facilities and equipment as well as criteria for determining their adequacy are stressed. Emphasis is placed on the working relationships of the physical educator and other personnel within the schools and in the communities. (Required of all graduate majors and minors in the Department—No graduate prerequisites.)

Physical Education 512. *Thesis Seminar.* (3) Designed to acquaint the student with literature available and research done in this area. Credit may only be given upon the completion and the acceptance of the thesis. (Required of all graduate majors in the Department—Prerequisites are Education 511 *Elements of Research* and Psychology 502 *Advanced Statistics.*)

Physical Education 513. *Tests and Measurements in Physical Education.* (3) Designed to acquaint the student with the role of testing and measurement in a total program of physical education. The coverage of the content includes anthropometric measurements, measurements of general health status, strength, agility, and stamina indices, cardiac functioning tests, and those statistical methods used in determining motor ability and skill in physical education activities. (Required of all graduate majors and minors in the Department—Prerequisites include Psychology 311 *Elementary Statistics* and Psychology 502 *Advanced Statistics for Research in Education and Psychology.*)

Physical Education 521. *Current Problems in Physical Education.* (3) Designed to assist teachers in the area, supervisors and administrators in solving those problems peculiar to a program of physical education. The content includes a study of philosophies in the area, policies of governing a total program which would encompass classification of students, graduation in activities, progression in teaching, evaluation of student achievement, teaching loads, time schedules, selection of teachers, evaluation of in-service teaching and teachers,

marking of students, financing a program and departmental budgeting. (Required of all graduate majors in the Department—Prerequisites are P.E. 501 *Seminar in Administration* and P.E. 511 *Methods of Instruction and Supervision in Physical Education.*)

Physical Education 523. *Community Recreation.* (3) The nature, significance and extent of recreation in a community are stressed. City, county, state, and national recreation programs and their organization are emphasized. Principles, techniques and skills needed in organizing and promoting leisure time activities for home, school and community are included in the experience. Those essential elements peculiar to all recreational programs such as leadership, areas and facilities, programs features and inclusiveness, recruiting of recreation workers and training programs for voluntary workers are covered in the content of the course. Opportunities are afforded students to experience actual recreation work and responsibility, as well as to organize and lead recreational activities. (Required of all graduate majors in the Department—Prerequisites include Physical Education 503—*Playground and Camp Supervision.*)

Physical Education 601-602. *Departmental and Project Seminars.* (6) Consists of information and experiences concerning the general area being studied. The Project Seminar consists of the writing of the project and the final examinations on the project and graduate courses studied for the desired master's degree.

The 500 Level Courses Required for a Graduate Major in The Department  
For the Master's Degree in Health and Physical Education

1. Health 501 .....	3 hrs.
2. Health 502 .....	3 hrs.
3. Health 503 .....	3 hrs.
4. Physical Education 501 .....	3 hrs.
5. Physical Education 503 .....	3 hrs.
6. Physical Education 511 .....	3 hrs.
7. Physical Education 512 .....	3 hrs.
8. Physical Education 513 .....	3 hrs.
9. Physical Education 521 .....	3 hrs.
10. Physical Education 523 .....	3 hrs.
11. Physical Education 601-602 .....	6 hrs.

Total ..... 30 hrs. or 33 hrs.

The total of 30 hrs. in Health and Physical Education in addition to the core courses required of all graduate students in teacher preparation curriculums which are:

1. Psychology 502 .....	3 hrs.
2. Psychology 542 .....	3 hrs.
3. Education 502 .....	3 hrs.
4. Education 511 .....	3 hrs.
5. Education 526 .....	3 hrs.

Total ..... 15 hrs.

Forty-five (45) hours of courses on the 500 level are required for all graduate majors.

Major-Minor Combination

Majors in graduate health, physical education and recreation are allowed to minor in related subject areas on the graduate level of instruction in those areas. The areas of general biology, zoology, social administration, education administration and supervision, psychology and physiology are suggested as appropriate areas for the selection of a minor field of concentration. A major without a minor requires a minimum of forty-five (45) credit hours in one



Junior Year Name of Course	Quarter Hour Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Psychology 321-22-23....	3	3	3	Psychology 431-32.....	3	3	
Psychology 341-351-352..	3	3	3	Psychology 481.....			3
Psychology 411-12-13....	3	3	3	Electives .....	12	12	12
Electives .....	9	9	9				
	18	18	18		15	15	15

#### Psychology Courses Recommended for Education Students

Psychology courses included in the "Core Program of Professional Education," and required for teacher certification in the State of Tennessee:

- Educational Psychology I, Human Development, 242
- Educational Psychology II, Psychology of Learning, 243
- Measurement and Evaluation, 312
- Guidance for Classroom Teachers, 463

Psychology courses which may be used for education credit, but which are not included in the Core Program of Professional Education, and are not required for certification in Tennessee: (These courses may *not* be substituted for Core Professional courses for certification in Tennessee.)

- General Psychology, 221-22
- Child Psychology, 253
- Adolescent Psychology, 263
- Mental Hygiene, 323

#### Sequence of Courses

##### Non-Credit Courses

- Orientation, 100 (Majors only)
- Remedial Reading, 101
- How to Study, 102

##### Undergraduate Courses

- General Psychology, 221-22-23
- Educational Psychology I, Human Development, 242
- Educational Psychology II, Psychology of Learning, 243
- Child Psychology, 253
- Adolescent Psychology, 263
- Elementary Statistics, 311
- Measurement and Evaluation, 312
- Abnormal Psychology, 321-22
- Mental Hygiene, 323
- Social Psychology, 341
- Genetic Psychology, 351-52
- Machine Scoring of Tests, 400
- Experimental Psychology, 411-12-13
- Physiological Psychology, 431-32
- Senior Project, 450
- Differential Psychology, 461
- Introduction to Psychological Testing, 462
- Guidance for Classroom Teachers, 463
- History and Schools of Psychology, 481

##### Graduate Courses

- Advanced Statistics, 502.
- Advanced General Psychology, 505.

- Advanced Experimental Psychology, 506-07.
- Research in Psychology, 511.
- Psychology Thesis Seminar, 512.
- Advanced Mental Hygiene, 523.
- Theories and Measurement of Personality, 525.  
(Psychometrics, 531)
- Introduction to Guidance, 532.
- Techniques of Guidance, 533.
- Student Personnel and Coordination of Personnel Services, 534.
- Interviewing and Counseling, 535.
- Individual Diagnosis, 536.
- Vocational Guidance and Placement, 537.
- Occupational Information, 538.
- Advanced Social Psychology, 541.
- Advanced Educational Psychology, 543.
- Psychology of Learning, 545.
- Emotional, Social, and Mental Growth, 551.
- Diagnosis and Remedial Techniques, 561.
- Diagnosis and Correction of Reading Disability, 563.
- Clinical Testing, 571-72.
- Clinical Psychology, 573-74.
- Projective Techniques, 575.
- Psychology Project Seminar, 601-02.

100. *Orientation for Psychology Majors.* (0) General college orientation and introduction to the area of psychology as a profession. Student given the opportunity to discover his own abilities, aptitudes, interests, reading level, and study habits. Non-credit course.

101. *Remedial Reading.* (0) Designed to give the student an opportunity to diagnose and correct reading deficiency. Special attention to increasing speed and comprehension. Non-credit course.

102. *How to Study.* (0) Offers training in developing desirable study habits. Non-credit course.

221-22. *General Psychology.* (6 Hrs.) The basic course in general psychology; designed to acquaint the student with the fundamental principles of human behavior and experience, the scope of psychology, and the methods of psychological research. Course is a prerequisite for all "advanced" courses in psychology; is required of all students majoring or minoring in psychology, and is recommended for students in education.

223. *General Psychology.* (3) Prerequisite Psych. 221-22. Required of psychology majors, and open as an elective to non-majors who desire to further explore the content and nature of general psychology. Offers a critical consideration of psychological systems, and methodology, and a review of the fields of psychology.

242. *Educational Psychology I, Human Development.* (3) The first in a sequence of two courses in educational psychology. Designed to give the student an understanding of the child as a growing organism, of how behavior is acquired, and the relationship between growth and learning. Required in the professional Education Core.

243. *Educational Psychology II, Psychology of Learning.* (3) Prerequisite Psych. 242. The second in a sequence of two courses in educational psychology. Designed to introduce the student to learning theory and the implications of learning theory for classroom teaching, and to give the student training in the application of psychological principles to the various functions of the school. Required in the Professional Education Core.

253. *Child Psychology*. (3) Emphasis on the physical, emotional, social, and mental growth of the child from infancy to puberty; attention given to the behavior characteristics of children at various levels of growth, and to psychological factors which influence behavior. (Students may not receive credit for both Psy. 242 and Psych. 253.)

263. *Adolescent Psychology*. (3) Emphasis on the development of and the problems of adolescents in the home, school, and community environment. Attention given to the guidance of adolescents. (Students may not receive credit for both Psych. 242 and Psych. 263.)

311. *Elementary Statistics*. (3) Offers training in tabulating and processing scores and other data; covers measures of central tendency, measures of variability, the normal curve, and simple correlation.

312. *Measurement and Evaluation in Public Schools*. (3) Offers training in administering, scoring, processing, and using the results of standardized tests and other measures of progress in public schools; also training is offered in the construction of objective tests. Prerequisite Psych. 242 and 243. Required in the Professional Education Core.

321-22. *Abnormal Psychology*. (6) Lectures, discussions, and review of case studies concerning the nature, causes, and treatment of pathological behavior. Observation trips shall be made to institutions for the care and treatment of mental patients.

323. *Mental Hygiene*. (3) Primarily concerned with examining and interpreting procedures for protecting and preserving the mental health of the individual through wholesome adjustment to the environment; attention is given to the practice of mental hygiene in the classroom.

341. *Social Psychology*. (3) Lectures and discussions of social behavior and application of principles of psychology to social behavior.

\*351-52. *Genetic Psychology*. (6) Concerned with the origin and development of behavior in the individual, giving special attention to differentiating between the effect of heredity, maturation, and learning on the development of behavior. Behavior development is traced both phylogenetically and ontogenetically.

401. *Machine Scoring of Tests*. (1) Offers training in scoring tests on an I.B.M. machine. One hour practice per day required. Prerequisite: course in testing, junior classification, and approval of instructor.

411-12-13. *Experimental Psychology*. (9) Offers training in applying the scientific procedure of experimentation to the study of psychological phenomena in the various fields of psychology.

\*431-32. *Physiological Psychology*. (6) A study of the sensory, motor, and adjustor (brain) mechanisms as they relate to behavior.

\*461. *Differential Psychology*. (3) An intensive study of individual differences, with emphasis on discovery, measurement, and interpretation.

\*462. *Introduction to Psychological Testing*. (3) Designed to give the student an understanding of the basic principles underlying psychological measures; offers training in selection and use of psychological tests, and practice in both group and individual testing.

463. *Guidance for Classroom Teachers*. (3) Designed to train classroom teachers in providing guidance to their pupils. Attention is given to the functions, techniques, and tools of guidance, and to the organization and execution of guidance programs. Required in the Professional Education Core.

\*481. *History and Schools of Psychology*. (3) Special attention to the historical development of psychology as a science, and to the fundamental concepts of the various schools of psychology.

#### Graduate Courses

502. *Advanced Statistics for Research in Education and Psychology*. (3) Offers training and practice in the application of statistics to research. Topics studied are: harmonic and geometric mean, variance and covariance, curve fitting, sampling, reliability, and simple, multiple, and partial correlation. Core course, required of all graduate students majoring in education, pre-supposes a knowledge of elementary statistics.

505. *Advanced General Psychology*. (3) Basic course required for a major in general psychology. Deals with the history and present status of psychology including an examination of an a critical discussion of the schools of psychology; and a consideration of major current psychological problems. Materials for the course will be taken from current professional literature as well as from basic texts in the field.

506-07. *Advanced Experimental Psychology*. (6) Experimental methods of investigation of psychological problems primarily in the areas of physiological and comparative psychology. One lecture and four laboratory periods.

511. *Research in Psychology*. (3) Deals with methods of research peculiar to psychology. Included are: type of problems of psychology, methods of collecting data, interpretation of data, and reporting of findings.

512. *Educational Psychology Thesis Seminar*. (3) Critical discussion of the research projects in progress and of the literature related to such projects. Credit awarded upon acceptance of the written report and passing the oral examination. Required of (and limited to) Psychology majors; and to be taken in conjunction with the doing of the research project.

523. *Advanced Mental Hygiene*. (3) Required of Educational Psychology majors. Course deals with a technical consideration of the principles of mental hygiene and personality development; with emphasis on the problems of mental hygiene encountered by parents, teachers, social workers and others who deal with children.

525. *Theories of and Measurement of Personality*. (3) Examines the theories of personality development and offers training in measuring and appraising personality.

531. *Psychometrics*. (3) Deals with the theory and practice of psychological measurement. Training and practice offered in the use of individual and group measures of intelligence, achievement, aptitude and personality.

532. *Introduction to Guidance*. (3) The development and aspects of guidance in secondary schools and colleges; the place in guidance of occupational information, exploratory courses, tests, records, group and individual counseling, and placement; duties of guidance functionaries; types of guidance organizations.

533. *Techniques of Guidance*. (3) Critically examines the techniques used in guidance, and offers the student an opportunity to acquire skill in using the techniques.

534. *Student Personnel and Coordination of Personnel Services*. (3) Critically examines student personnel problems and services in both the public school and the college, and offers training in coordinating such services.

535. *Interviewing and Counseling*. (3) Offers training and practice in acquiring skill in interviewing and in counseling. Includes specific training in interviewing both pupils and parents and other adults, and in using the various methods of counseling.

536. *Individual Diagnosis*. (3) Designed to give training and practice in diagnosing the individual pupil to discover the etiology of his problem or difficulty, and to recommend or effect a solution. Attention is given to behavior, personality, and social problems, as well as to learning difficulties.

537. *Vocational Guidance and Placement*. (3) Designed to give training

\*Approved for graduate credit.

and practice in the application of guidance and counseling techniques to vocational problems, including placement.

538. *Occupational Information.* (3) Designed to give information leading to a knowledge of occupations and occupational trends, as well as competence in evaluating and handling occupational information.

541. *Advanced Social Psychology.* (3) Lectures and discussions of social behavior; dynamics of group interaction is stressed.

543. *Advanced Educational Psychology.* (3) A critical examination of psychological concepts basic to learning in the school situation. Topics critically examined: growth and development, motivation, and theories of learning, with emphasis on application to the classroom situation. Attention is given to experimental investigation in educational psychology. (Core course, required of all students majoring in education.)

545. *Psychology of Learning.* (3) Consists of a critical examination of the theories of learning and a practical application of such theories to learning in the school situation. Required of Educational Psychology Majors.

551. *Emotional, Social, and Mental Growth of Children.* (3) A study of the emotional, social and mental growth of children from infancy to adolescence, with emphasis on the inter-relatedness of growth and the nurture necessary for growth. Observation in the college nursery school required as a part of the course. Required of Educational Psychology majors.

561. *Diagnosis and Remedial Techniques.* (3) Offers training in the selection, use, and interpretation of diagnostic tests and other techniques for discovering the causes of learning disabilities in the regular school subjects (except reading) and methods for correcting the learning difficulties.

563. *Diagnosis of Reading Disability and Remedial Reading.* (3) Offers training and practice in techniques the regular classroom teacher may use to discover the retarded reader, to analyze the nature and cause of the reading difficulty, and correct the difficulty. The students will be given an opportunity to work with a retarded reader.

571-72. *Clinical Testing.* (6) Offers training and practice in administering, scoring, and interpreting tests used for clinical purposes, with emphasis on the use of individual verbal, and non-verbal mental tests, and measures of personality. The student is required to acquire proficiency in administering, scoring, and interpreting the Stanford Binet Test and the WISC Test.

573-74. *Clinical Psychology.* (6) Applies clinical procedures to the diagnosis and treatment of behavior problems, with emphasis on the behavior problems of children. Prerequisite: An undergraduate major or minor in psychology.

575. *Projective Techniques.* (3) Designed to familiarize the student with the uses of projective techniques.

601-02. *Psychology Project Seminar.* (6) Required for the Master of Education degree by majors in Educational Psychology and Educational Guidance. Psych. 601 consists of a review of current literature in the major area and taking a comprehensive examination on the current literature and subject matter of the major field. Psych. 602 consists of completing and writing a report of a project conducted by the student, and taking an oral examination on the project and subject matter of the major field.

## SCHOOL OF ENGINEERING

JAMES A. PARSONS, E.E., *Dean*

### GENERAL INFORMATION

The School of Engineering is divided into two articulated components of technical education, namely:

1. A Bachelor of Science Degree program with curricula in Architectural, Civil, Electrical and Mechanical Engineering. Electrical Engineering is offered under two options of power and communications and Mechanical Engineering with a choice of power or metallurgy options.
2. An Industrial Education Program with teacher training curricula in Industrial Arts Education and Aviation Education both of which lead to the Bachelor of Science Degree.

The aim of the School of Engineering is to train students rigorously and thoroughly on a broad basis of a coherently related sequence of subjects in three major fields: physical science and mathematics; social-humanistics; and the respective professional or vocational disciplines. To these ends, the instructional facilities of the School of Arts and Sciences and the School of Education are available to the students of the Engineering School. Out of such programs graduates will possess also the general education for a well-rounded and wholesome life in their communities.

The School of Engineering offers in cooperation with the several schools of the University, undergraduate courses of study, normally four years (i.e. twelve quarters of twelve weeks each) in length, leading to the Bachelor of Science degree in Architectural Engineering, Civil, Electrical, Mechanical, Metallurgical Engineering, Industrial Education and Aviation Education.

The School may revise from time to time any of its curricula in order to conform with technological advancement or for purposes of accreditation. All students must satisfactorily complete the prescribed courses under their curriculum in order to qualify for the Bachelor of Science degree.

The School of Engineering of Tennessee A & I State University is located in the greatest area of industrial expansion in the Southeast. It is within two hundred miles of the Tennessee Valley Authority and the Atomic Energy Commission's Oak Ridge Plant; near the foundry and steel mills of Middle Tennessee and Alabama and in the midst of the largest source of hydro-electric power in the East. In Nashville, unusual opportunities for first-hand study of foundries, waterworks, large construction projects and other similar engineering enterprises are on hand; together with engineering organization to provide field instruction.

The school of Engineering has a physical plant of over one and one-half million dollars consisting of:

1. Engineering Building—In this building are located the foundry, electrical, physical testing, cement and soils, combustion engines, refrigeration and air-conditioning, hydraulics, model-making laboratories, three drafting rooms; classrooms and reading rooms; and offices.
2. Industrial Arts Building—In this building are located the machine, welding, sheet metal, refrigeration, household appliance vocational technical training shops. The building is fully equipped with lathes, milling machines, sheet metal and welding machines.
3. The Vocational Shop Building—The masonry, printing and auto mechanics areas are located in this building.
4. Mechanical Engineering and Heating Building—This building houses the steam engineering laboratories and contains a packaged Westinghouse Turbine-Electric Generating Unit; and a horizontal steam engine with indicator and prony brake.
5. Cumberland Airport—Equipment consists of testing and flight training facilities including aircraft, link trainer, jet and reciprocating engines.

## COURSES IN ENGINEERING

The following core courses in general are offered in all degree programs.

### Engineering Orientation

Offered by the Faculty of the individual departments

101. *Engineering Orientation*. (1) A survey of the application of mathematics to engineering problems. Use of geometry and application of basic physical laws.

102. *Engineering Orientation*. (1) A continuation of Engineering 101, with emphasis on exponential quantities, simultaneous equations, graphs in the solution of elementary technical problems. One lecture period. Prerequisite: Engineering 101.

103. *Engineering Orientation*. (1) Problems in the use of the slide rule involving multiplication, division, roots, powers and trigonometric functions. One lecture period. Prerequisite: Engineering 102.

### Engineering Mechanics

Offered by the Faculty of Department of Civil Engineering

202. *Analytical Mechanics Statics*. (5) The theory of analytical mechanics and the principles of statics. Instruction given in force system, equilibrium, centroids, center of gravity, friction, and moment of inertia. Prerequisites: Math 262; Physics 221.

203. *Analytical Mechanics Dynamics*. (5) Instruction in principles of kinetics and Kinematics. Includes the theory of rectilinear, curvilinear and rotary motion, impact stresses, and impulse and momentum. Prerequisites: Eng. 202; Math 263.

311-12. *Fluid Mechanics*. (6) Fundamentals of fluid behavior. It deals with the principles of statics; theory of hydrostatics; basic principles of fluid flow and measurements, study of applied flow in pipes, open channels; and water power machinery. Prerequisite: C. E. 202, 203.

341-2. *Strength of Materials*. (6) Stress and strain, direct and shearing stresses, torsion and bending, riveted and welded joints, short column, tension members, shafts and beams, deflection, statically indeterminate beams, combined stresses, column theory, non-homogeneous beams. Prerequisites: Eng. 203, Physics. 221, Math. 261-62.

401. *Materials Testing*. (3) Testing properties of wood, metal and refractory products; control of concrete mixtures; instruction in field tests for determining quality of cement; analysis of and fine aggregates. Prerequisites: Eng. 342. One lecture and four laboratory periods.

### Engineering Surveying

123. *Elementary Surveying*. (3) An elementary and basic course in the theory of plane surveying. Emphasis will be placed on the development of the following skills: The ability to locate and set machinery, to lay out buildings, and other structures. A technical knowledge of surveying instruments and a knowledge of the theory of errors. Prerequisite: Math 162. One lecture and two field periods.

### Engineering Drawing

Offered by Faculty of Department of Architectural Engineering

111. *Engineering Drawing*. (3) Instruction in the use of drawing instruments, freehand lettering and technical sketching, orthographic projection and auxiliary views. Required of all engineering and industrial education students. Prerequisite: Plane Geometry. Six laboratory periods.

112. *Engineering Drawing*. (3) Sections and dimensions practice, pictorial representation, freehand lettering and technical sketching. Required of all en-

gineering and industrial education students. Prerequisite: Engineering 111 or equivalent. Six laboratory periods.

113. *Engineering Drawing*. (3) Representation of screw threads, fasteners, springs, gears, pipe drawing. Working drawings of machine parts. Freehand lettering and technical sketching. Required of all engineering and industrial education students. Prerequisite: Engineering 112 or equivalent. Six laboratory periods.

211. *Descriptive Geometry*. (3) An elementary study of the point, line and plane, with theoretical and practical problems. Six laboratory periods. Required of all mechanical, architectural and civil engineering students. Prerequisite: Engineering 113.

212. *Descriptive Geometry*. (3) Curved surfaces, their tangent lines and planes; the intersection of surfaces, developments, shades and shadows, perspective. Required of all civil, mechanical and architectural engineering students. Prerequisite: Engineering 211. Six laboratory periods.

### Engineering Metallurgy

Offered by Faculty of Department of Mechanical Engineering (Metallurgy Option)

223. *Fundamentals of Physical Metallurgy*. (3) An introductory course based upon the physics of the metallic state. The internal structure of metals and its influence upon the attendant properties, phase equilibria and transformations in the solid state are emphasized. Prerequisites: Chem. 113, Physics 222.

### Engineering Thermodynamics

Offered by Faculty of Department of Mechanical Engineering

301. *Elementary Thermodynamics*. (3) Thorough treatment of the laws of heat; transformation of energy, theoretical limitations; second law, absolute temperature, entropy and available energy; properties of gases, liquids, vapors and vapor mixtures. Prerequisites: Math. 261-2-3.

### Engineering Law

Offered by Faculty of Department of Civil Engineering.

463. *Engineering Law*. (3) Emphasis upon negotiable instruments; real property; contracts; riparian rights and condemnation proceedings; writing and interpretation specification. Three lecture periods.

## DEPARTMENT OF ARCHITECTURAL ENGINEERING

L. QUINCY JACKSON, M.S., *Head*

The Department of Architectural Engineering offers a course of study leading toward a professional degree. Courses are designed to develop technical knowledge and insight into architecture in order to meet the highest professional standards. The primary objective is to encourage the student to investigate the fundamental principles of organic order and to develop individually a medium of controlling architectural forms for man's protection and accommodation.

Unusual opportunities are available through close contact with the many other engineering courses and research programs offered by the school. The architectural engineering curriculum integrates these technical resources with social and cultural needs.

The graduate will find many opportunities for employment with private firms, industrial establishments or governmental agencies. With additional years of experience the graduate architectural engineer may engage in private business after meeting registration requirements of the state in which he desires to practice. Minimum quarter hours required for Bachelor of Science degree in Architectural Engineering are 232.

CURRICULUM IN ARCHITECTURAL-ENGINEERING

Freshman Years Name of Course	Quarter Hours-Credit			Sophomore Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Math. 161-62-63	5	5	5	Math. 261-62-63	5	5	5
Eng. 101-2-3	3	3	3	English 211	3		
Chem. 111-12-13	4	4	4	Physics 221-22-23	4	4	4
Engr. 101-2-3	1	1	1	Engr. 202-3		5	5
Engr. 111-12-13	3	3	3	Arch. Engr. 201-2-3	3	2	3
Engr. 123			3	Arch. Engr. 211-12-13	1	1	1
Speech 202		3		Engr. 211-12		3	3
Phy. Ed. 11-12-13	1/3	1/3	1/3	Air Science II	1	1	1
Air Science I	1	1	1	Phy. Ed. 20's to 50's	1/3	1/3	1/3
	17 1/3 20 1/3 20 1/3				20 1/3 21 1/3 19 1/3		

  

Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Arch. Engr. 223			3	Arch. Engr. 401-2-3	3	3	3
Arch. Engr. 301-2-3	3	3	3	Arch. Engr. 412-13		3	2
Arch. Engr. 311-12	2	3		Arch. Engr. 422		2	
Arch. Engr. 321-22	2	4		Arch. Engr. 431-32	4	2	
Arch. Engr. 331-32	3	3		Arch. Engr. 441-42-43	2	2	2
Arch. Engr. 342			1	Arch. Engr. 453			3
Civil Engr. 441	3			Elect. Engr. 301-2-3	3	3	3
Civil Engr. 301-3	3		3	Engr. 301		3	
Engr. 223			3	Engr. 401		3	
Engr. 341-42	3	3		Civil Engr. 451	3		
Engr. 463			3	Arch. Engr. 450		3	
Electives		3	3	Electives			6
	19 19 19				21 18 19		

COURSES IN ARCHITECTURAL ENGINEERING

201. *Architectural Design II Small Structures.* (3) Introduction to architectural design; expressions of principles, in structural and aesthetic relationship. Prerequisites Arch. Engr. 103, 113. Three two-hour laboratory periods per week.
202. *Architectural Design II Small Structures.* (2) Problems of more complex nature involving principles, materials, space concepts and site relationship. Prerequisites Arch. Engr. 201-223. Four two-hour laboratory periods per week.
203. *Architectural Design II Intermediate Design.* (3) Design of small structures. Problems emphasizing design and the use of materials in the development of creative activity. Prerequisites: Arch. Engr. 202-212. Two three-hour laboratory periods per week.
- 211-12-13. *Advanced Study of Materials I, II, and III.* (3) Prefabricated building materials, manufacturing processes, characteristics of new and old materials; emphasis on relationships between common use of materials and imagination; techniques directed toward limitations and potentialities. Prerequisites: Arch. Engr. 103, 113, 201, 212. Three two-hour laboratory periods per week.
221. *History of Ancient Architecture.* (3) Architecture and related arts prior to Roman culture including fundamental expression of social, religious and political life. Prerequisite, Arch. Engr. 103. Three lecture periods per week.
223. *History of Medieval Architecture.* (3) Architectural expressions of civilizations from the Christian era to the beginning of the Renaissance period. Prerequisite: Arch. Engr. 221.
- 301-2. *Architectural Design III Composition.* (8) The design of architectural problems of a complex nature involving principles of organic order and the

use of structural elements site relationship, form and logical concepts. Relation of design concepts to space and the process of architectural composition. Problems in planning with close co-ordination of site, materials, human needs and structural harmony. Prerequisites: Arch. Engr. 103-203-223-301-311. Four-two hour laboratory periods per week.

303. *Architectural Design III Principles.* (5) A systematic study of elements of a complex nature. Analysis and resynthesis of existing cultural patterns as related to other arts. Principles as a tool in the search for forms; applications and presentation of drawings, through models and other mediums. Prerequisites: Arch. Engr. 321-322. Four two-hour laboratory periods per week.

311. *History of Renaissance Architecture.* (2) Principles of Renaissance architecture and related arts of sculpture, painting in Europe. Prerequisites: Arch. Engr. 223, 203. Two lecture periods per week.

312. *History of American Architecture.* (3) American architecture of the past and present. A study of leading architects and their contribution to American architecture of our times. Prerequisites: Arch. Engr. 221, 223.

321. *Architectural Construction.* (2) Methods of building construction and the assembly and use of building materials. Studies on building types old and new. Prerequisite: Arch. Engr. 213.

322. *Working Drawings.* (4) Development of various techniques in drafting, representing materials and methods. Elementary construction drawing for small buildings and furnishings. Prerequisite: Arch. Engr. 301. Four-two hour laboratory periods per week.

331. *Sanitation.* (3) Elements of engineering investigation and reports involving the design and installation of hot and cold water systems for domestic and commercial use. Local and national codes. Selection of fixtures, private water supply and disposal systems. Prerequisites: Arch. Engr. 203, Physics 223. One hour lecture and two two-hour laboratory periods per week.

332. *Heating and Air-conditioning.* (3) Design and layout of heating and air conditioning systems, (hot water, steam warm air, radiant, electrical and solar), basic principles in determining heat gain and heat losses in structures, selection and use of equipment for year-round conditioning. Prerequisite: Physics 223.

333. *Electrical Wiring.* (3) A study of local and national codes, regulating the use and methods of installation of electric wiring and fixtures, various kinds of current, wiring and consideration involved. Prerequisites: Physics 223, Arch. Engr. 321-22.

342. *Graphic Statics.* (1) Graphical methods of attack on physical problems, development of the possibilities of graphic solutions through geometric solutions. Development of the graphic modes of thought as a tool of attack; emphasis on representational graphics from the architectural view point. Prerequisite: Physics 223, Engr. Draw. 202. One-two hour lecture per week.

401. *Architectural Design IV Planning.* (5) A continuation of Architectural Engr. 303, principles applied in a series of more complex problems; each problem presented on a design need covering the whole field of architectural procedures. Prerequisites: Arch. Engr. 303, 321-22-12. Five-two hour laboratory periods per week.

402. *Architectural Design Planning.* (5) For completion of senior standards in Architectural Engineering this course is continued by course 403. All seniors are given practical problems within the community, having an actual site and having to meet requirements given by the faculty and concerned persons outside the university. Prerequisites: Arch. Engr. 322, 401. Five two-hour laboratory periods per week.

403. *Architectural Design—Advanced Planning.* (5) Continuation of Architectural Design 402. One single problem guided by the faculty; working drawings, specifications and contracts will be presented to the consultants upon presenting final completed problem. Prerequisites: Arch. Engr. 321-22-411. Five-two hour laboratory periods per week.

412. *History of World Architecture.* (3) Laboratory with lectures and discussion covering the creative spirit and principles underlining the development of arts and architecture both past and present. Prerequisites: Arch. Engr. 223, 312.

413. *Electrical Illumination.* (2) Physical and psychological aspects of illumination; illumination design and the application of light and lighting equipment in architecture. Prerequisites: Arch. Engr. 223-333.

421. *Professional Practice.* (2) Principles on the proper performances of the duties of an architect, ethical, moral and legal responsibilities; requirements for proper types of contracts and the architect's responsibility in the community. Requirement for registration. Prerequisites: Arch. Engr. 303, Civil Engr. 303. One lecture period per week.

422. *Architectural Acoustics.* (2) Basic studies in the design and use of materials that effect the hearing conditions; sound absorption analysis, noise control and the effect of form and size and finish surface materials in sound control. Prerequisites: Arch. Engr. 401, 431, Physics 223.

431. *Architectural Working Drawings.* (6) Architectural detailing for finishes, methods and investigation of structural systems; preparation of shop and erection drawing. Prerequisites: Arch. Engr. 303, 402. 12 two-hour laboratory periods per week.

441. *City and Regional Planning.* (2) Elementary application of planning theory to towns, cities and regions; studies involving problems of social and natural nature; must have senior standing to schedule course. Two two-hour laboratory periods per week.

442. *City and Regional Planning Seminar.* (2) Continuation of 441; problems associated with replanning and redevelopment in existing communities; individual treatist to supplement with group projects. Students must have senior standing. One-two hour lecture period per week.

443. *City and Regional Planning Theory.* (2) Lectures on historical background of city planning; reports on relation of architecture and engineering to needs of city development and design, special problems involving civil engineering and engineering projects, lectures, discussions and written reports.

450. *Senior Project.* A written thesis on a project in the student's major field of study.

453. *Building Equipment.* (3) The selection, use and design of electrical and mechanical equipment for buildings; problems involving cost, maintenance and purchasing of standard and custom design equipment.

## DEPARTMENT OF CIVIL ENGINEERING

NAPOLEON JOHNSON, M.S.E., *Head*

The oldest branch of the engineering profession, civil engineering is concerned primarily with the planning, design and construction of the permanent works of modern industrial and urban life, such as transportation routes, water supply and power developments, sewage, irrigation, bridges, tunnels, airports and other structures. Dealing, as he does, with both the forces of nature and with projects that influence the economic and social conditions of many people, the Civil Engineer must combine fundamental knowledge of science and engineering with experience and judgment, and with personal characteristics of the highest order.

The curriculum in Civil Engineering is arranged so that all students receive training in the basic principles of mathematics and science and in engineering applications such as surveying, engineering geology and structural theory and design.

The curriculum in Civil Engineering leads to the degree of Bachelor of Science in Civil Engineering upon the completion of a minimum of 231 quarter hours.

## CURRICULUM IN CIVIL ENGINEERING

Freshman Year				Sophomore Year			
Name of Course	Quarter			Name of Course	Quarter		
	Hours	II	Credit		Hours	II	Credit
Math. 161-62-63	5	5	5	Math. 261-62-63	5	5	5
English 101-02-03	3	3	3	English 211	3		
Chemistry 111-12-13	4	4	4	Speech 203			3
Engineering 111-12-13	3	3	3	Physics 221-22-23	4	4	4
Speech 202		3		Engineering 202-03		5	5
Engineering 123			3	Engineering 211-12	3		3
Engineering 101-02-03	1	1	1	Civil Engr. 211	3		
Air Science I	1	1	1	Air Science II	1	1	1
Phy. Ed. 11-12-13	1/3	1/3	1/3	Phy. Ed. 20's to 50's	1/3	1/3	1/3
	17 1/3	20 1/3	20 1/3		19 1/3	18 1/3	18 1/3
Junior Year				Senior Year			
Name of Course	Quarter			Name of Course	Quarter		
	Hours	II	Credit		Hours	II	Credit
Civil Engr. 301-2-3	3	3	3	Civil Engr. 402			5
Engineering 311-12	3	3		Civil Engr. 421-22	3	3	
Civil Engr. 313			3	Civil Engr. 431-32-33	5	2	3
Engineering 341-42	3	3		Civil Engr. 441-42-43	3	3	3
Economics 211			3	Civil Engr. 451-52-53	3	3	3
Engineering 223			3	Civil Engr. 450			3
Elect. Engr. 301-2-3	3	3	3	Engr. 463			3
Engineering 301	3			Math. 462-63	3	3	
Civil Engr. 321	5			Engineering 401	3		
Civil Engr. 333			3	Sociology 301			3
Non-Tech. Elective		6					
Civil Engr. 300	0						
	20	18	18		20	19	18

## COURSES IN CIVIL ENGINEERING

211. *Route Surveying.* (3) Curves and earthwork problems with application to heavy construction; practice in establishing line and grade for highways, railways, sewers, water and steam distribution lines and other underground utilities; setting slope stakes; and erection of batter boards. Prerequisites: Engineering 123.

300. *Summer Field Practice.* (0) Mapping plane table, Transit and stadia circular curve layout, adjustment of instruments. Solar Observation. 2 weeks.

301. *Theory of Structures.* (3) Analysis of stresses due to fixed loads on statically determinate structures. Application of shear and moment diagrams to beams, columns and girders. Prerequisites: Physics 221, Math. 261-62.

302. *Theory of Structures II.* (3) Analysis of stresses due to movable loads on statically determinate structures. Application of principles of highway and railroad moving load diagrams; use of shear and moment influence lines in the design of bridges. Prerequisite: C. E. 301.

303. *Theory of Structures III.* (3) Application of elastic theory, moment distribution and method of least work in the application of elastic theory in the analysis of statically indeterminate structures. Prerequisites: C. E. 301-2.

313. *Hydraulics.* (3) Fundamentals of fluid behavior. It deals with the properties of fluids; theory of hydrostatics; basic principles of fluid flow and measurements, study of applied flow in pipes, open channels; and water power machinery. Prerequisite: C.E. 203,301. One lecture and two laboratory periods.

321. *Advanced Surveying.* (5) Computation Latitudes and Departures. Closure of traverse, Computation of Land Areas. Field Astronomy. Triangulation, Coordinate Systems, Topographic Theory. Prerequisite: Engr. 123.



COMMUNICATION OPTION

Junior Year Name of Course	Quarter			Senior Year Name of Course	Quarter		
	Hours	II	Credit		Hours	II	Credit
Engineering 342-43.....	3			Elect. Engr. 411-12-13...	3	3	3
Speech 203.....			3	Elect. Engr. 414-15-16...	1	1	1
Elect. Engr. 351-52.....	3	3		Major Electives.....	6	6	6
Elect. Engr. 363.....			3	Elect. Engr. 450.....			3
Elect. Engr. 373.....			3	Technical Electives.....	3	3	3
Elect. Engr. 321-22.....	1	1		Engr. 403.....			3
Elect. Engr. 383.....			1	Economics 212.....			3
Engr. 301.....	3			Civil Engr. 451.....	3		
Mech. Engr. 302.....		3		Engr. 311-12.....	3	3	
Engr. 221.....			3				
Mathematics 462-63.....	3	3					
Physics 311-12-13.....	3	3	3				
Elect. Engr. 361-62.....	3	3					
Elect. Engr. 372.....		1					
Non Technical elective..			3				
	19	20	19		19	19	19

COURSES IN ELECTRICAL ENGINEERING

211-12-13. *Fundamentals of Electrical Engineering.* (8) Introduction to electrical theory, including electrical units, direct current circuits, magnetic circuits, induced and generated emf., circuits containing resistance, inductance and capacitance, and electrostatic and magnetostatic fields. Three hours per week the first two quarters and two hours per week the last quarter. Prerequisite: Mathematics 161-2-3.

233. *Direct Current Machinery Laboratory.* (1) Laboratory experiments paralleling the theory of Electrical Engineering 311, taken concurrently with 311. One laboratory period per week.

301-02-03. *Elements of Electrical Engineering.* (9) Direct and alternating current theory. Direct and alternating current generators and motors, transformer theory, the amplidyne and synchro. For non-majors, Prerequisite, Math 262; Physics 221-22-23. Three lecture periods and one laboratory period.

311. *Direct Current Machinery.* (3) Basic theory of generator and motor action; dynamo magnetization curve; armature windings and armature reaction; voltage characteristics. Direct current generator; generation and control of e.m.f.; performance characteristics of shunt and compound types; parallel operation. Direct current motor; counter e.m.f., speed and torque characteristics; starting, reversing and speed control; performance characteristics of series, shunt and compound types. Starters and controllers, losses and efficiency of generators and motors. Prerequisites: E. E. 211-12-13.

321-22. *Alternating Current Measurements Laboratory.* (2) Laboratory experiments paralleling the theory of 351. One two-hour laboratory period per week.

351-52. *Alternating Current Theory.* (6) Instantaneous and effective currents, voltage, power, complex numbers, vector algebra, series and parallel circuits, resonance, network theorems, circle diagrams, balanced and unbalanced polyphase circuits, fourier series, and non-sinusoidal voltages and currents. Introduction to Heaviside notation. Prerequisite: E. E. 211-12-13; Mathematics 263.

361-62. *Electronics.* (6) A study of electron ballistics thermal and high field emission with application to the cathode ray tube and vacuum tubes. The diode and multi-element tubes, rectifiers and amplifiers, including ripple factor and feedback, large signal amplifiers and distortion, gas tubes. Prerequisites: E. E. 351-52.

363. *Introduction to Electrical Transients.* (3) Direct and alternating current transients in electrical circuits. Spectrum coefficient calculations by means of the fourier integral. Classical and transform solution of problems. Prerequisite: E. E. 352—Math. 462.

372. *Electronics Laboratory.* (1) Experimental determination of the operating characteristics of the diode, triode and multigrad vacuum tube circuits, cathode ray oscilloscope, circuits using gas-filled tubes and photo-tubes. Take concurrently with E. E. 362. One two-hour laboratory period per week.

373. *Electrical Networks.* (3) Kirchoff's laws. Mesh and node analysis. Network Theorems. Symmetrical and Asymmetrical T and pi networks. Bridge circuits.

383. *Electrical Networks Laboratory.* (1) Laboratory experiments paralleling the theory of E. E. 373. One laboratory period per week.

411-12-13. *Alternating Current Machine Theory.* (9) Theory of the transformer, polyphase and single phase motors, synchronous motors, alternators and converters. Prerequisites: E. E. 233, 311, 351-52, 321-22.

414-15-16. *Alternating Current Machine Laboratory.* (3) Laboratory experiments paralleling the theory of E. E. 411-12-13. One two-hour laboratory period each.

421-22-23. *Communication Engineering.* (6) A study of the principles of communication systems. The Fourier integral. Pole-zero method of circuit-behavior analysis. Resonance, infinite lines and reflection. Filters and equalizers. Impedance transformation and impedance matching by means of stubs. Modulation and demodulation.

431-2-3. *Communication Engineering Laboratory.* (6) Laboratory experiments paralleling the theory of E. E. 421-22-23. One four-hour laboratory per week.

441. *Power Transmission Lines.* (3) Inductance and capacitance of transmission lines. Long line equations. Steady state operation of transmission lines, circle diagrams of transmission lines.

442. *Electrical Power Networks.* (3) Solution of circuits by the methods of symmetrical components. Sequence impedances of power equipment. Determination of fault current in electrical systems.

443. *Power System Stability.* (3) The operation of power systems under abnormal conditions. Switching and lighting disturbances, transient stability, traveling waves and surge impedances.

444. *Electrical Machine Design.* (3) Principles of design of D C Machinery including complete design problems. Prerequisites: E. E. 231-352. Two one-hour lectures and one computation period.

445. *Electrical Machine Design.* (3) Principles of design of the transformer and induction motor including complete design problem. Prerequisites: E. E. 411-12. Two lecture periods and one computation period.

446. *Electrical Machine Design.* (3) Principles of design of A C Generators, synchronous converters, including complete design problem. Prerequisites: E. E. 411-12-13. Two one-hour lectures and one computation period.

450. *Senior Project.* (3) A technical paper on a special topic in Electrical Engineering. Prerequisites: Senior Standing.

451-2-3. *Ultrahigh Frequency Engineering.* (9) A general study of the techniques associated with ultrahigh frequency systems. Prerequisites: Math 462-63; E. E. 363.

471. *Industrial Electronics.* (3) Theory and operation of commercial industrial electronic equipment, with special reference to the practical applications. Three lecture periods.

472. *Industrial Control Equipment.* (3) Fundamental control circuits and operation. Basic types of power and control relays for power systems and industrial applications.

473. *Fundamentals of Servomechanisms.* (3) A study of elementary control systems. Viscous and error-rate damping. Integral control. Transfer function analysis. Prerequisites: E E 363-472.

DEPARTMENT OF MECHANICAL ENGINEERING

JAMES A. PARSONS, JR., E.E., Acting Head

The mechanical engineer is concerned with the design, construction, selection, operation, and maintenance of machines, whether constituting running or stationary equipment. His services are thus involved directly or indirectly wherever machines or mechanical equipment are made or used. Engines and turbines together with their associated equipment for the generation of power by steam, hydro or internal-combustion processes in stationary or transportation services, are of particular concern to the mechanical engineer in the power field. Yet, while power generation is basic and important, it is essential to recognize the even greater field of power utilization for transportation as in ships, aircraft, rail and highway vehicles, as well as in transport and conveyor systems, and through the use of machine tools in modern manufacturing processes. The branches of mechanical engineering are, indeed older than the field of power generation. The mechanical engineer has always been concerned with production, wherever hand tools, machine tools or process equipment are employed. There are, thus, an almost limitless number of problems and opportunities in the better design, utilization, operation, and maintenance of such apparatus.

The young man entering engineering will find ample opportunity for the exercise of his best abilities not only in one of the above mentioned branches of the profession but also, if he prefers to follow them, in the operating, management, sales activities of industry. Minimum quarter hours required for Bachelor of Science degree in Mechanical Engineering are 229.

*Metallurgical Engineering Option for Mechanical Engineers*

Nine hours of physical metallurgy are required of all mechanical engineers. These include Fundamentals of Physical Metallurgy 211, Physical Metallurgy 322 and Metallography 333. In addition Mechanical engineers may elect twelve hours of mechanical metallurgy including Foundry Theory 313, Foundry Practice 323, Advanced Foundry Theory 451 and Advanced Foundry Practice 461. The option is completed with Application Metallurgy 413 and a senior project in Metallurgy 450. All courses in Mechanical Metallurgy are based upon Metal Processing designed to prepare engineers for the rapidly developing foundry industry. The Foundry Educational Foundation is encouraging engineering students to enter this branch of industry where opportunities for engineers capable of assuming supervisory positions are significant both in quantity and quality.

CURRICULUM IN MECHANICAL ENGINEERING

Freshman Year			Sophomore Year				
Name of Course	Quarter Hours Credit			Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Mathematics 161-2-3	5	5	5	English 211	3		
English 101-2-3	3	3	3	Math. 261-62-63	5	5	5
Chemistry 111-12-13	4	4	4	Physics 221-22-23	4	4	4
Engr. 111-12-13	3	3	3	Engr. 211-12	3	3	
Speech 202		3		Engr. 202-3		5	5
Engr. 123			3	Mech. Engr. 312		3	
Engineering 101-2-3	1	1	1	Shop Practice (Fdry) 101	3		
Air Science I	1	1	1	Air Science II	1	1	1
Phys. Ed. 11-12-13	1/3	1/3	1/3	Speech 203			3
				Phy. Ed. 20's to 50's	1/3	1/3	1/3
				Engr. 223			3
17 1/3 20 1/3 20 1/3			19 1/3 21 1/3 21 1/3				

\* Mechanical Engineering majors may elect any two of the following shop courses: Foundry 101-2, Metal Bench Work 101, Sheet Metal 101-2.

Junior Year	Quarter Hours Credit			Senior Year	Quarter Hours Credit		
	I	II	III		I	II	III
Name of Course				Name of Course			
Engr. 341-42	3	3		Elect. Engr. 301-2-3	3	3	3
Sociology 301			3	Civil Engr. 301	3		
Engr. 301	3			Mech. Engr. 452-53		3	3
Mech. Engr. 302-3		3	3	Mech. Engr. 411-12-13	3	3	3
Mech. Engr. 311			3	Mech. Engr. 401-32-42	3	3	3
Met. Engr. 321	3			Mech. Engr. 450			3
Engr. 311-12	3	3		Engr. 463			3
Mech. Engr. 341-42-43	3	3	3	Electives	3	6	3
Math. 462	3			Engr. 401	3		
Electives		3					
Fuels and Lubricants 403			3				
Met. Engr. 333			3				
Economics 211		3					
Mech. Engr.			3				
18 18 21			18 18 21				

COURSES IN MECHANICAL ENGINEERING

302. *Thermodynamics.* (3) Energy relations of one-dimensional steady flow of compressible fluids applied to the DeLaval nozzle, simple orifice, and long pipe, simple single-stage impulse turbine; ideal power cycles; thermodynamics and processes of moist air; and other application. Prerequisite: Engr. 301.

303. *Thermodynamics.* (3) Application of principles of thermodynamics to selected problems of power production, heat transfer, fluid flow of a compressible medium, cycle analysis. Prerequisite: Mech. Engr. 302.

311. *Heat Power Engineering.* (3) A study of the principles involved in the utilization of heat in the steam boiler, steam turbine, and power plant auxiliaries; theory of heat transfer; fuels and combustion. Prerequisites: Math. 261-2-3. M. E. 302.

312. *Pattern-Making.* (3) The fundamental operations in sheet metal practice; developing and laying out patterns, shop practice in the use of sheet metal working tools and machines. One lecture period and four laboratory periods. Fee \$2.00.

333. *Advanced Machine Shop Practice.* (3) Experiments on machine tool performance, tool and fixture design, shop management and production problems. One lecture period and four laboratory periods.

341. *Kinematics.* (3) Analysis of mechanisms. A study of instantaneous centers, velocities, accelerations, and forces in plane mechanisms both analytical and graphical. Prerequisites: Math 263, Engr. 212 and Engr. 203. One lecture period. Two laboratory periods.

342. *Machine Elements.* (3) A study of rolling and sliding contact including belts, chains, cams and tooth gearing in plain and epicyclic train. Introduction to the design of machine elements. Prerequisite: Mech. Eng. 341. One lecture period. Two laboratory periods.

343. *Machine Design.* (3) The design of machine parts including shafting, gears, brakes, clutches, bearings, (sliding and anti-friction), springs, flywheels and frames. Prerequisite: Mech. Eng. 342.

401. *Heat and Air Conditioning.* (3) Theory design and installation of hot air, direct and indirect steam, hot water and fan heating systems; central heating and temperature control; air distribution, humidity control and conditioning equipment. Prerequisite: M. E. 303.

403. *Fuels and Lubricants*. (3) Laboratory practice in the analysis of solid, liquid and gaseous fuels and flue gas, followed by a short boiler test; lubricating oil tests, such as fire, flash, carbon residue, viscosity, corrosion and specific gravity. One lecture and four laboratory periods. Fee \$5.00.

411. *Steam Engineering I*. (3) Study of steam boilers and turbines; (steam generators and prime movers with emphasis on the application of thermodynamic principles). Operation and economics of power plants. Prerequisite: M. E. 311. One lecture and four laboratory periods.

412. *Steam Engineering II—Plant Design*. (3) A general plant layout is made for the equipment combination which will generate and distribute steam at the lowest cost for assigned conditions of load, location, type of fuel and other factors affecting design. Cost estimates required for alternate proposals; a term project. Six laboratory periods.

413. *Steam Engineering III*. (3) Tests for determining the economy, efficiency, and operating characteristics of steam and gas engines, steam turbines, pumps, boilers and other plant equipment. Standard practice is followed the power test code of the American Society of Mechanical Engineers being used as a laboratory manual. Six laboratory periods.

421. *Machine Design*. (3) The proportioning of machine elements by the application of mechanics and the principles of strength of materials modified by practical considerations, together with an elementary study of friction and lubrication. Prerequisite: M. E. 343. One lecture period. 2 Lab. periods.

422. *Machine Design*. (3) The actual design of a simple machine, including making of the necessary calculations, detail and assembly drawings. Prerequisite: M. E. 421.

432. *Refrigeration Engineering*. (3) An application of general thermodynamic theory to mechanical refrigeration and its commercial applications, including consideration of refrigerants and their properties, compounds and multiple effect compression and absorption systems, and recent developments.

442. *Refrigeration Laboratory*. (3) Tests on refrigeration machinery; cooling towers, and air-conditioning equipment. Prerequisite: M. E. 432. Six laboratory periods.

450. *Senior Project*. (3) A written thesis on a project in the student's major field of study.

452. *Internal Combustion Engines*. (3) The study of spark ignition and compression ignition engines; combustion, detonation, carburetion and fuels. Prerequisite: M. E. 303. Three lecture periods.

453. *Internal Combustion Engines Laboratory*. (3) The testing of internal combustion engines; fuels and combustion products; brakes and dynamometers; lubricating oil tests. Prerequisite: M. E. 452. Three laboratory periods.

Note: Students choosing the metallurgy option in Mechanical Engineering may do so by devoting all electives in the junior and senior years to the following Metallurgical Engineering courses: 322, 421, 432, 442 and 443.

#### COURSES IN METALLURGICAL ENGINEERING

321. *Physical Metallurgy*. (3) Application of equilibrium diagrams to the physical and mechanical properties of metals and alloys and their heat treatment. Recrystallization and grain growth, a quick coordinated practical working understanding of the various types of steel with special application to engineering design is offered. Prerequisite: Met. Engr. 211.

322. *Metal Processing I*. (3) Principles and processes of foundry operations; foundry materials including sands, clays, fluxes and core binders, calcination, thixotropy and the mechanism of bonding. Principles of soil mechanics as applied to molding and core making. Prerequisite: Met. Engr. 322.

333. *Metallography*. (3) Microstructure of alloys, as related to composition, thermal history and mechanical properties. Preparation of specimens.

Principles and use of the metallurgical microscope. Prerequisite: Met. Eng. 322. Two lectures and two laboratory periods.

421. *Metal Processing Lab. I*. (3) Testing of bonding material for foundry and core sands. Control of foundry sand mixtures. Melting, refining and alloying of aluminum and copper bearing alloys. Prerequisite: Met. Engr. 313. One lecture and four laboratory periods.

432. *Metal Processing II*. (3) Basic principles of solidification. The physics of gating and risering. Gases in liquid and solid metal, theory of hot tearing. Prerequisite: Met. Engr. 313.

442. *Metal Processing Lab. II*. (3) Electric melting practice. Induction furnace melting of low carbon stainless and tool steel, arc furnace melting and refining of carbon and alloy steels. Oxygen lance practice as applied to the production of low carbon stainless steel in the electric arc furnace. Prerequisite: Met. Engr. 323. One lecture and four laboratory periods. Laboratory fee \$5.00. (Formerly F. E. 461).

443. *Application Metallurgy*. (3) Selecting of Engineering alloys as a result of their ease of fabrication, resistance to high strength and toughness, wear and abrasion and other special physical and mechanical properties, alloy design, quality control and service behavior. Prerequisite: Met. Engr. 401.

450. *Senior Project*. (0) A written thesis on a project for Metallurgical Option majors. (formerly F. E. 450).

#### QUARTER HOUR DISTRIBUTION OF 300 AND 400 COURSES IN THE SCHOOL OF ENGINEERING

Department	Major		Non-Major		Total
	300 Courses	Non-Major	Major	Non-Major	
Engineering					
1. Architectural	34	9	37	12	92
2. Civil	27	21	44	6	98
3. Electrical Power Option	25	30	45	9	109
Communications Option	25	30	45	9	109
4. Mechanical Power Option	30	24	36	9	99
Metallurgy Option	36	24	36	9	105
5. Industrial Education					
Industrial Arts Educational Curriculum	13	17	22	11	63
Aviation Education Curriculum	19	23	19	11	72

#### DEPARTMENT OF INDUSTRIAL ARTS

MELVIN E. MOORE, M.S., *Head*

The major function of the Department of Industrial Arts is to offer instruction for the purpose of preparing and upgrading teachers of industrial arts, vocational industrial education and aviation education. A curricula is provided for persons preparing to teach industrial arts and aviation education, and professional courses are provided for the upgrading of vocational industrial education teachers.

#### CURRICULUM IN INDUSTRIAL ARTS EDUCATION

Persons pursuing the industrial arts education curriculum will be qualified to teach industrial arts in general education programs in the schools of Tennessee. Successful completion of this curriculum leads to the degree of Bachelor of Science and qualifies one to obtain a state teaching certificate in the area of industrial arts.

To qualify for the Bachelor of Science degree in Industrial Arts Education, the student must complete 212 quarter hours of which 90 quarter hours must be 300 and 400 level courses. A major is required to complete 93 quarter hours in Industrial Arts Education, of this number 45 quarter hours must be taken on the 300 and 400 levels.

The following requirements must be met by all majors in order to qualify for teacher certification in Industrial Arts:

1. The completion of a minimum of 69 Quarter hours credit in the Industrial Arts area including:
  - a. 18 Quarter hours in Drawing which are Engr. Drawing 101-2-3 and Ind. Arts Drawing 202-3.
  - b. 15 Quarter hours in Woodworking (101-2-3 and 401 or 111-12-13 and 401).
  - c. 15 Quarter hours in Electricity (101-2-3 and 401).
  - d. A choice of 9 Quarter hours of the 101-2-3 series of Sheet Metal or Machine Shop or Radio or Electrical Appliances or Printing or Masonry or Plumbing or Aero Mechanics.
  - e. 6 Quarter hours of Electives in any of the shops above.
  - f. 6 Quarter hours of Art Appreciation and Design (Ind. Arts 401 and Art. 102).

#### CURRICULUM IN INDUSTRIAL ARTS EDUCATION

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
English 101-2-3	3	3	3	English 211-12-13	3	3	3
Mathematics 131-32-33	3	3	3	*Engr. Drawing 201	3		
Health 151	3			*Indus. Arts 202-3		3	3
*Art 102, 133		3	3	Soc. Studies 111-12-13	3	3	3
*Engr. Drawing 101-2-3	3	3	3	Physics 211-12-13	4	4	4
Engr. Orientation				Air Science 251-52-53	1	1	1
101-2-3	1	1	1	Phy. Educ. 20's to 50's	1/3	1/3	1/3
Air Science 151-52-53	1	1	1	*Electricity 101-2-3	3	3	3
Phy. Educ. 11-12-13	1/3	1/3	1/3				
*Woodworking 101-2-3 or 111-12-13	3	3	3				
	17 1/3 17 1/3 17 1/3				17 1/3 17 1/3 17 1/3		

or

\*101-2-3 Series of: Electricity; Sheet Metal; Machine Shop; Radio; Electrical Appliances; Printing; Masonry; Plumbing; Aero Mechanics.

\*101-2-3 Series of: Woodworking; Sheet Metal; Machine Shop; Radio; Electrical Appliances; Printing; Masonry; Plumbing; Aero Mechanics.

\*Major Area Courses

Junior Name of Course	Quarter Hours Credit			Senior Name of Course	Quarter Hours Credit		
	I	II	III		I	II	III
Education 201, 301, 387	3	3	3	Psychology 463			3
Psychology 242-43, 312	3	3	3	Education 371, 462	3	3	
Indus. Educ.				*Indus. Educ.			
311, 331-32	3	3	3	471-72, 450	3	6	3
Mathematics 200	3			Electives (300 or 400 courses)	6	3	6
Health 212		3		*Shop Electives: 401- 2-3 Series of: Wood- working; Electricity; Sheet Metal; Machine Shop; Radio; Print- ing; Electrical Appli- ances; Plumbing; Ma- sonry, Aero Mechanics	6	6	6
Philosophy 323			3				
*Indus. Arts 401	3						
*Indus. Educ. 412		3					
Soc. Studies 114		3					
*Shop Electives: 101- 2-3; Series of: Wood- working; Electricity; Sheet Metal; Machine Shop; Radio; Print- ing; Electrical Appli- ances; Plumbing; Ma- sonry; Aero Mechanics	3	3	3				
	18 21 15				18 18 18		

#### COURSES IN INDUSTRIAL ARTS

202. *Architectural Drafting.* (3) Designed to give instruction in the fundamentals of Drafting of small building constructions and plans such as; school-shops, home garages, and small homes.

203. *Advanced Architectural Drafting.* (3) A continuation of Industrial Education 202. (Architectural Drafting) and gives instruction and practices of drafting details in small construction.

301. *Art Metal.* (3) Projects are designed and constructed of brass, copper, aluminum, pewter and silver. Projects are selected that involve the use of hand processes and simple machine work in forming heat treating, soldering, spinning, etching, polishing and finishing art metal. Six combined lecture and laboratory periods.

302. *Leather Craft.* (3) Deals with the sources and procurement of tools and materials for the construction of leather projects. The processes of tooling, modeling, dyeing and lacing of leather are studied. Six combined lecture and laboratory periods.

303. *Plastics.* (3) Plastic materials and their application to industrial arts shop work; principles and techniques of constructing plastic projects. Six combined lecture and laboratory periods.

401. *Industrial Arts Design.* (3) The application of the fundamental principles of design and construction to all types of school shop projects. Working drawings are made of projects. Six combined lecture and laboratory periods.

402. *Wood and Metal Finishing.* (3) Different kinds of finishes applicable to both wood and metal are studied. Hand painting, varnishing, rubbing, polishing and using power spray equipment will be emphasized. Six combined lecture and laboratory periods.

#### COURSES IN INDUSTRIAL EDUCATION

201-2-3. *Basic Experience in Trade and Industrial Education.* (9) Effective methods of teaching and the use of specialized instructional aids and devices.

311. *History and Philosophy of Industrial Education.* (3) History and de-

\*Major Area Courses

velopment of Industrial Education; social and economic reasons for present educational movements; types of modern industrial schools and courses; apprenticeship systems and training of workers in modern industry.

321-2-3. *Part-time Program in Diversified Occupations.* (9) Principles of organizing and promoting such programs, analyzing needs, preparing schedules of processes, selecting materials for related-subjects teaching, and carrying on supervised study and coordination.

331. *Shop Organization and Management.* (3) Securing equipment, making inventories and arranging for proper storage of materials, supplies and tools. Typical shop layouts, arrangements for tool rooms, stock rooms and storage facilities; keeping records and accounts. Personnel management of students and the organization of students' participation in shop management and safety.

332. *Industrial Aids.* (3) This course is designed to motivate and teach industrial education students to use, design and construct teaching aids for industrial classrooms and shops. Students are actually required to construct three-dimensional teaching aids.

333. *Materials and Methods for Shop and Related Subjects Teachers.* (3) Detailed study, combined with actual operation of each of the several standard types of projects, lesson planning for teaching specific units involving audio-visual aids; maintenance, and repair of projection equipment. The design and construction of models, static and dynamic selected for use in specific teaching units.

400. *Driver Education and Traffic Safety.* (3) Set up to teach the beginning driver to drive according to standards of the American Automobile Association. Six lecture and laboratory periods.

410. *Teaching, Methods in Driver Education and Traffic Safety.* (3) Designed to prepare teachers, administrators and supervisors of driver education. It involves practice in both class-room and behind-the-wheel phases of the program. Prerequisite: 400. Six lecture and laboratory periods.

411. *Foremanship Training by the Conference Method.* (3) The use of the conference as an instructional device; special methods, techniques, and procedures to be used in foreman training; duties and responsibilities of the typical industrial foreman. How to follow up foreman conferences by means of foremen's clubs, plant educational programs.

412. *Job Analysis.* (3) The principles of job analysis for the purpose of listing teaching content in trade and industrial education. Practice in analyzing trade jobs for production, auxiliary and related technical content; instructional difficulties and progression factors.

413. *Job Analysis.* (3) A continuation of 412. Analytical study of the related knowledge necessary for certain type jobs and typical industries. Emphasis on development of the best instructional methods for teaching industrial subjects.

431-2. *Curriculum Building in Trade and Industrial Subjects.* (6) Arranging course material in trade subjects; following up results of job analyses, preparing checking sheets and individual job sheets in both trade and related subjects. Prerequisite: 412.

435-6-7. *Problems in Trade and Industrial Teaching.* (9) Individual or group work on assigned or chosen problems involving the preparation, use and evaluation of instructional material for use in vocational industrial classes. Research involving compilation and study of student records, employment placement, job progress, earning, wage scales and similar items may also be carried out.

450. *Senior Project.* (3) Each senior is required to select and execute a project under the supervision of his major advisor. It may involve the designing and making of a project complete with drawing, pictures, specifications and detail date involved in its construction; or a research and compilation of a subject within the field of the student's interest.

471. *Methods of Teaching Industrial Education.* (3) Lesson planning, techniques of the demonstration, plans for related instruction; and methods of testing are studied.

472. *Directed Teaching.* (6) This course provides an opportunity for each prospective industrial education teacher enrolled at this institution to engage in the actual observation and teaching of industrial education classes in the secondary schools in this state.

#### CURRICULUM IN AVIATION EDUCATION

The curriculum in aviation education is designed to meet requirements of the Tennessee State Department of Education for certification as a public school teacher of aviation education. It covers material in the five basic areas as follows:

1. Theory of Flight—Why the airplane flies
2. Flight Techniques—How the airplane is flown
3. Meteorology—The problem of weather
4. Navigation—How to get there
5. Specialized training—Skilled trade for industry

To qualify for the Bachelor of Science degree in Aviation Education, the student must complete 212 quarter hours of which 72 must be in 300 and 400 level courses. A major is required to complete 99 quarter hours in Aviation Education, of this number 30 quarter hours must be taken on the 300 and 400 levels.

#### AVIATION EDUCATION CURRICULUM

Freshman Year Name of Course	Quarter Hours Credit			Sophomore Year Name of Course	Quarter Credit Hours		
	I	II	III		I	II	III
English 101-2-3	3	3	3	English 211-12-13	3	3	3
Engr. Drawing 101-2-3	3	3	3	Engr. Drawing 211	3		
Aero Mechanics 101-2-3	3	3	3	Aero Mechanics 201-2-3	3	3	3
Mathematics 131-2-3	3	3	3	Physics 211, 212, 213	4	4	4
Engr. Orientation 101-2-3	1	1	1	Social Studies 111-12-13	3	3	3
Air Science 151-2-3	1	1	1	Air Science 251-2-3	1	1	1
Aviation Educ. 111	3			Aviation Educ. 202-3		3	3
Health 151		3		Phy. Educ. 20's to 50's	1/3	1/3	1/3
Art 133			3				
Phys. Educ. 11-12-13	1/3	1/3	1/3				
	17 1/3	17 1/3	17 1/3		17 1/3	17 1/3	17 1/3
Junior Year Name of Course	Quarter Hours Credit			Senior Year Name of Course	Quarter Credit Hours		
I	II	III	I		II	III	
Social Studies 114			3	Psychology 463			3
Psychology 242-243-312	3	3	3	Education 462	3		
Education 201-301-387	3	3	3	Shop Electives	3	3	3
Health 212		3		Electives Restricted to 300 and 400 level Courses	6	3	9
Mathematics 200	3			Aviation Educ. 471-450- 403	3	3	3
Shop Electives	3	3	3	Aviation Educ. 472		6	
Aviation Educ. 321-22-23	3	3	3	Education 371	3		
Aviation Educ. 311-12	3	3		Philosophy 323		3	
Education 342			3				
	18	18	18		18	18	18

#### COURSES IN AVIATION EDUCATION

111. *Model Building.* (3) A course specifically designed for prospective teachers of aviation education. It deals with the structure and design for various model assembly. Six laboratory hours.

202. *Aircraft Familiarization.* (3) Designed to acquaint the student with the operation, parts and assembly and routine inspection of light aircraft.

203. *Implications of Aviation.* (3) Deals with the social, geographic, economic and political implications of the air age.

311. *Communications.* (3) The development of methods of communication, radio navigation, morse code, etc.

312. *Civil Air Regulations.* (3) Federal, State and local safety regulations with its application to aviation.

321. *Theory of Flight and Engines.* (3) The laws of nature as applied to aviation, also the principles, familiarization and operations of the internal combustion and jet engines.

322. *Aerial Navigation.* (3) The principles involved in scientifically going from one place to another by means of air travel. Practical experience is offered in this course.

323. *Elementary Flight.* (3) How to fly with actual flight experience and instruction. Ten clock hours of dual flight instruction. One lecture and two laboratory periods.

401. *Link Trainer Operation.* (3) The principles involved in the Link Trainer, its operation and maintenance.

402. *Advanced Flight.* (3) Supervised solo with dual flight instruction and experience. One lecture and two laboratory periods.

403. *Meteorology.* (3) General effects of weather phenomena. Special study of its relation to aviation.

412. *Aerodynamics.* (3) A general course dealing with the properties of air flow, air foil characteristics, wing theory, parasite drag, introduction of stability and control, and wind tunnel experiments.

413. *Aviation Education Workshop.* (3) Designed primarily for in-service teachers whose objectives are to enrich their curriculum by weaving air age materials into their specific subject area. Development of classroom procedures.

450. *Senior Project.* (3) Each senior is required to select and execute a project under the supervision of his major advisor. It may include the development of a complete course outline or research and compilation of a subject within the field of a student's interest.

471. *Materials and Methods for Aviation Education.* (3) A detailed study of selected teaching aids, effective methods of preparing and using patterns for blackboard drawings, charts, diagrams, posters, audio visual aids, design and construction of models, static and dynamic selected for use in specific teaching units.

472. *Directed Practice Teaching in Aviation Education.* (6) Observation of aviation education classes of all types. Preparation of lesson plans and directed teaching in at least three classes. Prerequisite: All required subjects in junior year of aviation education curriculum. Open only to majors in Aviation Education.

#### COURSES IN AERO MECHANICS

101. *Aircraft Basic Science.* (3) Covers those subjects which are generally regarded as essential for both aircraft mechanics and aircraft engine mechanics. This includes foundation in: theory of flight, airfoil design, blue print reading, aircraft materials and standards, internal combustion engine principles; and fundamentals of aircraft electrical and ignition systems. Six lecture and laboratory periods.

102. *Elementary Engines.* (3) Chemistry of combustion. Two and four stroke cycle engine design. Basic engine parts including their mechanical functions and requirements. Carburetion and fuel induction system design, magneto and ignition system design and operation; and engine firing orders and ignition timing. Heat transfer, cooling and lubrication. Six lecture and laboratory periods.

102. *Elementary Aircraft.* (3) Aircraft structural designs and requirements. Welded steel tube, aluminum alloy and wood fuselage and wing structures; dope and fabric covering. Aircraft system design and requirements. Fuel, oil, and hydraulic system control mechanism design. Fabrication procedures for metal and composite structures. Six lecture and laboratory periods.

201. *Advanced Engines.* (3) Disassembling, cleaning and visual inspection procedure. Maintenance and inspection requirements of ignition and fuel induction systems. Maintenance technique for valve and actuating mechanism. Inspection, installation and tracking of fixed pitch wood propellers. Power calculations. Engine run-up operation and preflight checks. Prerequisites: 101-2. Six lecture and laboratory periods.

202. *Advanced Aircraft.* (3) Classification of repairs and alterations. Practical application of aircraft welding. Repair methods for tubular steel, fabricated sheet metal and wood structures. Requirements of aircraft dopes, protective coatings and refinishing materials. Spral painting. Fabrication of transparent plastic materials. Prerequisites: 101 and 103. Six lecture and laboratory periods.

203. *Engine Overhaul.* (3) Engine removal and handling safety precautions. Dimensional inspection of engine parts, magnetic particle inspection of steel parts, fluorescent penetrant and x-ray inspection of non-ferrous metal parts. Cylinder and crankcase assembly overhaul; accessory section overhaul. Sub-assembly, final assembly and final inspection. Installation of engine in aircraft, starting procedures; run-up and preflight check. Prerequisite: 201. Six lecture and laboratory periods.

301. *Airframe overhaul.* (3) Aircraft disassembly, repairs, alterations, re-covering and refinishing. Aircraft system inspection, repair, and modification. Civil Air Regulations concerning aircraft repair, alteration and modification. Compliance of airworthiness directives. Making and reading drawings of repairs, alterations and modifications. Finding center of gravity location by weighing aircraft and by comparison methods. Inspection and overhaul of aircraft electrical systems, control surfaces, and control mechanisms, methods of splicing control cables, wood spars, and cap strips. Airplane assembly and final inspection for flight test. Prerequisite: 202. Six lecture and laboratory periods.

302. *Aircraft Engine Accessory Overhaul.* (3) Inspection and overhaul of float type carburetors, magnetos, battery ignition distributors. Starting motors, generators, voltage-current regulators, vacuum pumps and fuel, oil, and hydraulic pumps. Service adjustment requirements of pressure injection type carburetors. Servicing lead acid type aircraft batteries and auxiliary power units. Operation of machine tools and test equipment required in the overhauling of aircraft engine accessories. Installation and final inspection of accessories. Civil Air Regulations concerning accessory airworthiness. Prerequisite: 101. Six lecture and laboratory periods.

303. *Aircraft Propeller Fundamentals.* (3) Inspection servicing and making minor repairs of fixed pitch metal propellers, two position propellers, McCauley controllable and constant speed propellers, Hartzelle and Beech controllable pitch propellers, Aero products Aeromatic propellers, Hamilton standard hydromatic propellers and Curtis electric propellers. Civil Air Regulations concerning repairs and overhaul of aircraft propellers. Overhaul and maintenance of propellers governors and control devices. Bench work and shop practice; use of hand tools, test equipment, and propeller balance stand; and dynamic and static balance technique. Prerequisite: 101. Six lecture and laboratory periods.

401. *Airframe Maintenance.* (3) Repair and maintenance of fabric covered composite, tubular steel and sheet metal structures. Servicing and replacement of tires, wheels and brakes. Repairs and adjustments of aircraft electrical system and control units. Maintenance of landing gear mechanism, hydraulic system and essential units. Trouble shooting on live aircraft malfunction conditions. Repair and maintenance of control columns and control mechanism. Conducting 100-hour inspections and complying airworthiness directives. Civil Air Regulations concerning airframe repairs. Prerequisite: 301. Six lecture and laboratory periods.

402. *Power Plant Maintenance.* (3) General engine maintenance, malfunction problems on live engines. Repair and maintenance of carburetors, ignition systems, spark plugs, magnetos and battery ignition distributors, valve and valve operating mechanisms, cylinder assemblies, baffles; cowling and cooling systems. Engine mount structure and dynamic suspension maintenance and repairs. Adjusting fuel, oil and vacuum pressure regulators. Oil pump and lubrication system repairs. Field servicing aircraft propellers. Prerequisite: 203. Six lecture and laboratory periods.

403. *Aircraft Radio.* (3) Aircraft radio design, operation, installation and requirements. Repairs, adjustments and alignments of low frequency range receivers, crystal controlled receivers, crystal controlled transmitters, transceivers, and manual direction finding receivers. Antenna design and impedance matching. Repairs, adjustments, alignments and calibration of radio compass, omnirange, localizer and glide slope receivers. Transmitter frequency control methods and Federal Communication Commission regulations pertaining to repairs and operation of two-way radio. Electronic auto pilot design and operations; installation, repair, ground and flight calibration. Civil Aeronautics Technical Standard order requirements and Civil Air Regulations concerning radio and electronic installations. Prerequisite: Radio 111. Six lecture and laboratory periods.

#### COURSES IN ELECTRICAL APPLIANCE SERVICING AND AIR CONDITIONING

101. *Principles of Heating Appliances.* (3) Designed to acquaint the student with the fundamentals of electricity and the servicing of heating resistance appliances. Six lecture and laboratory periods.

102. *Servicing Motor Driven Appliances.* (3) Designed to acquaint the student with the theory and servicing of motor driven electrical appliances. Six lecture and laboratory periods.

103. *Domestic Refrigeration Servicing.* (3) Designed to acquaint the student with the theory of refrigeration and the use of tools in soldering and flaring, also compressor rebuilding. Six lecture and laboratory periods.

201. *Domestic Refrigeration Servicing.* (6) A study of the methods of transferring, removing and charging a system with refrigerants and converting from one system to another. Prerequisite: 103. Twelve lecture and laboratory periods.

202. *Compressor Rebuilding.* (6) A study of the methods of listing and rebuilding of reciprocating and rotary compressors, also refrigerant controls. Prerequisite: 201. Twelve lecture and laboratory periods.

203. *Commercial Refrigeration.* (6) The assembly, disassembly of commercial refrigeration equipment, also testing and inspection procedures. Prerequisite: 202. Twelve lecture and laboratory periods.

411. *Selection of Air Conditioning Equipment.* (6) A study of cooling and heating load calculations and the properties of air and the methods of treating it for human comfort. Prerequisite: 103. Twelve lecture and laboratory periods.

412. *Installation of Air Conditioning Equipment.* (6) A study of coded and non-coded installations. Location of units, cooling towers, and air conditioning controls. Prerequisite: 411. Twelve lecture and laboratory periods.

413. *Air Conditioning Servicing.* (6) A study of the methods of servicing air conditioning equipment and controls. Prerequisite: 412. Twelve lectures and laboratory periods.

#### COURSES IN ELECTRICITY

101. *Elements of Electricity.* (3) The elementary principles of direct and alternating current generation, distribution and utilization in light, power and communication. Information concerning electrical laws and practices in an immediately usable form. Six lecture and laboratory periods.

102. *Residential Wiring.* (3) Practice in house wiring; calculating and determining the size of service and circuits; wiring symbols; methods and procedures of wiring; installation of electrical equipment and devices. Prerequisite: 101. Six lecture and laboratory periods.

103. *Generator and Motor Rewinding and Repairing.* (3) Practice in trouble-shooting, repairing and rewinding and alternating current machinery. Prerequisites: 101. Six lectures and laboratory periods.

201. *Generator and Motor Rewinding and Repairing.* (6) This course is a continuation of Electricity 103. Twelve lecture and laboratory periods.

202. *Industrial Wiring.* (6) Designing and installing wiring systems for laboratory periods.

203. *Lighting, Estimating, National Electrical Code.* (6) Elementary lighting theory, fixture selection and maintenance, theory and operation of fluorescent lights. Estimating materials. Rules and regulations as prescribed by the current National Electric Code. Prerequisite: 102. Twelve lecture and laboratory periods.

#### COURSES IN MACHINE SHOP

101. *Fundamentals of Machine Shop.* (3) Fundamentals of shop mathematics, tool identification, proper methods and uses, tool classification, rules and scales. Six lecture and laboratory periods.

102. *Lathe Turning.* (3) Tree lathe nomenclature, chucking micrometer reading, simple turning, roughing, polishing. Lathe set up gigs and fixtures. Six lecture and laboratory periods.

103. *Lathe Gearing.* (3) Lathe maintenance, collets, turning between centers, shoulder turning, taper turning, threading, kirling and lathe drilling. Six lecture and laboratory periods.

401. *Drilling and Drill Bits.* (6) Safety nomenclature, drilling set up. Layout, counter sinking, counter boring, drill bits, speeds and feeds, drill bit grinding, care and operation. Twelve lecture and laboratory periods.

402. *Milling Machines.* (6) Nomenclature, maintenance set up, gigs and fixtures, gang milling, slotting, slab milling, cutter grinding, determining cutters for the job. Twelve lecture and laboratory periods.

403. *Shaper and Planer.* (6) Shaper tool making, gearing, determining stroke speed and feeds, parts nomenclature, dove-tail cutting, cutting keyways, reading shop drawings, job estimating, materials. Twelve lecture and laboratory periods.

#### COURSES IN MASONRY

101. *Fundamentals of Bricklaying.* (3) The study of materials, care and use of tools, mortar making and spreading; laying bricks between vertical points, building piers. Six lecture and laboratory periods.

102. *Brick Construction.* (3) The construction of walls, steps and flues. Excavating. Six lecture and laboratory periods.

103. *Foundations, Construction.* (3) The study and construction of simple, spread and stepped footings; foundation walls and underpinning. Prerequisite: 101. Six lecture and laboratory periods.

401. *Advanced Brick Construction.* (6) The study of construction of chimneys, mantels, special wall designs, arches and bonds. Prerequisite: 101. Twelve lecture and laboratory periods.

402. *Fundamentals of Plastering.* (6) The study of common materials; care and use of tools. Mixtures and application. Prerequisite: 101. Twelve lecture and laboratory periods.

403. *Fundamental Concrete Work, Cement Finishing.* (6) The study of materials, care and use of tools. Application of concrete mixtures, form building, construction of foundation walls, walks and floors. Prerequisite: 101. Twelve lecture and laboratory periods.

#### COURSES IN PLUMBING

101. *Fundamentals of Plumbing.* (3) Plumbing defined; duties and responsibilities; classification of tools and materials; selection of tools and materials; development of simple tool handling techniques. Six lecture and laboratory periods.

102. *Pipe Connecting.* (3) Pipe forming, threading, joining cast iron joints, leading, sweating joints and fitting. Six lecture and laboratory periods.

103. *Plumbing Layout and Rough-In Work.* (3) Drainage assembly, ventilation, main vents, continuous vents, roughing-in water service. Application of water and air test, water treatment and purification. Prerequisite: 102. Six lecture and laboratory periods.

401. *Plumbing Fixture Installation.* (6) Determining the cost of labor and materials for installations of common plumbing fixtures. Assembly and study of fixtures and pumps. Prerequisite: 103. Twelve lecture and laboratory periods.

402. *Plumbing Maintenance.* (6) Maintenance and repair of water supply, drainage systems, water heaters and plumbing fixtures. Prerequisite: 401. Twelve lecture and laboratory periods.

403. *Plumbing Codes and Estimation.* (6) Estimating cost of labor and materials for installation of plumbing. Blueprint reading and laws governing plumbing regulations. Prerequisite: 402. Twelve lecture and laboratory periods.

#### COURSES IN PRINTING

101. *Introductory Printing.* (3) Designed to acquaint the beginning student with the history of printing, type of classification, hand composition, proofing and proof-reading, make-up and composition and lock-up of simple job forms. Six lecture and laboratory periods.

102. *Platen Presswork.* (3) Skills are developed in the care and maintenance, register, make-ready and feeding of the platen presses. Prerequisite: 101. Six lecture and laboratory periods.

103. *Advanced Typography.* (3) Emphasis on the development of skills in the make-up, composition of book forms, newspaper, pamphlets, brochures and broadsides. Six lecture and laboratory periods.

401. *Linotype Keyboard Operation.* (6) Emphasis on correct keyboard fingering and everyday maintenance of the machine. Prerequisite: 101. Twelve lecture and laboratory periods.

402. *Cylinder Presswork.* (6) Care, maintenance, make-ready, and operational skills developed. Prerequisite: 101. Twelve lecture and laboratory periods.

403. *Cutting, Folding, Stitching, Perforating, Cost Findings and Estimating.* (6) Standard sizes, weights and proper uses of cover, card, book and bond papers are studied; the development of skills in the operation of the power paper cutter, folding machines, stitcher and perforator. Also copy fitting and estimating of the cost of production of all types of printed matter are studied. Prerequisite: 101. Twelve lecture and laboratory periods.

#### COURSES IN RADIO

101. *Radio Fundamentals.* (3) Radio and electronics fundamentals. Foundation in radio theory and practice. Six lecture and laboratory periods.

102. *Radio Servicing.* (3) Repair, testing and alignment of radio receivers. Prerequisite: 101. Six lecture and laboratory periods.

103. *The Recording and Reproduction of Sound.* (3) Theory of sound recording on discs and tape. Prerequisite: 101. Six lecture and laboratory periods.

111. *General Radio.* (3) Radio orientation course for engineering students. Familiarizes student with electronics and radio theory. Six lecture and laboratory periods.

401. *Television Theory and Practice.* (6) Design and operation of T. V. receivers. Prerequisite: 101. Twelve lecture and laboratory periods.

402. *Television Servicing.* (6) Repair, testing and alignment of T. V. receivers. Prerequisite: 401. Twelve lecture and laboratory periods.

403. *Radio Transmitters and Communications Procedure.* (6) Transmitter design and operation; F.C.C. laws and procedures. Prerequisite: 401. Twelve lecture and laboratory periods.

#### COURSES IN SHEET METAL

101. *Fundamentals of Sheet Metal Work.* (3) A course designed to acquaint the student with the use of measuring and layout tools common to sheet metal work; principles of orthographic projection; parallel and radial methods of development and their application of layout work; and the measurement and layout of edges, seams and notches. Six laboratory and lecture periods.

102. *Sheet Metal Hand Processes.* (3) A course that treats basic trade theory and related hand processes performed in sheet metal work with hand, bench, cutting and layout tools. Six laboratory and lecture periods.

103. *Sheet Metal Machine Processes.* (3) A basic course dealing with the theory and operation of sheet metal machines and accessories. Six laboratory and lecture periods.

201. *Sheet Metal Pattern Work and Development.* (6) A course designed to correlate pattern drafting and shop practice dealing with parallel, radial, and triangulation methods of pattern development. Prerequisites: 101-2-3. Twelve laboratory and lecture periods.

202. *Advanced Sheet Metal Work.* (6) A study involving practical and shortened methods of developing patterns for general sheet metal work with emphasis on features of construction and labor saving expedients. Prerequisites: 101-2-3. Twelve laboratory and lecture periods.

203. *Architectural Sheet Metal Work.* (6) Theory and practice in the development and construction of patterns involving the use of sheet metal as related to building construction. Prerequisites: 101-2-3. Twelve laboratory and lecture periods.

#### COURSES IN WOODWORKING

101. *Fundamentals of Carpentry.* (3) Modern tools and portable machinery materials and their uses. Carpentry specifications, modern house construction. Six lecture and laboratory periods.

102. *Foundation Construction.* (3) Beginning construction work. Staking and laying out foundation walls. Forms for footings. Forms for foundation walls, methods used in building forms. Prerequisite: 101. Six lecture and laboratory periods.

103. *Walls and Floor Framing.* (3) Types of wall framing, sill construction, girders and beams, joints, budging subflooring, outside walls, partition wall, framing, rough openings, second floor joists, and wall sheathing. Prerequisite: 101. Six lecture and laboratory periods.

111. *Hand Woodworking.* (3) A study of the proper use and care of common hand woodworking tools by the construction of simple projects that involve their uses. Six lecture and laboratory periods.

112. *Machine Woodworking.* (3) Emphasis is placed upon the proper maintenance and operation of such power woodworking machines as circular saws, shapers, morticers, band-saws, surfacers and jointers. Simple projects are constructed that involve the uses of these machines. Six lecture and laboratory periods.

113. *Wood Turning.* (3) Deals with the basic wood lathe techniques and processes that are involved in turning and finishing simple turned projects. Six lecture and laboratory periods.

401. *Roof Framing.* (6) Styles of roof, gable roof, hip roof, gambrel roof. Principles of roof framing. The ridge common rafter. Hip rafter, layout of overhang and tail cut, valley rafter, jack rafter, dormer roof. Prerequisite: 101. Twelve lecture and laboratory periods.

402. *Exterior Finish.* (2) Covering for roof and wall, simple open and box cornice, gable trim, placing door and window frames, water table, corner boards. Porch cornice, bay window trim and exterior wall covering. Prerequisite: 101. Twelve lecture and laboratory periods.

403. *Interior Finish and Millwork.* (6) Interior wall covering, interior trim, types of casings and base laying, finished floor fitting and hanging doors. Mortise locks, stair construction, installing cabinets, built-in kitchen units and interior molding. Prerequisite: 101. Twelve lecture and laboratory periods.

DEPARTMENT OF AIR SCIENCE  
AIR FORCE RESERVE OFFICERS TRAINING CORPS

**Purpose of the Air Force Reserve Officers Training Corps**

The AFROTC program is a major source of officers for the Air Force. The purpose and specific objectives of the program are:

- a. To develop in the cadet by precept, example and participation the attributes of character, personality, and leadership which are essential to every officer of the Air Force;
- b. To develop in the cadet an interest in the Air Force and an understanding of its missions, organization, problems, and techniques;
- c. To provide the cadet with a course of military education which, with his academic curriculum, will qualify him to discharge the duties and responsibilities required of him as an officer of the Air Force;
- d. To develop in the cadet the desire to make a career as an officer in a component of the Air Force;
- e. To motivate the cadet to obtain an aeronautical rating in the Air Force upon graduation.

**Mission of Air Force Reserve Officers Training Corps**

The mission of the AFROTC is to select and prepare cadets, through a permanent program of instruction at this university, to serve as officers in the Regular and Reserve components of the Air Force, and to assist in discharging, where necessary, any institutional obligations to offer military training.

**Statutory Requirements**

Eligibility for formal enrollment is limited by law to students at institutions where AFROTC units are established who are:

- a. Citizens of the United States.
- b. Not less than 14 years of age.
- c. Physically qualified for military service, or will be so on arrival at military age.

**Character Requirements**

a. Good moral character is a prerequisite for enrollment and continuance in the AFROTC. A student who has been convicted by a court-martial or by a civil court for any offense other than a minor traffic violation will not be certified for Selective Service deferment as a basic student nor will he be enrolled initially or continued in the Advanced Course unless such offense is waived by competent authority.

b. Persons eliminated from a service academy or from any officer training program of the Army, Navy, or Air Force for military inaptitude, indifference, or undesirable traits of character will not be formally enrolled or permitted to wear the AFROTC uniform.

c. Persons eliminated for disciplinary reasons from a service academy or from one of the officer training programs of the Army, Navy, or Air Force will neither be certified for Selective Service deferment as basic students nor formally enrolled in the Advanced Course, unless a waiver is granted by competent authority.

**Loyalty Requirements**

A student who does not sign the following certificate which will be a part of his record, will not be formally enrolled in the basic course: "I do solemnly swear (or affirm) that I will support and defend the Constitution of the United

States against all enemies, foreign or domestic; that I will bear true faith and allegiance to the same; and that I take this obligation freely, without any mental reservation or purpose of evasion; so help me God."

#### Age Requirements

A student will not be enrolled initially or be allowed to re-enroll in the AFROTC after a period of nonparticipation in AFROTC training, if his age is such that he will be unable to complete all requirements for appointment as a Reserve of the Air Force prior to reaching his 28th birthday.

#### Institutional Requirement (Enrollment in Basic Course)

In keeping with the provisions of the Morrill (Land Grant) Act, Tennessee A&I State University requires as a prerequisite for graduation that all physically qualified male students enroll in the Air Force ROTC until they complete the two-year basic course, provided they meet all other requirements as outlined above. The determination of who may be excused from the institutional military training requirement on the basis of previous military training or service, or for other reasons, is the prerogative of the institutional authorities.

#### Enrollment in Advanced Course

Four categories are open to advanced course enrollees as listed below. Qualified students may be enrolled in the appropriate category in such number as deemed necessary to fulfill, but not to exceed, quotas set by Headquarters United States Air Force and sub-allotted by the Commandant, Air Force ROTC, for the graduating class in which they will be appointed.

a. Category I—Cadets will be considered eligible for selection into the advanced course during each academic year who:

- (1) Achieve desirable observer and officer stanine scores from the Air Force Officer Qualification Test (AFOQT).
- (2) Are medically qualified in accordance with current Air Force Directives for Flying Training Class I.
- (3) Possess desirable officer qualities.
- (4) Possess a cumulative quality point average at least equivalent to that required by the University for awarding a degree.
- (5) Agree to serve on active duty for a minimum of 5 years, unless sooner relieved by the government.
- (6) Will not attain their 27th birthday prior to the time of entrance into pilot training.
- (7) Are effectively motivated and desirous of applying for pilot training.

b. Category IA—Cadets will be considered eligible for selection into the advanced course during each academic year who:

- (1) Achieve a desirable observer and officer stanine score from the Air Force Officer Qualification Test (AFOQT).
- (2) Are medically qualified in accordance with current Air Force Directives for Flying Training Class I or IA.
- (3) Possess desirable officer qualities.
- (4) Possess a cumulative quality point average at least equivalent to that required by the University for awarding a degree.
- (5) Agree to serve on active duty for a minimum of 5 years, unless sooner relieved by the government.
- (6) Will not attain their 27th birthday prior to the time of entrance into pilot training.
- (7) Are effectively motivated and desirous of applying for observer technical training.

c. Category II—Cadets will be considered eligible for selection into the advanced course during each academic year who:

- (1) Achieve desirable officer stanine score from the Air Force Officer Qualification Test (AFOQT).
- (2) Possess desirable officer qualities.
- (3) Are medically qualified for commissioning in accordance with current Air Force directives.
- (4) Possess a cumulative quality point average at least equivalent to that required by the University for awarding a degree.
- (5) Agree to serve on active duty for a minimum of 3 years, unless sooner relieved by the government.
- (6) Will be academically qualified by one of the following:
  - (a) Pursuing a baccalaureate degree in:
    - Meteorology
    - Aeronautical Engineering
    - Electrical Engineering
    - Mechanical Engineering
    - Civil Engineering
    - Chemical Engineering
    - Engineering Administration
    - Safety Engineering
    - Safety Education
  - (b) Completing an Academic Major in:
    - Astronomy
    - Clothing Technology
    - Mathematics
    - Electronic Data Processing
    - Metallurgy
    - Nuclear Physics
    - Nuclear Chemistry
    - Nuclear Engineering
    - Physics
    - Psychology
    - Photogrammetry
    - Packaging Technology
    - Sanitary Engineering

d. Category III—Cadets will be considered eligible for selection into the advanced course during each academic year who:

- (1) Achieve desirable officer stanine score from the Air Force Officer Test (AFOQT).
- (2) Possess desirable officer qualities.
- (3) Are medically qualified for commissioning in accordance with current Air Force directives.
- (4) Possess a cumulative quality point average at least equivalent to that required by the University for awarding a degree.
- (5) Agree to serve on active duty for a minimum of three years, unless sooner relieved by the government.
- (6) Will be academically qualified by completing a degree or academic major in:
  - Business Administration
  - Public Administration
  - Management
  - Transportation
  - Accounting
  - Statistics
  - Finance
  - Personnel
  - International Relations

Political Science  
 Social Science  
 Motion Picture Arts and Science  
 Public Relations  
 Journalism  
 Communicative Arts  
 Education  
 Police Administration  
 Highway Traffic Administration  
 Chaplain Trainee

e. Category IV—Veterans who have completed selective service requirements may be considered eligible for entrance into the advanced course during each Academic Year provided they:

- (1) Possess desirable officer qualities as evidenced by the officer stanine score attained from the Air Force Officer Qualification Test (AFOQT).
- (2) Possess a cumulative quality point average at least equivalent to that required by the University for awarding a degree.
- (3) Are medically qualified for commissioning in accordance with current Air Force directives.

Category V—Cadets will not be initially enrolled in Category V. A non-prior service Advanced Course cadet will be considered eligible for enrollment in and appointment from Category V when, after initial enrollment in Category I or IA, he becomes physically disqualified for the category in which enrolled or, in the case of Category I cadet is eliminated from the Flight Instruction Program for aptitudinal reasons, provided:

- (1) He is otherwise qualified for appointment and voluntarily elects to remain in the Air Force ROTC program.
- (2) He cannot be enrolled in another category because of qualifications or quota limitations.

#### Credit for Previous Military Training

a. An AFROTC cadet who transfers to another institution at which an AFROTC unit is also maintained will be given credit for that part of the AFROTC course which he successfully completed at the losing institution, as evidenced by the AFROTC cadet official record.

b. On the basis of previous honorable active service in the Air Force, Army, Navy, Marine Corps, or Coast Guard, a cadet may request a waiver of the basic course, or any portion thereof, as a requirement for entrance into the advanced course. The Professor of Air Science may then waive so much of the basic course as he considers equivalent to the active service training, *provided that he does not waive any portion which the cadet can complete prior to entrance into the advanced course.* To satisfy entrance requirements for the advanced course, veterans entering an institution at freshman or sophomore level who desire a commission through AFROTC will be required to take in phase with nonveteran contemporaries the portion of the basic program which remains.

c. The Professor of Air Science may waive on a year-for-year basis so much of the AFROTC program as he considers equivalent to previous training at the United States Air Force Academy, United States Military Academy, United States Naval Academy, United States Coast Guard Academy, or in the Senior Division of the Army ROTC or Naval ROTC, for students eligible and accepted for formal enrollment.

d. Advanced standing will not be granted for training received prior to the student's 14th birthday; nor for training received as a member of a Reserve component of any of the Armed Forces of the United States when not in the active military service; nor for training received at an institution at which no commissioned officer of the active military forces is detailed by orders of the appropriate department as Professor of Military Science and Tactics, Professor of Naval Science, or Professor of Air Science; nor for training received as a member of the Junior Division Army ROTC.

#### Deferment Policy

The Air Force ROTC deferment procedure is designed solely to enable selected cadets of the Air Force ROTC to qualify for appointment as commissioned officers of a component of the Air Force through uninterrupted completion of academic and military courses. The Air Force will not select for deferment a cadet who cannot ultimately qualify for a commission through enrollment and training afforded by the Air Force ROTC or who evidences lack of desire to become an officer of the Air Force.

a. To qualify for continued deferment, cadets must satisfy all Air Force ROTC standards, including the following:

- (1) They must remain in good standing in military courses (2.00 average).
- (2) They must remain in good standing in academic courses (2.00 average).
- (3) Their attendance must be continuous, except for the following periods of authorized absence:

Regularly scheduled vacation periods;

Periods of sick leave authorized by the Professor of Air Science;

Periods of leave from the military course of instruction that are authorized by the Commandant, Air Force ROTC;

Periods of regularly scheduled on-the-job training under a cooperative plan;

Periods after completion of the Air Force ROTC program and before completing the academic course, when authorized by the Commandant, Air Force ROTC.

- (4) They must graduate within twelve months after completing Air Science IV (Including AFROTC summer training).

#### Obligations of Deferred Cadets

To be deferred from induction, those selected for enrollment continuance in the Air Force ROTC program must sign a Deferment Agreement, which states in part: I . . . hereby agree to complete the basic course, if enrolled therein, to enroll in and complete the advanced course at the proper time, if accepted therefor; upon completion of termination of the course of instruction therein, to accept a commission, if tendered; to serve on active duty in the Air Force for a period of not less than 2 years after receipt of such commission, subject to call by the Secretary of the Air Force; and to remain a member of a Regular or Reserve component of the Air Force until the sixth (6th) anniversary of the receipt of my commission; or, if the Air Force does not require my service on active duty for 2 years in fulfillment of my obligation, to serve on active duty for training with the Air Force for a period of 6 months after receipt of my commission and thereafter to remain a member of an appropriate Reserve unit until the eighth (8th) anniversary of the receipt of my commission.

a. Registrants who are continued in a deferred status under Section 6, UMT&S Act (50 USC App 456 (b)) remain liable for training and service in the Armed Forces until their 35th birthday.

b. The deferment of an individual will be cancelled if he ceases to be a formally enrolled AFROTC cadet, or if he fails to remain in good standing in the academic courses and military courses (2.00).

#### Discharge From Basic Course

With the concurrence of the university authorities, the Professor of Air Science may discharge a basic cadet from the AFROTC. Such discharge relieves the university of its obligation to require the cadet concerned to complete the basic course as a prerequisite for graduation.

#### Discharge From Advanced Course

a. The Professor of Air Science may discharge a cadet from the advanced course. Each such discharge must receive the concurrence of the head of the university or his designated representative.

b. A cadet will be discharged from the advanced course for the convenience of the Government. A refund of commutation of subsistence paid the cadet will not be required.

c. A cadet who, for any reason, is unable to continue regular enrollment in the institution, will be discharged from the advanced course. Such cadet may be re-enrolled in the advanced course upon his return to an institution having an AFROTC unit.

d. A cadet who, under competitive criteria, falls below acceptable retention standards will be discharged from the advanced course. Such cadet may be re-enrolled only upon approval of the Commandant, Air Force ROTC.

e. The Professor of Air Science may discharge a cadet because of inaptitude, indifference to training, incompatibility, willfully evading the terms of his advanced course agreement, for disciplinary reasons, or for reasons involving undesirable traits of character. A cadet so discharged will not be re-enrolled in the advanced course.

#### Discharge With Prejudice

A cadet whose conduct is or has been such as to bring dishonor on the corps and upon himself may be discharged "with prejudice" subject to approval of the head of the university and the Commandant, AFROTC. A cadet discharged "with prejudice" is not eligible for enrollment in an Air Force officer procurement program or for appointment in any component of the Air Force.

#### Summary of AFROTC Curriculum

The AFROTC course of study is divided into the basic course covering the first two years, the advanced course covering the Junior and Senior years, and Summer Training. The course of study consists of instruction totaling 480 hours; allocated as follows: Freshman and Sophomore years, 90 hours each; Junior and Senior years, 150 hours each; and Summer Training (normally attended between the Junior and Senior years) four weeks.

The basic course, Foundations of Air Power, is an introduction to the nature of aviation and its influence on modern man, and is designed, in part to interest the cadet in continuing in AFROTC, and ultimately, in making the Air Force his career.

The advanced course builds on this background and provides instruction designed to further develop the cadet's officer potential. This is accomplished through attention to his personal skills (e.g., his ability to communicate, to think clearly, and to deal with people), and through expansion of his knowledge and understanding of global concepts and Air Force operational principles.

Throughout the AFROTC course of study, the cadet is provided with general education complementary to the academic program of the university. While this material is specifically intended to serve the student as an Air Force officer, much of it will be useful to him in civilian occupations.

In addition to the formal course of study, the curriculum includes: Experiences designed to stimulate and develop a growing interest in the Air Force flight training program; e.g., orientation flights and visits to Air Force bases.

Opportunities for the cadet to apply principles of leadership, management, and staff work in actual working situations.

Other experiences (social activities, intramural competition, interdetachment competition, and guidance sessions) designed to assist in the development of officer qualities.

#### Detailed Course Outline

##### AIR SCIENCE I

##### Foundations of Air Power—I

(Two hours class, one hour laboratory per week)

- A. S. 151—Foundations of Air Power—I (30 hours)
  - A. Introduction to Air Force ROTC..... 4 hours
  - B. Elements and Potentials of Air Power.....16 hours
  - C. Leadership Laboratory .....10 hours
- A. S. 152—Foundations of Air Power—I (30 hours)
  - A. Air Vehicles and Principles of Flight.....20 hours
  - B. Leadership Laboratory .....10 hours
- A. S. 153—Foundations of Air Power—I (30 hours)
  - A. Military Instruments and National Security.....15 hours
  - B. Professional Opportunities in the United States Air Force ..... 5 hours
  - C. Leadership Laboratory .....10 hours

##### AIR SCIENCE II

##### Elements and Potentials of Air Power

(Two hours class, one hour laboratory per week)

- A. S. 251—Elements and Potentials of Air Power (30 hours)
  - A. Career in the United States Air Force..... 6 hours
  - B. Moral and Spiritual Foundations for Leadership..... 1 hour
  - C. Introduction to Aerial Warfare..... 3 hours
  - D. Targets ..... 6 hours
  - E. Weapons ..... 4 hours
  - F. Leadership Laboratory.....10 hours
- A. S. 252—Elements and Potentials of Air Power (30 hours)
  - A. Weapons .....10 hours
  - B. Aircraft .....10 hours
  - C. Leadership Laboratory.....10 hours
- A. S. 253—Elements and Potentials of Air Power (30 hours)
  - A. Bases ..... 6 hours
  - B. Operations .....14 hours
  - C. Leadership Laboratory.....10 hours

### AIR SCIENCE III

#### The Air Force Officer in the Air Age

(Four hours class, one hour laboratory per week)

- A. S. 351—The Air Force Officer in the Air Age (50 hours)
- A. Introduction to Advanced AFROTC..... 2 hours
  - B. The Air Force Commander and his Staff..... 8 hours
  - C. Creative Problem Solving.....20 hours
  - D. Instructing in the Air Force.....10 hours
  - E. Leadership Laboratory.....10 hours
- A. S. 352—The Air Force Officer in the Air Age (50 hours)
- A. Communicating in the Air Force.....25 hours
  - B. Military Justice System.....15 hours
  - C. Leadership Laboratory.....10 hours
- A. S. 353—The Air Force Officer in the Air Age (50 hours)
- A. Weather .....15 hours
  - B. Navigation .....15 hours
  - C. Air Force Base Functions..... 5 hours
  - D. Preparation for Summer Training Unit..... 5 hours
  - E. Leadership Laboratory.....10 hours

### AIR SCIENCE IV

#### Leadership and Air Power Concepts

(Four hours class, one hour laboratory per week)

- A. S. 451—Leadership and Air Power Concepts (50 hours)
- A. Leadership and Management Seminar.....40 hours
  - B. Leadership Laboratory.....10 hours
- A. S. 452—Leadership and Air Power Concepts (50 hours)
- A. Career Guidance..... 4 hours
  - B. Moral Responsibility of Air Force Officers..... 1 hour
  - C. Military Aspects of World Political Geography.....20 hours
  - D. Military Aviation and the Evolution of Warfare.....15 hours
  - E. Leadership Laboratory.....10 hours
- A. S. 453—Leadership and Air Power Concepts (50 hours)
- A. Military Aspects of World Political Geography.....25 hours
  - B. Briefing for Commissioned Service.....10 hours
  - C. Professor of Air Science Time..... 5 hours
  - D. Leadership Laboratory.....10 hours

#### University Credit

Tennessee A. & I. State University grants the following credit for Air Science courses:

- Air Science I (A.S. 151, 152, 153).....3 quarter hours per year
- Air Science II (A.S. 251, 252, 253).....3 quarter hours per year
- Air Science III (A.S. 351, 352, 353).....9 quarter hours per year
- Air Science IV (A.S. 451, 452, 453).....9 quarter hours per year

NOTE: No credit is granted by the University for attending Summer Training or Flight Instruction.

#### Air Force ROTC Emoluments

All students in the AFROTC are furnished texts and uniforms by Tennessee A. & I. State University. These students are required to deposit ten dollars with the Bursar of the University as surety against loss or damage of textbooks, uniforms or equipment.

At the end of the Spring Quarter, or at such time as the student officially withdraws from the University, the Ten Dollar (\$10) deposit is returned to the student provided he turns in all textual materials, uniforms and equipment in a serviceable condition, except for "fair wear and tear."

In addition to being furnished texts, uniforms and other equipment, students enrolled in Advanced AFROTC are paid subsistence allowance at a daily rate prescribed for each fiscal year by the Secretary of the Air Force. The period of entitlement for advanced cadets will be between the first day of the full quarter and the date of graduation, approximately twenty one months later, minus the number of days in the authorized summer training unit pay period. The period of summer training is approximately twenty-eight days.

NOTE: Beginning with the school year 1959-60, all AFROTC cadets will be required to furnish their own low quarter, plain toed, black military shoes for wear with their uniforms.

#### Sponsored Activities

The Department of Air Science sponsors the following activities:

- a. The AFROTC Rifle Team. Cadets are selected to represent Tennessee A. & I. State University AFROTC in small bore rifle competition with other colleges and universities. Members of this team receive an athletic letter award. Previous experiences in firearms are not required.
- b. The AFROTC Drill Team. The "Tiger Jets" is the official name of the AFROTC Drill Team. This team is composed of approximately thirty-five outstanding cadets who possess desirable leadership potential. This team performs at athletic events, both home and away, at parades or ceremonies, and serves as honor guard or ushers for activities sponsored by the university.
- c. The Arnold Air Society. This is a national AFROTC SOCIETY for outstanding cadets enrolled in AFROTC.
- d. The AFROTC Society. This society is a social organization open to all enrolled cadets organized to promote the general welfare of the cadet, and to provide social functions and activities peculiar to the cadet corps. It publishes "The Rocket", a cadet newspaper. Dues are \$3.00 per cadet each year.
- e. The AFROTC Angel Flight. This is an organization for the co-eds of the university who possess great interest in the activities of the AFROTC Program.
- f. The AFROTC Glee Club. This is an organized choral group of approximately 35 cadets who sing at AFROTC programs on and off campus. They are trained by the University choir director.

#### DESCRIPTION OF COURSES

##### Basic Course (Foundations of Air Power)

##### *Air Science I: (151, 152, 153) Foundations of Air Power—1*

Details of the AFROTC program; moral and statutory obligations for military service; introduction to aviation; fundamentals of global geography; factors of world power; the nation's defense organization; and basic military training.

Cadet Outcomes: When the cadet has completed Air Science I, he should:

1. Be acquainted with the purposes, rules and policies, curricular content, and related activities of the AFROTC program.
2. Understand why he may be required to serve in the Armed Forces.
3. Have a general knowledge of the historical development of aviation and appreciate the importance of both military and commercial aviation in the modern world.
4. Be aware of career opportunities in the field of aviation (both military and commercial).
5. Have a general knowledge of the nomenclature, classification, and construction of aircraft and of the basic principles of flight.
6. Have an understanding of world geographic relationships in the Air Age.
7. Be generally familiar with common types of maps and map projections, their characteristics, and their limitations in representing the earth's surface.

8. Understand the geographical foundations of world political and military power.
9. Be aware of the major sources of world tensions and the nature of world security problems and be acquainted with international attempts to alleviate these tensions.
10. Be better able to evaluate statements in the press and radio about current world problems.
11. Be acquainted with the capabilities of military aviation.
12. Have achieved competence in the basic fundamentals of military drill, wear the uniform properly and understand and accept his responsibilities for maintaining proper military courtesies and discipline.
13. Be able to participate effectively in military drills and ceremonies.

*Air Science II: (251, 252, 253) Elements and Potentials of Air Power*

Careers in the USAF, moral and spiritual foundations for leadership; targets; weapons, aircraft; bases, operations; and leadership laboratory.

**Cadet Outcomes:** When the cadet has completed Air Science II, he should:

1. Be acquainted with the USAF Officer Career Program and understand the general advantages and opportunities of a career as a USAF OFFICER.
2. Have an understanding of the character requirements and moral obligations of an Air Force Officer and recognize that an ethical concept of life is a determining factor in developing the highest type of leadership.
3. Understand the USAF combat mission.
4. Better understand the characteristics and capabilities of air power as an instrument of war and the role of air forces in land, sea and air campaigns.
5. Understand the principles of target selection and be acquainted with the principal weapons, aircraft, operational factors, and organizational units which the USAF employs in accomplishing its functions.
6. Acquire a higher level of proficiency in the basic fundamentals of drill and ceremonies.
7. Be able to assume the role of the instructor and leader of the individual and element.
8. Have a feeling of identification with the USAF and a desire to serve as an officer in it.

*Advanced Course (Air Force Officer Development)*

*Air Science III: (351, 352, 353) The Air Force Officer in the Air Age*

Command and staff concepts; leadership laboratory; creative problem solving; communication channels and skills; principles and techniques of learning and teaching; military law, courts and boards; weather; air navigation; functions of the Air Force Base; and preparation for summer training.

**Cadet Outcomes:** When the cadet has completed Air Science III, he should:

1. Understand the command and staff structure of the Air Force and how it functions in general on an Air Force base.
2. Be better able to apply ingenuity and logical thinking to the solution of the personal and professional problems of a junior officer in the Air Force.
3. Be acquainted with the Air Force communications channels and media.
4. Understand the nature of communication and its function in Air Force management and operations.
5. Be able to read and listen with understanding and objectivity, to speak clearly and effectively, and to write military reports and correspondence using acceptable, intelligible English in appropriate military form.
6. Have some competence in fundamental instructional techniques.

7. Appreciate the purposes of military justice and be acquainted with the basic principles, rules and procedures of military courts and boards.
8. Have a basic understanding of weather and how it affects the Air Force.
9. Have a working acquaintance with the terminology, the basic tools, and the procedures of air navigation.
10. Be prepared to derive maximum benefits from the coming Summer Training program.
11. Be able to function in situations which require the understanding of and application of leadership techniques.
12. Be proficient in conducting leadership laboratory activities of Air Science I and II cadets.

*Summer Training Unit—The Air Force in Operation*

(Four weeks between the Junior and Senior Years)

Junior officer training with emphasis on military discipline, aircrew and aircraft indoctrination, a career in the USAF, organization and functions of an Air Force base, physical training and weapons familiarization.

**Cadet Outcomes:** When the cadet has completed AFOTC summer training, he should:

1. Have acquired those leadership qualities and the esprit de corps which derive from working with others under conditions of military life.
2. Have an increased interest in flying training and be able to practice routine procedures associated with non-aircrew flying.
3. Understand the moral responsibility and obligations of an Air Force officer.
4. Be acquainted with the functions performed by the various organizations and key officers of the Air Force base.
5. Have acquired increased proficiency in leading and participating in military drills, parades, and ceremonies.
6. Be able to participate in a well-rounded athletic program.
7. Be able to care for and use his personal weapons properly.
8. Be more nearly qualified to be a junior officer in the Air Force.

*Air Science IV: (451, 452, 453) Leadership and Air Power Concepts*

Leadership and management; military aspects of world political geography; foundations of national power; military aviation and the evolution of warfare; career guidance; and briefing for commissioned service.

**Cadet Outcomes:** When the cadet has completed Air Science IV, he should:

1. Understand the concepts and principles of command and be able to apply them as an officer in the USAF.
2. Be able to apply the principles of leadership based upon an understanding of human needs.
3. Understand the relationship of geographical factors to national strength and international power patterns.
4. Understand the significance of this nation's key position as a world power.
5. Understand the relationship of military strength and foreign policy.
6. Appreciate the present and potential significance of military aviation as an instrument of warfare.
7. Be acquainted with the opportunities open to him upon graduation for duty and training with the Air Force, and understand the procedures for making application for this duty and training.
8. Be prepared to make his adjustment to active duty as an officer of the USAF.
9. Have an understanding that man is a being endowed with conscience and reason and is therefore responsible and accountable for his behavior.

*Flight Instruction Program*

Through the Ayeni Flying Service, the University, under contract with the Air Force, offers all Air Science IV Category I cadets flying instruction, amounting to 36½ hours of dual and solo time. Academic instruction in safety, meteorology, navigation and regulations is given by the Air Science Staff. The objective is to qualify all potential Air Force pilots for a private flying license, thereby determining the cadets' aptitude for flying.

## UNIVERSITY FIELD SERVICES AND EXTENSION

### PURPOSE

The Division of University Extension is an administrative unit of Tennessee A. and I. State University organized for the purpose of granting educational services to those citizens of the State not enrolled as resident students of the University. The division serves to integrate off-campus services with campus programs.

### SCOPE OF INSTRUCTION

Extension courses at Tennessee A. and I. State University are classified into two groups to meet certain definite needs that are apparent in the State of Tennessee.

*Group 1.* Courses of university grade are offered in the interest of those persons who have adequate preliminary training but whose occupations or means will not permit their attendance as residence students at the University. Students who find their college careers postponed or interrupted may well avail themselves of the opportunities in this group. By meeting certain requirements, students may secure credit toward the Bachelor Degree at Tennessee A. and I. State University; however, not more than 48 credit hours of work taken in extension will be counted toward resident credits for the Bachelor Degree. The last 45 quarter hours of the last year's (9 months) undergraduate work must be taken in residence at the University.

*Group 2.* Non-credit courses are designed as general cultural courses or as vocational courses for the person who is employed and who desires to further his efficiency in a particular field, or for general cultural improvement. These courses are offered to meet certain specific needs of common interest groups.

### COURSES AVAILABLE

Undergraduate courses only are offered for credit in extension. Courses will be organized to meet specific needs provided such courses are described in the latest edition of the regular University catalog. Only courses offered during the fall, winter and spring quarters at the university will be offered through extension during these respective quarters.

### OTHER EXTENSION SERVICES

In addition to courses found in the university catalog, provisions are made to meet the specific needs of special interest groups in the following areas: workshops, lectures, demonstrations, conferences and institutes. Arrangement for these services may be made through the Director of University Extension, and Field Services, Tennessee A. and I. State University, Nashville, Tennessee.

### WHO MAY ENROLL

Requirements for admission to extension courses are same as those for residence courses. Additional information regarding enrollment in extension courses may be secured by writing to the Director of University Extension and Field Services, Tennessee A. and I. State University.

### ORGANIZATION OF EXTENSION COURSES

Undergraduate extension courses, where offered for college credit, parallel similar courses offered in resident instruction and are taught by members of the university extension faculty. A three-hour credit course is divided into at least twelve assignments. The time necessary for preparation of a satisfactory report by a student on any assignment should be six hours. Each assignment requires certain reading in specified textbooks and the reflection necessary for proper or-

ganization of the material read and its application to the principles that are expected to be developed. The student is required to write his conclusions (in clear English) in the form of a report on each assignment, which is to be returned to the instructor for criticism and correction. Supplementary reading and reports may be demanded of the student on any assignment, when, in the judgement of the Committee on Extension, they are necessary. University entrance courses and vocational subjects are taught in much the same manner as collegiate courses.

#### ADMISSION AND REGISTRATION

No entrance examination is required for admission to the extension courses, but the right is reserved to reject any applicant who does not furnish complete or satisfactory data upon the official application form furnished him. Application for entry may be made at any time but courses will not be organized until the following procedures are expedited.

1. The prospective student should read carefully the announcements of the courses offered before selecting the one he or she wishes to pursue, and should choose the ones he or she is prepared to pursue with profit. Students desiring college credit must state this fact in advance, and comply with the requirements indicated in the latest edition of the catalog.
2. Having made the course selection, the applicant should fill in the application blank supplying all the data requested thereon and submit with the fee of \$5.00 per credit hour to the Director of the extension center located in his area.
3. When the local supervisor receives a minimum of fifteen applications or the equivalent in registration fees for each course desired, he will file an application with the Director of University Extension, and Field Services, Tennessee A. and I. State University, along with the fee of \$5.00 per credit hour for each prospective member of the proposed class.
4. Upon receipt of course application from the local official, the Director of University Extension will submit the application to the University Extension Committee for approval. (The fee for extension courses is \$5.00 per credit hour, or \$15.00 per three credit hours. *All registration fees must be paid on or before the date of registration.*)
5. The supervisor or persons designated by the Committee on University Extension Service will contact the local official for the purpose of registering applicants and organizing the course or courses.
6. *Refunds of registration fees will be made only to persons who withdraw before the first class meeting, providing the refund is requested within thirty days after the date of registration.* The applicant requesting the refund shall send a written statement including the official receipt number and a statement by the instructor of the class and/or the director of the center to: Mr. Paul King, Bursar, Tennessee A. and I. State University, Nashville, Tennessee.

#### INSTRUCTIONAL STAFF

The University Extension Committee is desirous of securing the best qualified personnel to teach extension courses. Instructors employed on the Extension Staff must meet the same general qualifications as instructors in comparable fields employed to teach courses in residence. Persons desiring to teach in Extension shall make application to the University Extension Committee. These applications are reviewed by the Committee and approved by the respective heads of the department of the field in which the applicant plans to teach, and the Administration of the University.

#### GENERAL CREDIT

University credit or university entrance credit, as the case may be, will be given for completion of the courses in Group I, when requirements of the instructor concerned have been met and examinations have been passed and

officially approved by the head of the department through which the course is offered. Students who enroll for degree credit, however, must meet the entrance requirements of the University.

Extension credits earned in other institutions will be accepted only if these have been earned in an institution which is a member of the Teachers College Extension Association or the University Extension Association. In no case will credits be accepted in excess of the maximum totals allowed for extension work as set forth in the above paragraphs regarding credits, and/ or grades earned indicate that the student has not profited from course or courses pursued.

*Undergraduate credit*—Not more than 48 credit hours in Extension courses will be accepted towards the Bachelor Degree. Of the total credits approved for certification, not more than six hours of such credit will be allowed for renewal of certificates. Courses numbered 300 (Junior) and 400 (Senior) earned through extension will not be accepted as meeting certification requirements for the elementary certificates granted on the two year college level.

#### VETERANS

Veterans of World War II and Korea may enroll in any of these courses under provisions set forth by the G.I. Bill and Education Bill which may be obtained from Veterans' Administration offices before registering for any course.

#### GRADES

Awarding of grades in Extension Classes follow the same procedure as listed in the University Bulletin. This also applies to "Incomplete Grades".

*Notes*

