

*Warner Frank H. Healy*

# STATE COLLEGE RECORD

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*of*  
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## THE CATALOG

WITH  
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STATE COLLEGE STATION  
RALEIGH

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*of*  
Agriculture and Engineering

The School *of* Agriculture  
The School *of* Education  
The School *of* Engineering  
The School *of* Science and Business  
The Textile School  
The Graduate School  
College Extension  
The Summer School



1927-1928

APRIL, 1927  
STATE COLLEGE STATION  
RALEIGH

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## GENERAL INFORMATION

### HISTORY

The North Carolina State College of Agriculture and Engineering is the outgrowth of an idea fostered by two distinct movements, each somewhat different in its original aims. One movement, represented by a group of progressive young North Carolinians, banded together in Raleigh as the Watauga Club, sought to bring about the organization of an industrial school for the teaching of "woodwork, mining, metallurgy, and practical agriculture." The other movement, originating among the farmers in North Carolina, and actively sponsored by Colonel L. L. Polk, then editor of the *Progressive Farmer*, had as its object the establishment of an agricultural college supported by State appropriations and by the Land Scrip Fund of the Federal Government.

Through the efforts of the Watauga Club, the Legislature of 1885 passed a bill, introduced by Mr. Augustus Leazar, the main features of which provided:

1. "That the Board of Agriculture should seek proposals of donations from the cities and towns of North Carolina, and when an adequate donation should be made by any city or town, there the school should be located, giving the place the preference which offered the greatest inducements."

2. "That the school should be under joint control of the Board of Agriculture and directors from such town or city."

3. "That instruction should be in woodwork, mining, metallurgy, practical agriculture, and such other branches of industrial education as may be deemed expedient."

4. "That the Board of Agriculture should be authorized to apply annually \$5,000 of the surplus funds of their department to the establishment and maintenance of said school."

Pursuant to the act of the General Assembly, when proposals for the school were advertised, Charlotte responded with the offer of an eligible site and \$5,000 in cash; Kinston offered \$10,000; Raleigh offered \$5,000 (increased subsequently to \$8,000), the Exposition Building at the State Fair Grounds, value at \$3,000; one acre of land, donated by Mr. William Stronach, and the use of twenty acres of land by the Directors of the State Fair.

The location of the College in Raleigh was brought about largely through the efforts of the Industrial School Committee of the City Board of Aldermen. Members of this committee were Messrs. G. E. Leach, F. O. Moring, and J. Stanhope Wynne.

In April, 1886, the committee appeared before the Board of Agriculture and, on behalf of the City of Raleigh, increased the original offer of \$5,000 to \$8,000. The offer was accepted, and negotiations were pending for letting the contract to build when certain events occurred that changed the whole story of the institution.

Farmers' clubs through North Carolina, and Colonel L. L. Polk, through the columns of the *Progressive Farmer*, had, for some years, advocated the establishment of an agricultural college which would be supported, in part, by the Federal Land Scrip Fund. On the 18th of January, 1887, a mass meeting of the farmers, held in Raleigh, passed a resolution to the effect

that the farmers needed an agricultural college, and "that the Land Scrip Fund be diverted from the University and applied thereto."

On January 18th the following resolution was adopted by the Raleigh Board of Aldermen:

"Inasmuch as the farmers' meeting, recently held in this city, composed of worthy citizens of many counties of the State, resolved to request the General Assembly to establish an Agricultural College, and as there exists a popular impression that the proposed institution will receive the sanction of the Legislature, and as the City of Raleigh has agreed to give the sum of \$8,000 in money, together with the building of the State Exposition, and by consent of the directors of the State Fair the use of about 20 acres of land for the establishment of an Industrial School and an experiment farm; and further, that inasmuch as Mr. R. Stanhope Pullen, a citizen of Raleigh, has, through our committee, offered to the Board of Agriculture, whose duty it has become under a statute of the State to appropriate the sum of five thousand dollars annually for the establishment and maintenance of an Industrial School, 8½ acres of valuable land conveniently located for the said school; and finally, as the board believes there exists no good reason why the two enterprises should not be united, it is therefore *Resolved*, that the Board of Aldermen of the City of Raleigh, in view of the foregoing facts, and in order to meet the views of the most important class of our citizens, the farmers, has agreed that should the Legislature conclude to establish an Agricultural College that it would, in their opinion, be the part of wisdom, to accomplish the greatest good to all of our citizens, to unite the Agricultural and Industrial Schools; that should such a course be adopted, they recommend that the combined institution be called the College of Agriculture and Mechanic Arts of North Carolina.

"That should the said institution be established at or adjacent to Raleigh, on land which will be donated for this purpose, that the City of Raleigh will agree that the grants or offers heretofore made to and accepted by the Board of Agriculture shall be applied, with the consent of the said board, to such College of Agriculture and Mechanic Arts of North Carolina.

"*It is further Resolved*, that these resolutions and preamble shall be laid before the General Farmers' Convention, to be held in this city on the 26th inst., for their consideration, and also before the appropriate committee of the General Assembly for their action thereupon.

"The Board of Aldermen learns and states with pleasure, by authority, that R. S. Pullen, who has heretofore offered the Board of Agriculture, a tract of land of about 9 acres, which tender meets the approval of the said Board of Agriculture, as the land lies conveniently near the State Experiment Farm, will, in case the above named Agricultural and Mechanical College be established in the same, donate about 60 acres of land, to include the 9 acres and connected therewith, to the State of North Carolina for the purpose of said College.

"The Board of Aldermen would, therefore, include this generous offer as a part of the grants heretofore tendered, should the combined institution be established with the support of the State of North Carolina.

"The Board of Aldermen would respectfully state that it will meet their approval for the management of the proposed institution to be directed as the wisdom of the General Assembly may determine, and that the City of

Raleigh does not insist that any part of the management of the same shall be put under its control."

Two days later, January 26, 1887, another great mass meeting of farmers and working men, called together in Raleigh by Colonel Polk from forty counties, passed the following resolutions:

1. "That the time has come to establish an Agricultural and Mechanical College in accordance with the Land Scrip Act.

2. "That the interest from the Land Scrip Fund should be paid to the College.

3. "That a sufficient amount from the general treasury be appropriated, and available convict labor be used to build, equip, and maintain the College.

4. "That the surplus funds of the Agricultural Department be utilized in this connection.

5. "That the payment of the Land Scrip Fund to the College should not diminish the appropriations to the University.

6. "That the funds and property of the Industrial School, including donations of the City of Raleigh, in accordance with a resolution of its Board of Aldermen, be turned over to the proposed college."

The above resolutions were incorporated in a bill which passed its final reading before the General Assembly on March 3, 1887, and the new institution was established as the "North Carolina College of Agriculture and Mechanic Arts."

The dividing line between Pullen Park, the tract of land given to the City of Raleigh by Mr. R. Stanhope Pullen, and the sixty acres donated to the College by the same gentleman, together with the original walks and driveways, were located in this manner: Mr. Pullen walked ahead of a plow, held by a small negro boy, and Mr. J. Stanhope Wynne led the mule over the lines indicated by Mr. Pullen.

The cornerstone of Holladay Hall was laid on August 22, 1888, the address being made by Mr. W. J. Peele, of Raleigh, one of the charter members of the Watauga Club and a staunch supporter of industrial education.

The College opened October 3, 1889, with seventy-two students and a teaching and administrative staff of eight. Alexander Q. Holladay was the first president, 1889-1899; followed by George Taylor Winston, 1899-1908; Daniel Harvey Hill, 1908-1916; Wallace Carl Riddick, 1916-1923; Eugene Clyde Brooks, 1923——.

The General Assembly of 1917 changed the name of the College to The North Carolina State College of Agriculture and Engineering.

### ORGANIZATION

The College is divided into five closely related schools: (1) The School of Agriculture, (2) The School of Education, (3) The School of Engineering, (4) The School of Science and Business, (5) The Textile School, and (6) The Graduate School. In each of the undergraduate schools are the departments which furnish the courses of instruction. The courses offered in each are grouped according to definite vocational aims, and students entering will be directed first to elect a vocation. This selection determines the program of studies to be pursued.

There are thirty-six major vocations open to young men in the State, for which State College offers from four to seven years training for technical,

scientific, and professional service. Thirty years ago these vocations, when filled at all, were filled for the most part by unskilled workers. But the world has moved rapidly during this period of thirty years. Many new discoveries and inventions have been made, and many new social combinations have been effected, requiring a better understanding of human relationships and the need of business and social coöperation. As a result, there has developed a great body of technical and professional knowledge derived from new experiences, and leaders in these larger vocations must not only become masters of the essential technical and professional knowledge, but have a clearer understanding of the human relationships demanded in this age, because of the rapidly increasing tendency of human elements to coöperate in large organizations.

These vocations are classed today among the learned professions, and those who would become successful leaders must secure that broader cultural training which will equip them to participate properly in the civic affairs of their communities, because these vocations are having such a tremendous effect upon the civic life of our State and Nation.

### LOCATION

The North Carolina State College is located within the limits of the city of Raleigh, a mile and a quarter west of the State Capitol. Of the four hundred and eighty-six acres of land owned by the College, thirty acres are in the campus, thirty-five in orchards and gardens, fifteen in the poultry yards, and the remainder in the experiment farm.

No other location within the State would afford greater advantages for the work of the College. The richest varieties in agricultural and engineering possibilities are found here or within easy reach. The workings of the State Government in all its functions, departments, and institutions can be observed at close range by the students of the College. Few colleges combine in equal degree the opportunities of the country and the advantages of a city as does State College.

### BUILDINGS

By means of appropriations by the General Assemblies of 1921, 1923, 1925, and 1927, a new engineering building, gymnasium, library, power plant, animal industry building, and dormitories have been erected and equipped, a new building used by the electrical engineering architectural engineering, civil, highway, and constructive engineering and physics departments and the Engineering Experiment Station, and an addition to the textile building. Several of the older buildings have been remodeled, one of them having been converted for the use of the Ceramic Engineering department.

Holladay Hall contains the executive offices of the President, the Registrar, the Treasurer, the Comptroller, the Dean of Students, Superintendent of Buildings, and the offices and classrooms of the departments of English, Foreign Languages, and Mathematics.

Peele Hall is a new three-story building now under construction. It will contain offices of the School of Science and Business and classroom and office space for the departments of English, Mathematics, Social Science and Modern Language.

**Primrose Hall** furnishes offices and classrooms for the Military Department.

**Tompkins Hall** is occupied exclusively by the Textile School for instruction and research. An addition to the building was completed in 1926, and is equipped with new machinery to be used in research and in teaching the latest processes of textile manufacturing and dyeing.

**Winston Hall** contains the offices, classrooms, draughting rooms, and laboratories for the departments of Chemistry, and Chemical, Civil, and Highway Engineering. Each of these departments is substantially equipped.

**Page Hall** houses the department of Mechanical Engineering. It contains offices, draughting rooms, and classrooms for Architectural and Mechanical Engineering, the offices of the Dean of Engineering and the Director of the Engineering Experiment Station, and the Automobile and Engineering Experiment Station laboratories. In the building immediately south of Page Hall are the Mechanical Engineering laboratories, the forge, foundry, wood, and machine shops.

**Ricks Hall** provides offices for the Coöperative Agricultural Extension Service, the Dean of Agriculture and Director of the Agricultural Experiment Station, the Department of Agricultural Economics, School of Education, Poultry Department and many classrooms and laboratories.

**Patterson Hall**, the main building of the School of Agriculture, is occupied by the departments of Agronomy and Botany, and the Agricultural Experiment Station.

**The Zoology Building** furnishes offices for the Director of Instruction, School of Agriculture, and classrooms and laboratories for the Department of Zoology, and has a modern insectary.

**The Ceramics Building**, opened for use in 1926, contains classrooms, offices, a large machine laboratory with full-size equipment, a large kiln laboratory, and seven small laboratories for special equipment for instruction and research.

**Polk Hall**, the new Animal Industry Building, is one of the most complete buildings of the kind in the country. In addition to classrooms and offices, it provides the necessary laboratories and equipment for thorough instruction in every phase of Animal Husbandry, including the most modern methods in handling all animal products and in Dairy Manufacturing. Polk Hall houses also the Department of Horticulture. It provides the necessary classrooms, museums, and laboratories for thorough instruction in the courses offered in the different phases of Horticulture. It houses the laboratories where a very complete program of horticultural research is being conducted. In addition, it provides offices for the members of the Department.

**The Electrical Engineering-Physics Building** was built in 1926. It provides modern facilities for Physics and Electrical Engineering. It contains classrooms, offices, and a large laboratory, designed especially for instruction and research in these fields. This building is being enlarged and extended and it is expected to be completed by the opening of the fall term of 1928. Two stories are being added to the main part of the building in which the Architectural Engineering offices, class and drawing rooms will be located. A new two story wing now under construction will house the departments of Civil and Highway Engineering classrooms, offices and laboratories, also a student's library room and Engineering Societies' room,

the Engineering Experiment Station laboratory and offices, and the Museum of North Carolina Resources.

The **D. H. Hill Library**, completed in 1926, is a structure of recognized architectural beauty, designed in the post-colonial of the Jeffersonian period, the style of Monticello and of the buildings of the University of Virginia. It consists of a large portico of Georgia marble columns and the usual Colonial type of brick. It is simple and dignified in its treatment.

The library contains a large reading room to the rear of the foyer which, with the periodical room, provides a quiet place for study. Under the reading room is the stack room, which extends the entire length of the building.

The collection consists of the volumes transferred from the old library building, together with the various departmental libraries that have been added to the main collection during the past year. In addition, many volumes have been added to the collection during the year through purchases and donations. A competent library staff renders effective service in extending the usefulness of the library.

**Pullen Hall**, the College Auditorium, has a seating capacity of 1,200. The space on the lower floor contains classrooms and offices used by the Department of **English**.

The **Dining Hall** consists of two wings, each 133 by 54 feet, connected by a large, well-equipped kitchen and serving pantry. In the basement there is a bakery, a cold storage plant, ample storerooms, the Students Supply Store, and the College Laundry. In the dining rooms there are accommodations for 1,600 students. Since 1925 there has been operated in this building a modern cafeteria, supplying to those students who do not care to avail themselves of the regular dining service a place to secure meals at moderate cost. The equipment throughout is of the latest type.

The **Infirmary**, a two-story brick building with wards, single rooms, diet kitchen and offices, is well equipped to care for the sick. During the summer the interior of the building was completely refinished.

The **Frank Thompson Gymnasium**, opened for use in 1924, is one of the largest and best-equipped gymnasiums in the South. The gymnasium proper has a playing floor 110x130 feet, large enough to accommodate three full size basketball courts. About 2,500 spectators can be seated at indoor contests. In addition, there is an auxiliary gymnasium which is used for recreation by the students and faculty members and by the smaller classes in corrective physical training. The swimming pool, 75 x 35 feet, handsomely tiled, is located under its own glass roof, but is connected with the basement proper, which contains ample showers, lockers, storerooms, varsity training rooms, and rooms for visiting athletic teams. Class rooms and offices are on the first floor.

The **Young Men's Christian Association Building** is the home of the greater part of voluntary student activities. It is an attractive two-story and basement brick building, handsomely equipped with mission furniture throughout. The basement contains a gymnasium, swimming pool, bowling alleys, shower baths, and other athletic rooms. The main floor has a large lobby, with open reading and game rooms, an auditorium, a banquet hall, several bedrooms for visitors, and offices of the association and of the College publications. The upper floor contains two large society halls and rooms for Bible study classes.

The Central Heating Plant was completed in 1925. It furnishes light, heat, and power, where needed, to all buildings. The new plant and its equipment are of the most modern type, and it is so arranged that it may be used for instruction in Engineering.

**Barns, Greenhouses, and Poultry Plants.** In addition to the buildings which are used for classroom instruction, laboratory, etc., there are a number of buildings which are service buildings for the specific departments of the College. The College barns house the dairy herd, the College work animals, the sheep and swine herds of the College. A creamery manufacturing plant is operated in connection with the dairy herd. There are three greenhouses on the campus operated in conjunction with the work in horticulture, zoology, and botany. A new poultry plant has been provided with ample buildings including an incubator and feed house for mixing and storing feed, mammoth incubators, storing and packing eggs. A judging laboratory building and a fattening and storage house. Breeding houses for special matings and experimental work and four large houses in which the four special strains of S. C. Rhode Island Red, White Wyandotte, S. C. White Leghorn and Barred Plymouth Rock are being bred.

### THE DORMITORIES

The College has sufficient dormitory space to house comfortably a thousand students. The dormitories are operated under the direction of the Superintendent of Buildings.

**First Dormitory**, a small two-story brick building, housing 18 students, was one of the first College buildings erected.

**Fourth Dormitory** during the summer of 1925 was completely rebuilt. Each room is provided with hot and cold running water, and new bathrooms, conveniently located, have been installed. The building is three stories in height and accommodates 46 students.

**Fifth and Sixth Dormitories**, each three stories in height, provide quarters, together, for 144 students. Bathrooms are located on each floor, and both buildings are of fireproof construction.

**Seventh Dormitory**, finished in 1924, is three stories high and has one hundred rooms, and will accommodate 200 students. Each room has running water, and tiled bathrooms are located in each section on each floor. The building is of fireproof construction.

**South Dormitory** is four stories in height and accommodates 228 students. There is a tiled bathroom in each section.

**1911 Dormitory** is three stories and houses 240 students. Ample shower-bath facilities are located in the basement.

**Watauga Hall** has 54 rooms, is three stories high, and accommodates 108 students. During the summer of 1925 the building was completely rebuilt. Tiled baths were installed, and with its central location it is now one of the most desirable college homes on the campus.

### LABORATORIES, SHOPS, AND FACILITIES

#### Agricultural Economics

The Department of Agricultural Economics is supplied with modern laboratory facilities. The Department has at its disposal several large well lighted rooms for offices, class rooms and laboratories. By special arrange-

ment with one of the large calculating manufacturing companies, the supply of calculators is adjusted to the need for them. In addition, the Department is supplied with adding machines and other calculating devices. Charts on practically every phase of agricultural economics are in the possession of the Department or are available to it through the courtesy of the United States Department of Agriculture. A large number of maps of farms located in various parts of the state is also available for study and to use for purpose of illustration of principles and practices. For the study of farm management and farm organization, the Department has collected, during the past four years, detailed records on approximately one hundred farms.

In reality, the state is a laboratory of the Department of Agricultural Economics. The Department is constantly making various studies in the economics of production, marketing, finance, taxation and prices. All of these studies furnish material for the student and also for the instructor in preparing and developing the various courses of instruction. It is significant to note that much of this work is done in cooperation with the United States Department of Agriculture. This arrangement brings the student in contact with officials in the Department, and also supplements the department's personnel.

#### Agronomy

The equipment for teaching Field Crops consists of standard apparatus and official types for the study and determination of the market grades of cotton, tobacco, corn, small grains, and forage crops. Other equipment consists of a specimen garden located on the College farm; specimens of cultivated varieties of field crops and their seeds.

The soils laboratories are equipped with the facilities for instruction in general and advanced work in soil management, soil fertility, fertilizers and in soil classification and surveying. Samples of most of the North Carolina soil types as well as many samples from other states are available for study. The information on the classification, distribution, composition, crop adaptation, and fertilizer requirements of North Carolina soils which has been accumulated by the Experiment Station affords valuable material for student use. Facilities for field and laboratory work on the physical and chemical properties, classification, and fertility of North Carolina soils are unusually good.

The laboratories for Agricultural Engineering are equipped with modern labor-saving tillage, planting, cultivating, and harvesting machines adapted to the types of farming practised in the State. Various types of home water-systems, electric lighting plants, farm gas engines, tractors and farm building models are on display and are being used in laboratory instruction.

#### Animal Husbandry

The space devoted to Animal Husbandry is equipped to instruct students in the profitable types of farm animals, how to handle them so as to get the best returns, how to select breeding stock, and how to feed all classes of farm animals. The students in this department feed and prepare animals for the block, actually doing the slaughtering, and cutting the meat to be sold in a market which is conducted by the students.

The dairy barns contain more than seventy registered cattle representing four breeds. In many ways the herd of dairy cattle owned by this insti-



tution is one of the best to be found. A sufficient number of swine are kept to give the students practice in every phase of the industry. The same is true of horses, sheep, and beef cattle.

The dairy is especially well equipped with modern machinery to give instruction in the testing of milk and its products, creamery buttermaking, ice-cream making, and in the handling of market milk. There is adequate refrigerating equipment for cold storage of meats as well as dairy products.

#### Architectural Engineering

For instruction in Architectural Engineering there are provided: a working library of books, measured drawings and plates for reference and research, and a large collection of lantern slides to supplement the lectures on historical architecture. Freehand drawing and rendering are taught with the aid of casts and models provided for this purpose.

With the opening of college in September, 1928, the department will take over the entire top floor of the Electrical Engineering-Physics Building. This will provide three commodious drafting rooms, a studio and free hand drawing rooms, a large and well fitted lecture and stereopticon room and an adequately equipped photographic laboratory.

#### Botany

Commodious, well lighted laboratories are available, and the lecture rooms and classrooms are equipped with projection lanterns. The collection of illustrative material for the plant disease courses is a very large one. The bacteriology rooms are supplied with the necessary autoclaves, ovens, and incubator space. The herbarium room contains a rapidly developing herbarium of the flora of the State. The technical equipment for the plant physiology work is very satisfactory. In a small greenhouse adjoining the space occupied by the physiology laboratories, the necessary plants are produced for the experimental work.

#### Ceramic Engineering

The Ceramic Engineering laboratory was opened for use during the session of 1925-26, and is one of the few in which full-size clay-working equipment is used. The student will, therefore, have the advantage of doing his laboratory work under practical conditions. As research work on North Carolina raw materials will be carried on in the laboratory during the next few years, this will be an additional advantage to the student.

Plants are provided for the manufacture of structural clay products, for pottery, and for the making of cements, glasses, and enamels. The apparatus comprises a jaw-crusher, dry and wet pan, pug mill, gyratory screen, brick and hollow-tile machine, cutting table, dry press, blunger, slip screens, slip pump, filter press, and accessories. The kiln and dryer equipment includes a humidity dryer, large gas-fired kiln, a large coal-fired kiln, a gas-fired muffle kiln for pottery, and a high temperature furnace.

The electric furnace room includes a carbon resistance furnace for high temperature, potentiometers, electric draft and CO<sub>2</sub> recorders, and other measuring instruments.

The testing laboratory is equipped with an elutriator, Ro-Tap screens, balances, briquette machine, microscope, volumeters, and electric oven.

### Chemical Engineering

The Chemical Engineering laboratory has suitable equipment for the study of processes and plant problems. It is supplied with direct and alternating current, gas, water, steam, compressed air, electric motors, generators, and storage batteries. It is equipped with the best types of precision and control instruments, such as refractometer, surface tension apparatus, polariscope, potentiometer, microscope, ultra-microscope, colorimeter, calorimeters, tint-photometer, thermocouples, and optical pyrometers. It is equipped also with filter presses, centrifuges, crushers, grinders, and pulverizers, vacuum pan, still, autoclave, jacketed kettle, gas, water, and electrical meters. Installations at the College are used to study such chemical engineering problems as humidifying, refrigeration, and combustion. An experimental refinery and hydrogenation plant for vegetable oils has been installed. A complete permutit water softening equipment forms a unit of an experimental water purification and treatment system. In addition the industrial plants of the city offer opportunity for study of plant operation and problems.

### Chemistry

The Department of Chemistry is located in Winston Hall. There are laboratories for Inorganic, Organic, Electro, Physical and Industrial Chemistry, and Qualitative and Quantitative Analysis. All these laboratories are supplied with the necessary apparatus and chemicals, and all have convenient gas and water connections.

The Chemical Library is well supplied with reference books and chemical journals.

The Chemical Museum contains specimens of the more common minerals, ores, and chemicals, together with many industrial, chemical, and allied products.

There is special equipment for research work by graduate students.

### Civil Engineering

The Department of Civil Engineering is located in the new Engineering Building. This building is furnished with adequate facilities for taking care of the work. Class rooms, laboratories, drawing rooms, and offices. Surveying instruments, including plane tables, current meters, sextants and other instruments, such as planimeters and calculating machines for use in demonstrating class-room problems.

### Electrical Engineering

Instruction in Electrical Engineering is given in the New Electrical Engineering Physics Building, which contains offices, recitation and lecture rooms, and large and adequate laboratories. The equipment includes machines and apparatus and instruments of various types and capacities. It is conveniently arranged to facilitate the work. Two additional floors are now added to this building to provide additional space.

### Engineering Experiment Station

In addition to the departmental laboratories, in which engineering research is made when it is possible with supplementary equipment, there is provided a laboratory for engineering research the primary purpose of which

is to facilitate special and important projects. This laboratory contains the complete oil refining outfit and the testing machines, besides auxiliary equipment and apparatus for other purposes. The road-test truck is housed here for the present.

### Highway Engineering

The equipment at the College for instruction in Highway Engineering is fairly complete, and is constantly being added to and enlarged. There are two large laboratories for the testing of road materials; full field equipment for surveys, and modern drawing rooms provided with the necessary furniture and instruments. There is also a large lecture room equipped for the use of lantern slides and motion pictures.

### Horticulture

The Department of Horticulture is located on the third floor of Polk Hall. The space devoted to Horticulture is equipped to instruct students in the profitable production and marketing of fruit, vegetable, and flower crops. Here the necessary classrooms, museums, laboratories, and equipment are provided for thorough instruction in the courses offered in the different phases of Horticulture.

The field laboratory, known as the Horticultural Grounds, laid out and planted in 1908, covers about 28 acres of land, and contains orchards and vineyards, which are used in instruction. Open spaces provide room for student gardens, truck crops, and a winter garden. There are also an experimental vineyard and a nursery of ornamental plants.

Two greenhouses and attached service building provide necessary space for work in connection with the growing of crops under glass.

### Mechanical Engineering

The Forge Shop is equipped with anvils and double forges of the down-draft type, an exhaust system, a special gas furnace for the treatment of steel, and other necessary apparatus.

The Foundry Equipment consists of a cupola, brass furnace, sand-sifter, core machine, core oven, molding machines, and all necessary tools for bench and floor work.

The Wood Shop is excellently equipped with lathes, saws of various kinds, planers, jointers, mortisers, sanders, and other machinery essential to an up-to-date wood shop, and work benches, each with complement of hand tools.

The Machine Shop contains lathes, shapers, drill presses, grinders, planer, milling machine, and a full equipment of necessary minor tools and conveniences.

The Mechanical Laboratory is supplied with steam, gasoline, oil, and automobile engines, with instruments for measuring, testing, and analyzing, and with 150,000 pound, 50,000-pound, and 15,000-pound testing machines. The new Power Plant is so equipped that it can be used for laboratory purposes and complete tests made.

The Drawing Rooms are equipped with tables, stools, cases for boards, reference files, and models. The Senior drawing room has a Universal

Drafting machine in addition to other necessary equipment. The blue-print room contains a blue-print machine and sheet washer in addition to sun frames.

### Physics

The Physics Department is quartered in a new building of the latest type. The design of laboratories and classrooms and the modern furniture make for high teaching efficiency. Laboratories and lecture tables are served by complete distributing systems for gas, water, and electricity, the latter connecting with the central power room and switchboards of the department and the power house. Six smaller rooms are provided for private research.

In apparatus, the Department is especially well equipped for laboratory work and for advanced research. A bequest of the late William Kearney Carr added much to the general collection of demonstration apparatus and facilities for research in X-rays and in Sound. Duplication of the most modern types of laboratory apparatus has made it possible to have the whole of each class working on the same experiment simultaneously. A library of Physics periodicals has been kept for many years, affording ready reference for those in research.

Located on the top of the Physics-Electrical Engineering Building is the Astronomical Observatory. Under the dome is a 5 inch equatorially mounted, refracting telescope. Beside it is the chart and instrument room making a good equipment for the teaching of General Astronomy.

### Poultry Science

The College maintains a well equipped poultry plant with eight breeds of fowls including the most important egg breeds, dual purpose fowls for the farm, and meat breeds. A judging and laboratory building is provided at the plant for teaching and the students have an opportunity to observe fattening work and incubation with cabinet mammoth machines, brooding work on a commercial scale and the mating and proper methods of housing and management of the farm and commercial flocks. The Department, under the experiment station, maintains a disease plant where original research in soil pollution and many other phases is carried on with Bacillary White Diarrhea, Blackhead, Coccidiosis, Fowl typhoid, and worm egg pollution. The department maintains in Rick's Hall a poultry disease research laboratory, a diagnosis laboratory, and a poultry disease museum as well as other laboratories for picking and trussing poultry, candling and grading eggs, incubation, and dissection.

### Textiles

In equipping the Textile School with machinery, the aim has been to secure, as near as possible, ideal mill conditions. The essential principles of cotton yarn and fabric manufacturing can be fully illustrated on any of the standard machines, but in order to have ideal mill conditions, machines from different makers are included in the equipment so that the students may have the opportunity of becoming familiar with all the standard makes of textile machinery.

**Yarn Manufacture.** For the purpose of giving instruction in the manufacture of fine and coarse yarns, a full equipment of the necessary machinery

is provided. This machinery is located on the top floor of the building, and consists of pickers, cards, drawing, speeder, spinning, spooling and twisting frames, also a complete equipment of combing machinery for the production of fine yarns.

On this floor, also, is located knitting machinery for the manufacture of hosiery.

**Weave Room.** This room contains a larger variety of looms than can be found in any mill. These have been carefully selected so that the students may obtain a knowledge of the different cotton looms made in the United States. The equipment contains looms to produce such fabrics as prints, sheeting, denims and twill fabrics, gingham, fancy shirtings and dress goods, as well as jacquard fabrics.

The development of the textile industry in North Carolina has been, for the past few years, along the lines of fancy fabrics, and this equipment has been specially selected with this aim in view, so that students can be trained in the technique of the manufacture of these fabrics.

**For Designing and Fabric Analysis.** A full equipment of design boards for single and double cloths are provided in the classrooms. Dies for cutting samples, and different makes of balances are provided for the analysis of fabrics.

**Dye Laboratory.** This laboratory is provided with a full equipment of analytical balances and other apparatus necessary for experimental work. It is also well fitted up with appropriate work tables and apparatus for experimental dyeing, dye-testing, color-matching, and the testing of dyed samples by light, acids, and alkalies.

The Dye House is equipped with the proper dyeing machinery needed in the dyeing of larger quantities of material and the giving of instruction in boiling out, bleaching, and dyeing of raw stock, skeins, warps, and piece goods.

**Research Laboratory.** This laboratory is equipped with the necessary apparatus for testing cotton for moisture content, for breaking tests on yarns and fabrics, and for other research.

### Zoology

The space devoted to Zoology is equipped to present the various subjects and to carry on research in its own and related fields. The Entomology laboratory has a large insectary with necessary equipment. The Genetics laboratory is provided with the usual equipment, and has an especially large collection of breeding animals for research and instruction in this field. The beekeeping laboratory is well provided with apparatus to illustrate all phases of beekeeping. A small apiary is maintained on the College grounds. The technique and graduate laboratories are especially well equipped for the teaching of graduate work. The museum contains a synoptic collection illustrating most groups of animals.

### COLLEGE PUBLICATIONS

**State College Record** is a monthly announcement of the official activities of the College. One number each year constitutes the College Catalog, which contains a record of the work of the current session and announcements for the following year.

**Extension Farm News**, issued monthly, is the organ of the Extension Division of the School of Agriculture.

**Bulletins of the Experiment Stations in Agriculture and in Engineering** and of the Bureau of Social and Economic Research are issued as material warrants and as projects of work are completed.

**North Carolina Agricultural Education Monthly** is a publication devoted to the promotion of vocational agriculture in the high schools of the State. It is the medium through which the agricultural teachers receive helpful information and suggestions for the advancement of their work.

### STUDENT ACTIVITIES

Students attend College to fit themselves for a technical business life. While here they are therefore expected to be businesslike in their habits, to be prompt in their attendance, and regular at classes, shops, drills, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regular specified periods.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds in short, to conduct themselves in their college home with the same courtesy, self-respect, and propriety as in their own homes.

### Student Government

The first Constitution of Student Government was granted by the Board of Trustees in 1921. Student Government in State College, therefore, has already passed the experimental stage. Its service to the administration of the College, its effect on the student body, and its introduction of students to the great problem of government have made it an important factor in the life of the College.

The governing body is divided into two departments: the House and the Student Council. The Legislative Department is known as the "House." It is composed of the sixteen members of the Student Council, and another group elected as follows: Two members from each school elected from the Freshman Class at large. There are twenty-two members elected from the other three classes—Sophomore, Junior and Senior. These are apportioned so that one-third shall come from each class. The Freshmen do not serve until the beginning of the second term.

The Executive Department is known as the Student Council, and is composed of sixteen members elected annually. Originally there were five members from each of the three schools of Agriculture, Engineering and Science and Business with one member from the Freshman class at large, elected at the beginning of the second term.

Since the creation of the Schools of Textiles and Education, provision has been made for a reapportionment so that each school is represented, but the total membership is not increased.

The officers of the Council are a President, Vice-President, a Secretary and a Treasurer. These officers are elected by secret ballot each spring at a regularly appointed polling place.

### Young Men's Christian Association

The work of the Young Men's Christian Association is directed by a General Secretary, who devotes to the association his full time. The General

Secretary is employed and assisted in his work by a self-perpetuating board of directors, composed of nine Christian men, not more than three of whom are to be members of the College Faculty. Students fill the ordinary offices of the association, the various committees, the Cabinet, the "Friendship Council," and in this way receive valuable training in religious work and experience in organized effort.

The activities of the association, constantly becoming larger and more varied, are social, recreational, religious, and practical. A high percentage of the students are enrolled in Bible study under competent leaders, and groups of influential students are sent as delegates to conferences and conventions during vacation. Of all the organizations of the College, the Y. M. C. A. is one of the most active and most general in its appeal.

#### Societies, Clubs, and Fraternities

Organizations such as honor societies and clubs, Greek-letter fraternities, literary and scientific associations, the activities of which have become the essential accompaniment of the intellectual life, are encouraged at the College.

**The Animal Husbandry Club** meets weekly to discuss current topics relating to animals. Field trips to study the care, management, and training of animals are held frequently. Those who are interested in farm animals or pets are invited to become members of this club.

**The Agricultural Club.** The purpose of this club is to interest the agricultural students in practical agriculture, and start them to working along progressive lines. Weekly meetings are held, at which practical topics are discussed. Essays dealing with specific problems are read and debates held on current agricultural questions. Prizes are given in various contests.

The agricultural students conduct in the fall term a Students' Agricultural Fair.

**The Architectural Club** is composed of those students who are registered in the department of Architectural Engineering. It meets bi-weekly for the discussion of such problems as are commonly met with in the practice of the profession. Illustrated lectures are given from time to time on subjects of real interest to the architect.

**The Business Club**, composed of students in the Business Administration and Industrial Management departments, is organized to bring about a closer contact between students and faculty, to have discussions with representative men of business in an effort to develop the professional attitude.

**The Tompkins Textile Society.** The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held weekly, and prominent textile men address the society during each scholastic year. The Textile students, during the spring term, conduct a Textile Exposition.

**The Mechanical Engineering Society** is a student branch of the American Society of Mechanical Engineers. The society is composed of Seniors and Juniors in Mechanical Engineering. It meets twice a month for the discussion of engineering subjects.

**The Electrical Engineering Society** is a student branch of the American Institute of Electrical Engineers. It holds bi-weekly meetings for the reading and discussion of papers. At convenient intervals the society makes

trips to inspect interesting electrical installations. Occasional addresses are made by visiting engineers.

The Civil Engineering Society is a student chapter of the American Society of Civil Engineers. The students eligible to membership are Seniors and Juniors in Civil Engineering. Sophomores are eligible as associate members. Meetings are held every two weeks for the purpose of discussing engineering subjects. There is a live interest in these meetings.

The Ceramic Society is a student branch of the American Ceramic Society. The society is composed of Seniors, Juniors, and Sophomores, with Freshmen as associates. It meets monthly for the discussion of subjects of interest to ceramists.

A Student Engineers' Council has been formed to represent and direct the student activities in the School of Engineering and to provide for an enlarged and comprehensive Engineering Exposition in the spring term.

The Berzelius Society meets bi-weekly for discussion of chemical topics, and for reports upon the leading articles in the chemical journals.

The Pullen and Leazar Literary Societies afford excellent opportunities for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Poultry Science Club officered by the students is composed of students and instructors interested in this special division of the School of Agriculture. The students make up the largest part of the program in presentation and discussion of the poultry subjects. They take part in intramural games winning first in 1927, and stage an annual "chicken feed." They take part in judging contests and in the Students' Agricultural Fair.

The Red Masquers is an organization founded during the past year for the purpose of play production on the campus. It is entirely a student-body effort toward dramatic work. In the early stages only one act plays are to be produced, while later plans are toward three act productions.

The Brooks Literature Club is a student organization which meets bi-monthly at the D. H. Hill Library for the purpose of discussing representative men of letters.

Alpha Zeta, the honorary agriculture fraternity, established a North Carolina Chapter at State College in 1904. Its objects are to encourage scholarship and to develop leadership in the field of agriculture. The local chapter offers a scholarship cup to the member of the Freshman Class in Agriculture making the highest average grade.

The Golden Chain, Senior Honor Society, was organized at State College May, 1926. The purpose is to foster prevailing traditions and to promote new traditions. Citizenship is the determining factor. Such qualities of citizenship as better athletics, higher standards of scholarship and government, clever expression, and fidelity to duty are prerequisites to membership in this society.

Lambda Gamma Delta is the honorary agricultural judging fraternity. Its aims are to promote and stimulate interest in agricultural endeavor. Students making any one of the National intercollegiate judging teams. Livestock, Horticulture, Poultry or Farm Crops—are eligible to membership.

The North Carolina Alpha Chapter of Pi Kappa Delta, national honorary public speaking society, was founded at State College in 1925. The purpose of the organization is to promote intercollegiate contests in debate and ora



tory, and to provide suitable recognition for students who represent the College in these activities.

The Phi Kappa Phi Honor Society established a chapter of its national organization at State College in December, 1924. The purpose of the organization is to promote scholarship among college students. It seeks to foster learning in competition with the numerous competing and conflicting interests affecting the modern everyday life of the undergraduate by offering him membership on an equal basis with the members of the faculty. Through meetings of this group, its aims to promote good feeling, learning, and high ideals among students in their personal college relationships.

Eta Chapter of Phi Psi was established at State College in 1924. Phi Psi is a national professional fraternity, and its purpose is to encourage scholarship among the students in the Textile School, and to develop leadership in the Textile Industry.

The North Carolina Alpha Chapter of Tau Beta Pi was established at State College in 1925. Tau Beta Pi is a national honor society of many years standing, and the purpose of the organization is to promote scholarship among the students in the Engineering School. Election to this society is considered a signal honor, since the requirements for admission are high.

The Pine Burr Society (Scholarship) was founded at State College in 1922. Its purposes are to encourage high standards of scholarship, to develop leadership in all worth-while organizations on the campus, and to preserve the history of the College.

Fraternities. Fifteen national Greek-letter fraternities and six local Greek-letter fraternities have active chapters at State College. The majority of the fraternities occupy their own chapter-houses near the campus. Besides these there are several other orders, fraternities, and organizations most of which are affiliated with some national organization and are designed to encourage work along some specific line.

### MUSIC

For years the College has been building up the Band with a view to making it representative of State College. The best instruments obtainable, including types of reed and brass instruments, also orchestra bells and xylophone, have been purchased. A practice room, also used as a club room for the members of the Band, is reserved. Additions to the equipment are being made from time to time.

In addition to the Band, there are the following musical organizations at the College: Glee Club, Orchestra, and Quartet. These organizations all maintain a high standard, and contribute greatly to the activities and events of the College. Concert tours are conducted to various State institutions under the auspices of civic and welfare organizations.

### STUDENT PUBLICATIONS

A board of seven persons, known as the Student Publications Association, supervises the publications that are intended for all the students of the College. The members of this board include a representative from the staff of each member publication and a student chosen from the student body at large, together with two members of the faculty, the latter acting as financial and editorial advisers.

The student publications, four in number, in addition to their service to the campus community, offer a medium for practice in journalism, and are therefore useful to students interested in that work.

The Technician is the students' newspaper. It is published weekly during the college year by a staff of students elected by the student body.

The Agromeck is the College Annual. Its staff represents the senior class, which publishes it.

The North Carolina State Agriculturist is a monthly magazine published by the students in the School of Agriculture. It is devoted to the interests of better agriculture.

The Wataugan is the literary magazine of the College. It is published monthly by the students.

### PHYSICAL EDUCATION AND ATHLETICS

For some years there has been developing a nation-wide movement for the promotion of health. The World War gave great stimulus to this movement by bringing to light the fact that approximately one half of the Nation's youth were actually unfit for military service, and by revealing that this unfitness could have been largely prevented or remedied by proper physical education.

The growing interest in physical education, intensified by the lessons of war, has already found expression in significant accomplishments. Thirty states have passed laws requiring physical training in all of their public schools. Playgrounds and recreation centers are being established in every progressive town or city. Many employers are providing opportunities for recreation, and are taking steps to promote the health of their employees.

The demand for trained physical directors, play, recreation, and athletic directors is increasing every year. This demand has become increasingly insistent because of the new recognition of health problems, the educational and social value of athletics, the relationship of play to moral training, and the relationship of the use of leisure time to citizenship, industrial efficiency, and community building.

The demand for competent teachers, supervisors, and directors in schools and colleges far exceeds the supply. It is generally recognized by all educators that no man on the teaching staff has such a close personal touch with the student as the coach and physical director. The demand is for the coach or director to be a man of culture, a college-trained man in general education, in addition to having a special training for different phases of athletics and physical education.

State College recognizes the lessons of the late war, as far as the health and efficiency of her own student body are concerned. She recognizes the large field in which her graduates can be of service in schools, communities, and factories—in the way of right and efficient living. Therefore, this department is established on a thoroughly competent and expert basis, with a sufficient staff to give this professional training in physical education and athletics, to help meet the needs of the College, State, and Nation. Sufficient courses are offered in this department for students to minor in physical education.

The Physical Education Department is now quartered in the new Frank Thomson Gymnasium. This building is one of the largest and best equipped gymnasiums in the South, costing approximately \$225,000. The basement

floor is equipped with sufficient steel lockers to provide every student with an individual locker. There is a large private locker and training room for the varsity team, with private showers; also private faculty and visiting team locker rooms. An equipment room, towel and store room, wrestling and boxing room complete the basement floor. Adjoining the basement floor is a white tiled natatorium, covered completely by a glass skylight. The pool is intercollegiate in size, 35 x 75 feet, with sufficient room to take care of spectators at meets. The first floor consists of four offices for department staff, main gymnasium and auxiliary gymnasium. The main floor is 110 x 130 feet. Seating capacity is 2,500, using knock down bleachers, for varsity basketball games played on a maximum size court. There are two cross-courts, 86 x 47 feet, used for tournaments and class work. Adjoining the main floor is the auxiliary gymnasium, 110 x 35 feet. This is provided with apparatus and equipment for recreation and special exercise groups. The attic has a large room for lecture purposes and trophy room. A gallery surrounding the entire main floor will at some time permit the laying of an indoor track.

The College has two large athletic fields. Riddick Field, the intercollegiate competition field, has a seating capacity of 10,000. Southside Park, adjacent to the gymnasium, 400 x 400, is used for freshman teams and intramural athletics. Large flood light projectors have been installed on this field for night practice in football. Twelve new tennis courts have been constructed adjacent to the gymnasium.

#### The Organization of the Department

The Department of Physical Education is in the School of Science and Business. Its activities consist (a) of conducting the courses in Physical Education offered in various curricula for which college credit is given, and (b) of supervising the athletic activities of the College, both intramural and intercollegiate.

The courses in Physical Education comprise the Physical Training required of all students in the first two years, and the professional courses which are elective in some curricula.

1. **Physical Training Courses** are required of all freshmen and sophomores in the College. These courses consist of calisthenic drill and apparatus work for posture and physical development. Popular sports are stressed. It is believed that a student gets the feeling of accomplishment in learning the rules of, and how to play soccer football, tag football, tennis, volley ball, handball, track events, playground baseball, swimming, etc. The course aim to get uniform development, encourage qualities of leadership and coöperation and form habits of regular exercise.

2. **Professional Courses.** These courses are planned to coöperate with all schools in the College to better prepare their graduates to meet the demands made upon them in their chosen field of labor. Sufficient courses are given so that a student can minor in Physical Education.

All phases of athletics at the College are under the supervision of the Faculty Athletic Committee, and under the direct administration of the Professor of Physical Education and Graduate Manager. In addition to the faculty organization for the control and direction of athletics, the students have an athletic association, with their own officers.

The athletic activities of the College are organized under the following divisions:

1. **Intercollegiate Athletics** give an opportunity for any eligible student to get technical skill and proficiency in varsity sports under skilled coaches in each sport. North Carolina State is a charter member of the Southern Intercollegiate Conference, and her athletes are eligible only under its rules.

2. **Intramural Athletics** give an opportunity to all students not on intercollegiate squads to have competitive recreational athletics between dormitories, companies, fraternities, and other college organizations. These intramural teams will be under the direct supervision of the departmental staff, and an opportunity for practice coaching will be had for men minoring in Physical Education.

#### Rules of Eligibility of the Southern Intercollegiate Conference

State College is a charter member of the Southern Intercollegiate Conference for Athletics, and all its rules, including the one-year residence rule for new men, are observed. Freshman teams have a special coach, and play their own schedule of games. The same kind of equipment is furnished to their members as to members of the varsity teams.

**RULE 1. *Bona Fide Students.*** No one shall participate in any intercollegiate contest unless he is a *bona fide* matriculated student, with at least 15 Carnegie units, regularly enrolled and doing full work as defined by the regulations of the institution in which he is enrolled: *Provided*, that student in any Conference institution which admits conditional students with less than fifteen Carnegie units shall be eligible for varsity competition, unless such student on first entrance presents fifteen Carnegie units, either by certificate or examination; and *Provided further*, that no work done after such entrance shall remove such ineligibility.

A student in special agricultural or other special courses who does not present the full entrance credits is not eligible under this rule.

**RULE 2.** No person shall participate in intercollegiate athletics at an institution until after the expiration of twelve months from the date of his matriculation there, and until he shall have completed the scholastic requirements of that institution.

**RULE 3. *Attendance.*** No student having been a member of any athletic team of his college during any year, and having been in attendance less than one-half of the college year, shall be permitted to participate in any intercollegiate contest thereafter until he shall have been in attendance one-half of the next college year. The term "college year" shall be construed to mean the term beginning in September of each year and continuing for two semesters or three quarters.

*Note*—Attendance during Summer Session is not counted as "attendance" for the purpose of this rule.

**RULE 4. *Migrant Students.*** (a) No person who has participated in any intercollegiate contest in any branch of sport as a member of any college team shall be permitted to participate in any intercollegiate contest in the same sport as a member of a team of any other institution in this Conference.

For the purpose of this rule, an intercollegiate contest is a contest played by the varsity or the freshman teams.

(b) Students who have pursued courses of study at one university or college, but who have not participated in an intercollegiate contest, shall be

eligible to participate in intercollegiate athletics at another institution, but only when they have satisfied the conditions as set forth in Rule 2—the one-year residence rule.

(c) Transfers from a junior college, normal school, or other institution not offering a standard four-year course may be allowed to continue their athletic careers at the institution to which they transfer, provided that they conform to the one-year residence rule.

**RULE 5. *Limit of Participation.*** Participation in intercollegiate athletics shall be limited to one year freshman and three years varsity over a period of five college years. A college year shall be designated as any year in which a student matriculates. Every student shall be allowed three years of varsity participation in each sport, provided such participation falls within the five-year period herein defined.

**RULE 6. *Compensation.*** (a) No person who receives any compensation from his institution for services rendered by way of regular instruction shall be allowed to participate in intercollegiate contests.

(b) No person shall be allowed to participate in any intercollegiate contest who receives any gift, remuneration, or pay for his services on a college team.

(c) No person shall be permitted to participate in any intercollegiate contest who has ever used his knowledge of athletics or his athletic or gymnastic skill for gain.

NOTE. This rule does not apply to any person who has worked in connection with a playground or a summer camp where the requirements do not call for a man with technical preparation in physical training.

(d) The following persons shall be ineligible to compete on any team in this Conference: (1) Those who hold any scholarship, fellowship, or cadetship involving financial benefit which is awarded wholly or in part for athletic ability; (2) those who enjoy any loan fund or similar benefit which is awarded wholly or in part for athletic ability; (3) those who hold any position involving financial benefit which is awarded wholly or in part for athletic ability.

(e) Any college athlete receiving money for signing a contract with a professional baseball team shall be ineligible for intercollegiate athletics.

**RULE 7. *Summer Baseball.*** No athlete in any Conference institution shall participate as a member of any summer baseball team without the consent of his Faculty Committee on Athletics; and such a player, when given permission to play on such team, shall submit at the reopening of the school term to his Faculty Committee a certified statement that he has not received pecuniary compensation therefor.

No student playing on a baseball team recognized by the National Baseball Commission shall be eligible for intercollegiate athletics.

**RULE 8.** No student shall be eligible to participate in any intercollegiate contest if he has played in any summer baseball team which played more than three games a week while he was a member of it. This rule applies to regularly matriculated college students, and not to students who played summer baseball before entering college.

To this list of professional teams thus prescribed shall be added all the teams in any State which the Conference institutions of such State declare professional, and from which they debar their own players. In the event

said Conference cannot agree on prescribed teams, the Executive Committee shall have power to decide the issue, and the action of the committee shall be final.

A student who plays baseball on a team which plays three games a week shall not be allowed to play on any other team during the same week.

No college player is permitted to play on an athletic team other than that of his own college during the college year.

RULE 9. *Assumed Name.* No person shall take part in any intercollegiate contest under an assumed name.

RULE 10. *Delinquency in Studies.* No student who is found delinquent in his studies by the faculty shall be permitted to participate in any intercollegiate contest.

RULE 11. *Outside Participation.* No college football player is permitted to play on a football team other than that of his own college.

### MILITARY TRAINING

North Carolina State College is one of the higher educational institutions of this country selected by the United States Government as a college where Military Training is given students by officers of the Regular Army. This Military Training was secured by the governing authorities of State College for State College. The primary purpose of the Military Training is to qualify students for appointment as Reserve Officers after graduation so that, if the American Nation be forced to defend itself from attack, it will have a sufficient number of educated men, trained in Military Science and Tactics, to officer intelligently the units of the defense forces upon which the safety of the country will depend.

Students taking the Military Training are enrolled as members of the Reserve Officers Training Corps, and are prepared for their Reserve Commissions at the same time that they are getting their technical education, with a positive gain to their educational development. Military education is training in discipline, in organization, in leadership, and in command, which assists the student while in college, and will prove of the greatest value in after-life. All physically acceptable freshmen and sophomores are required to take Military Training, except those who are excused by the President of the College or the Professor of Military Science and Tactics, and those excused will be required to take the alternative course provided. After completing the first two years, the student is not required to continue further Military Training, but may either discontinue it or exercise his privilege of electing to continue Military Instruction by voluntarily enrolling for the Advanced Courses.

The Federal Government not only furnishes officers and non-commissioned officers of the Regular Army as instructors, but it also assists very materially by supplying equipment and clothing to R. O. T. C. students, and providing for pay for those who volunteer to take the advanced courses given during their last two years in college. The amount paid by the U. S. Government to each R. O. T. C. student during the junior and senior years is approximately \$242. A student, upon completion of the courses in Military Training, may, if he so elects, receive a Reserve Commission and be assigned to a Reserve Unit, normally in his own locality. He then becomes a part of the army of the United States, but cannot be called to service except with his own consent, except under the gravest national emergency. The

student enrolling in the R. O. T. C. enrolls only for the purpose of military education while a student at the College. He is not obligated in any way for military service after he leaves the College.

Students who complete only a part of courses given to the R. O. T. C. Unit will receive from such military instruction as is given them a training that will benefit them individually and make them more useful in the National Guard, in the Organized Reserves, or in the military establishment in the event of a public emergency. State College has one of the largest Reserve officers Training Corps in the South. The unit is organized as an Infantry Regiment of three Battalions, with an excellent regimental band of sixty student members. Every unit in the regiment down to the squad is commanded directly by its own student officers, who are thus taught early to exercise responsibility, which assists in developing their sense of duty and their qualities of leadership.

Many fine lessons of great value in the student's everyday life are learned in the course of his military experience as a member of the Reserve Officers Training Corps at this College.

Among other numerous advantages, perhaps the greatest benefit to the student himself is the fact that Military Training fosters discipline, the lack of which is the greatest weakness of America today. In order to achieve worth while success, the student must first learn the value of discipline, especially self discipline. Men who are to command other men successfully should first learn to obey successfully. Military Training teaches the student to obey promptly and loyally the orders of those in authority. The military discipline is exactly the same as that most helpful in enabling college graduates to become honorable and outstanding members of their communities in whatever profession or calling they may engage. Military discipline, besides providing a reservoir of Reserve Officers, trains students to exercise self-control and self-discipline, and inculcates orderly, studious, and manly habits of thought and action. The main incentive to good discipline is appeal to the student's self-respect, pride in his regiment, and a sense of his dignity, courage, and joy in work well done.

As planned and conducted, the Military Training develops qualities of leadership so often quiescent and waiting development. Many men have the capacity of leadership, unsuspected even by themselves, which can be brought out by Military Training so that they will be much more valuable and efficient in their occupations and to the community. Students who in later years rise to positions of great responsibility, and are called upon to direct the work of others, will find that the Military Training secured at the N. C. State College is of inestimable value to them, since such training helps young men to develop their gifts of leadership.

The importance of inculcating high standards of honor during the plastic and formative period of a young man's life cannot be overestimated. The Military Training is conducted so as to emphasize the fundamental importance of honorable conduct, strict truthfulness, and the spirit of fair play and good sportsmanship. Along with this goes the forming of good personal habits. Neatness of clothing and personal appearance of the R. O. T. C. students is insisted upon, and students are required to be punctual and regular in attendance in classes, drills, and other military duties. Habits of courtesy, especially to elderly persons, dignified bearing, and manly de-

portment are formed, as are also conscientiousness and accuracy in the discharge of duty, and promptness and reliability in meeting engagements.

Correct bearing and carriage are largely matters of training. No one habit does more to improve the student's general health and appearance than holding himself erect. The Military Department, in its training, insists that the R. O. T. C. student stand, walk and sit erect. The R. O. T. C. student's marching, drilling, and other Military Training teach him to carry himself properly. Military Training transforms many thin chested, round-shouldered, stooping boys into upstanding, broad-shouldered, deep-chested young men, fine specimens of manly physique.

The R. O. T. C. Military Training furnishes important elements in a sound and practical education in the principles, duties, and responsibilities of American citizenship. The patriotic effort of the R. O. T. C. colleges is a forward step in the potential protection of the Nation towards whose honor and safety the whole influence of the College is directed.

Not only is the Military Training of educational value to the individual, but it is of benefit to the community and the country in general, since such training makes for good citizenship. No man can prepare himself to serve his country in war or other time of great need without making himself more valuable for all relations of civil life. The students who avails himself of the opportunity afforded by the Military Department of this College will graduate a better man for himself, for his family, and for his country.

## INFORMATION FOR APPLICANTS

### Requirements for Admission to the College

There are two bases for regular admission to college:

1. Graduation from a standard high school, a high school which is accredited by the State Department of Public Instruction.

2. (a) Graduates of four year non-standard high schools may be admitted by passing successfully the college entrance examination prepared by the Examination Committee of the North Carolina College Conference.

(b) Students who attended standard high schools, and completed fifteen units of work, but did not graduate, will be required to take the examination required of graduates of non-standard high schools.

Each applicant for admission must be at least sixteen years of age, and must have a certificate of good moral character from the school last attended. Students 21 years of age or older may be admitted upon appraisal of their fitness to carry regular college work.

Fifteen units of credit are required for admission to the four-year curricula. Of these, 8.5 are in specified subjects; 6.5 are in elective subjects.

A unit is defined as a subject pursued in an accredited high school for five periods a week throughout the year, each period being at least forty minutes.

### Specified Subjects

English:	<i>Units of Credit</i>
Grammar and Composition	1
Literature for Study	1
Literature for Reading	1



History:	
American, and any other listed below.....	2
Mathematics:	
Algebra to Quadratics.....	1
Algebra, Quadratics through Progressions.....	.5
*Plane Geometry .....	1
Science:	
Any one from Group A below.....	1

## Elective Subjects

## SCIENCE AND VOCATIONAL SUBJECTS

	<i>Units of Credit</i>
Group A:	
Biology .....	.5 or 1
Botony .....	.5 or 1
Chemistry .....	.5 or 1
General Science .....	.5 or 1
Physics .....	.5 or 1
Physiology and Hygiene .....	.5 or 1
Zoology .....	.5 or 1
Group B:	
Agriculture and Farm Practice .....	1 to 6
Civics and Social Science.....	.5 to 2
Commercial:	
Bookkeeping .....	1
Business Arithmetic .....	1
Commercial Geography .....	.5
Stenography and Typewriting ..	1
Drawing (freehand or mechanical) ..	1
Economics .....	1
Mechanic Arts .....	.5 to 1
Mill Practice .....	.5
Physical Geography .....	.5 or 1
Languages:	
English .....	1
French .....	1 to 2
German .....	1 to 2
Latin .....	1 to 4
Spanish .....	1 to 2
History:	
American .....	1
English .....	1
General .....	1
Medieval and Modern.....	1
Ancient .....	1
North Carolina .....	.5
*Mathematics:	
Advanced Algebra .....	1
Solid Geometry .....	.5
Trigonometry (Plane, and through Right Triangles in Spherical).....	.5

\*Graduates of standard agricultural high schools may substitute 1 unit elective for 1 unit of Plane Geometry for entrance into the School of Agriculture.

### Explanation

1. In addition to the three specified units in English, a fourth elective unit may be allowed for a full year of advanced work in the subject, including the history of English or American literature.
2. In Science a unit of credit is allowed only when the course includes laboratory. A record of the laboratory work in Science should be kept in a suitable note-book, and certified by the teacher of the subject or the principal or superintendent of the school.
3. In Foreign Modern Languages, one unit of credit is allowed for each year's work. The first year's work should cover the grammar and about 200 pages of translation.
4. In Latin, one unit each is allowed for grammar and composition, Cæsar (Books I-IV), Vergil (Books I-IV of the *Æneid*), and Cicero (six orations).
5. Standard high school textbooks are recommended for all subjects.

### Certificates

Certificates must be presented on official College Admission blanks furnished by the College Registrar. These must be signed by the proper officials of accredited high schools, or other preparatory schools of approved standing. These certificates must be submitted to the Registrar for approval. It is of distinct advantage to the applicant to send in his certificate as early as possible after the work is completed, but no certificate should be submitted until all work done for college entrance is entered on the certificate blank.

Certificates mailed to the College should be directed to the Registrar's office.

### Advanced Standing

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper certificates to the dean of the school in which they expect to register. At least one year's work in residence is required for an undergraduate degree. None except entrance credit is allowed without examination at the College for work done in secondary schools.

### Vaccination

Each applicant for admission is required to be vaccinated against small-pox before he can be admitted, unless he has been successfully vaccinated within two years preceding his registration. Since inoculation against typhoid fever has become a standard preventive measure, parents are requested to have their sons inoculated before coming to college. However, this is not compulsory. The College offers a treatment free to all students. Therefore, there is no valid reason why any student should contract this disease, if he will avail himself of this preventive of a disease to which young men are sometimes peculiarly susceptible.

### Registration

The College year is divided into three regular terms and the summer session. For the year 1928-29, the first term begins with a meeting of the College Faculty, September 13, 1928; registration day for the freshmen is Friday, September 14, and the Saturday, Sunday and Monday following are set aside by the college for assisting freshmen in adjusting themselves to

their new environment. Tuesday, September 18, 1928, is registration day for all students other than freshmen.

Thursday, January 3, 1929, is the second term registration day for all students.

Thursday, March 14, 1929, is the third term registration day for all students.

An extra fee of \$10.00 is charged to each student who registers later than the regular days specified for registration.

#### Grades and Credits

The minimum passing grade in any course is 60 per cent. The following system is used in reporting the grades of students: A, 90 to 100 per cent, inclusive; B, 80 to 89 per cent, inclusive; C, 70 to 79 per cent, inclusive; D, 60 to 69 per cent, inclusive; F for all grades below 60 per cent. Where the grade F is reported to the Registrar, the student must repeat the course in class before he shall receive credit for the course. A student may be given an incomplete grade (I) if some specific portion of his work remains unfinished at the end of the term, provided his standing in the course has been of grade C or higher.

The following system will be used in assigning "points" for the graduation requirements: A, 3 points per term credit; B, 2 points per term credit; C, 1 point per term credit, and D, 0 point per term credit.

In order that a student may reënter for any term he must have passed the following percentage of his term credits during the preceding term: Freshman, 50 per cent; Sophomore, 60 per cent; Junior, 60 per cent, and Senior, 60 per cent.

Credit is allowed upon a course only when the course is entered on the student's roster filed with the Registrar and Director of Instruction of his school.

The following are the minimum requirements for graduation at the North Carolina State College: School of Agriculture, 216 term credits and 216 credit points; School of Education, (a) Teachers of Agriculture, 210 term credits and 210 credit points; (b) Teachers of Industrial Arts, 218 term credits and 218 credit points; (c) all other curricula, 198 term credits and 198 credit points. School of Engineering, 222 to 225 term credits and from 222 to 225 credit points. School of Science and Business, 198 term credits and 198 credit points. School of Textiles, 222 term credits and 222 credit points.

#### Absence from Class or Examination

For class absences a student will lose one point for each three absences, except when the absentee is engaged in activities authorized by the College or except upon the presentation of a doctor's certificate showing he was unable to attend class.

Any student who is absent from class, without a satisfactory reason, a sufficient number of times to cause him to lose a number of points equal to one-half the credit hours he is carrying per week will be placed on probation and his parents and instructors notified.

During probation a student will not be permitted to be absent from any college duty. If a student is absent from a class without a legitimate excuse during a period of probation he shall be subject to suspension or dismissal at the discretion of the Faculty Council.

There shall be a double loss of points for all college work missed on the two days preceding and on the two days following the authorized college holidays.

If a student is absent from any final examination without an official excuse his grade will be reported as "failure."

### EXPENSES

The total college expense of a student will vary according to the taste and requirements of the individual, but need not exceed \$450.00 for students from within the State, or \$470.00 for those outside the State. This amount includes the cost of board, tuition, lodging, heat and lights, fees and deposits, books, drawing instruments, laundry, and certain necessary incidentals. It does not include an allowance for clothing, pocket money, and contingencies.

#### Tuition

The College is organized and operated on the basis of a full scholastic year as a unit. All tuition charges, room rents and fees, therefore, are for the full scholastic year, and are due and payable in advance, but for the convenience of the student, and at his option, may be paid in two installments in September and January.

All students pay tuition, except those students who hold scholarships, those students who are residents of North Carolina and are preparing to teach in the State, and sons of ministers. Tuition charges are due and payable in full at registration, or may be divided in two equal installments payable at registration in September and January. The charges for tuition are as follows:

	First Payment	Second Payment	Total for Year
Students Residing in North Carolina	\$20.00	\$30.00	\$50.00
Students Residing Elsewhere	40.00	40.00	80.00

#### Fees

Fees are payable at the same time and in the same manner as tuition. Students rooming out of college do not pay the dormitory Light, Heat, Water and Janitor's fee. Students living out of college with their parents do not pay Hospital and Medical fee. The following table is a list of fees that will be collected from students, except as noted above:

	First Payment	Second Payment	Total for Year
Registration Fee	\$ 3.00	\$ 3.00	\$ 6.00
Dormitory Heat, Light, Janitor's Fee	7.50	7.50	15.00
Hospital and Medical Fee	3.00	3.00	6.00
Library and Lecture Fee	2.25	2.25	4.50
Athletic Fee	3.00	3.00	6.00
Physical Education Fee	3.00	3.00	6.00
Students Publications Fee	2.75	2.75	5.50
Students Activities Fee	.75	.75	1.50
Class Room and Laboratory Maintenance Fee	16.50	16.50	33.00
Private Mail Boxes	.25	.25	.50
Student Government Fee	2.00	2.00	4.00
<b>Total</b>	<b>\$29.00</b>	<b>\$28.75</b>	<b>\$57.75</b>

Students entering after the final date of registration will be required to pay an extra fee of \$10.00.

A deposit of \$10.00 is required of each student in the Reserve Officers Training Corps to indemnify the College against the loss of Military Equipment. All unused portion of this deposit is returned to the student at the end of the year.

#### Room Rents

Rooms in the college dormitories must be reserved in advance. A room

will not be assigned finally until after one-half of the yearly rental has been paid. The first payment is due on or before August 15, and rooms reserved will be held until then, after which time, if payment has not been received, they will be assigned to others. The following table shows the rates for each dormitory:

	First Payment	Second Payment	Total Payment
1911 and Ground Floor, South Dormitory	\$22.50		\$45.00
First, Second, Third Floors, South Dormitory	22.50	25.50	51.00
Fifth and Sixth Dormitories	20.00	50.00	60.00
Watauga, Fourth, Sex n and 1911 Dormitories			

#### Refunds

A student withdrawing from college within ten days from the date of entrance shall be refunded the amount paid less the registration fee and a reasonable charge for board, lodging, and services while in college.

A student withdrawing from college later than ten days from the date of entrance shall receive no refund, except for board and military deposit. Refunds for board shall be under the usual regulations governing withdrawal from the dining hall.

A room reservation may be cancelled at any time before September 10, and in case formal notice is given the Superintendent of Buildings in writing before that date, the full amount paid will be refunded.

A student withdrawing from a dormitory room regularly assigned and occupied for a period of ten days, shall be entitled to no refund.

#### What a Student Needs for His Room

The College rooms are supplied with necessary furniture. Each student, however, should bring with him two pairs of blankets, two pairs of sheets, one pillow and two cases, and two bedspreads for a single bed.

#### Board

There is maintained for the convenience of the student body a dining hall, which serves meals at minimum cost to the students. There is also operated by the College a cafeteria, which is modernly equipped and thoroughly sanitary. It opens early in September and remains in operation continuously until after the Summer School. The boarding department and the cafeteria are operated as non-profit service agencies, and all food served is of the very best and is furnished at the lowest possible cost. Charges for board in the main dining hall of the College are as follows:

Per month	\$18.00
Per week	5.00
Per day	1.00
Per month, one meal per day	8.00
Per month, two meals per day	15.00
Single meals	.50

Charges for board are payable in advance on or before the first day of each calendar month, and for the scholastic year 1928-29 will be as follows:

#### September:

For Freshmen	\$11.00
For other students registering September 18	8.00
October	18.00
November	18.00
December	13.00
January	17.00
February	18.00

March .....	18.00
April .....	16.00
May .....	18.00

The main dining hall will open Thursday evening, September 13 for supper. The dining hall will close with supper Thursday, December 20. The dining hall will open after the Christmas holidays on Thursday morning, January 3, for breakfast. The dining hall will be closed during the Easter holidays, March 29 to April 2, inclusive. During the Christmas holidays, Easter holidays, and during commencement, the College cafeteria will be open and serve meals to those students who remain on the campus.

#### Self-Help

Some students who are alert and energetic earn part of their expenses in college. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, and in the dairy. Some students act as agents for merchants and pressing clubs. The College employs a few students in the dining room and elsewhere. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must be remembered that the duties of the classroom take most of a student's time.

A register of those asking for student labor is kept by the College Y. M. C. A.

It is well to bear in mind that except in unusual cases opportunities for work are greater after the first year. The older student who has established himself and become familiar with conditions enjoys a decided advantage.

#### Student Loan Fund

The Alumni Association of the College established in the year 1900 a small fund to be loaned to needy students of talent and character. This has been augmented from various sources, and now amounts to about ten thousand dollars. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount loaned to each student is limited. The purpose is to help young men who are willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

**Finley Loan Fund.** As a memorial foundation to William Wilson Finley, President of the Southern Railway Company at the time of his death, that company has established a Finley Loan Fund for needy students of agriculture. The fund amounts to \$1,000. This is loaned to students who are making their way through college, and returned by them to the fund after they have finished college and gone to work. It is administered by the Treasurer of the College, and all beneficiaries are named by the College.

**Student Body Loan Fund.** In the fall of 1926 there was established a Student Body Loan Fund, made possible by voluntary contributions of members of the student body. The purpose of this fund is to aid worthy students who have difficulty in meeting their usual college expenses. The fund is controlled by a board representing the student body and the College administration.

#### Awards of Free Tuition

**Regular Scholarships.** When the College was chartered the Legislature required the trustees to admit, free of tuition, one hundred and twenty young

men. The only conditions attached to these scholarships are that they shall go to young men (1) who are unable to pay for all their education, (2) who are of excellent moral character. As far as possible, these appointments are distributed among the different counties. Appointments are made by the President of the College, after inquiries as to the needs and character of applicants, and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

**Agricultural Scholarships.** The Legislature of 1913 authorized the College trustees to give a limited number of agricultural scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as with the regular scholarships.

**Textile Scholarship.** This scholarship is given by the Chadwick-Hoskins Company, Charlotte, N. C. The recipient must have a good record in scholarship and deportment.

**The John Gray Blount Scholarships** are endowed by Colonel W. B. Rodman, of Norfolk, Va., in memory of his great grandfather. The maximum value of each of these two scholarships is \$200.00.

#### MEDALS AND PRIZES

The **Elder P. D. Gold Citizenship Medal** is awarded each year by Mr. C. W. Gold, of Greensboro, N. C., member of the class of 1896, in memory of his father, Elder P. D. Gold, of Wilson, N. C.

This medal is awarded to that member of the senior class who has most distinguished himself in Student Citizenship during his sophomore, junior, and senior years.

The award is based on four qualities of citizenship in the college community—Scholarship, Student Leadership, Athletics, and Public Speaking. These four qualifications are certified to by the College Registrar, the Student Council, the Faculty Athletic Committee, and a committee composed of the ranking junior officer in all college societies in which public speaking is practised.

The **Norris Athletic Trophy** is awarded annually to the student who most distinguishes himself in athletics, by Norris, Incorporated, of Atlanta, Georgia, through the president of the company, Mr. Frank E. Lowenstein, an alumnus of State College, class of 1897.

The winner of the Trophy is determined by a popular vote of the student body in a primary election held during the first week in February, and in a final election held at the time of the election of the officers of Student Government. Three candidates are nominated in the primary election, and from this group the winner is chosen by the student body, usually during the month of April. The Trophy is presented, with appropriate exercises, at Commencement in June.

The **Norris Athletic Trophy**, which becomes the permanent property of the winner, has undoubtedly accomplished much in increasing interest in athletics, and the scholarship requirements under which the Trophy is awarded have a very wholesome effect upon the scholastic standing of the members of the various athletic squads.

## THE SCHOOL OF AGRICULTURE

IRA OBED SCHAUB, *Dean and Director of Extension*

ZENO PAYNE METCALF, *Director of Instruction*

RHETT YOUMAN WINTERS, *Director of the Agricultural Experiment Station*

### ORGANIZATION

North Carolina is one of the foremost states in the Union in the value of farm crops. The scientific investigations, demonstrations, and instruction of State College, in cooperation with the State Department of Agriculture, have been particularly effective in promoting better methods of farming, and in adopting scientific agriculture. The majority of the people of the State employed in gainful occupations are devoting their energies to some form of agriculture, and the greater part of our wealth and prosperity is derived from this great vocation.

The art of cultivating the soil properly and living well at home, the value of selecting that form of agriculture which is in greatest demand, and the best method of turning the surplus products into commercial channels that will be most profitable to the producer, are matters of the greatest concern to the people of the State. The School of Agriculture has been reorganized for the purpose of rendering a much larger service to the State along these and other lines. The Experiment Station and the Extension Service have been more closely united with college instruction, and the courses of study have been so organized and the instruction so broadened as to offer much larger opportunities to young men entering college, and to farmers and other agricultural workers throughout the State.

Beginning a generation ago on a very small scale, the School of Agriculture has grown until today it embraces the following important divisions: (a) Agronomy, including Field Crops, Soils, Plant Breeding, and Agricultural Engineering; (b) Animal Industry, including Animal Production, Animal Nutrition, Dairy Production, and Dairy Manufacturing; (c) Botany, including Bacteriology, Plant Physiology and Plant Diseases; (d) Horticulture, including Pomology, Forestry, Floriculture, Landscape Gardening, and Truck Farming; (e) Poultry Science, including Poultry Diseases, Poultry Breeding, Poultry Feeding, and Poultry Management; (f) Zoology, including Genetics, Entomology, and Animal Physiology.

### THE PURPOSE OF THE SCHOOL

The purpose of the School of Agriculture is threefold: (1) To secure through scientific research, experimentation, and demonstration accurate and reliable information relating to soils, plants, and animals, and to secure from every available source reliable statistical, technical, and scientific data relating to every phase of agriculture that might be of advantage to our State; (2) to provide instruction in college for young men who desire to enter the field of general agriculture, or wish to become professionals in agricultural education or specialists in any field of science related to agriculture, and (3) to disseminate reliable information through publications and through extension agents, and through a wise use of this



information to give instruction to the agricultural workers of the State in the scientific, experimental, and practical progress in the various lines of agriculture.

All effective instruction in agriculture is based on research and investigation, and the curricula are organized so that not only the subject-matter for classroom instruction and extension work may be drawn from research, experimentation, and demonstration, but that the students themselves shall have the opportunity to work under the direction of research specialists.

The vocations open to well-trained young men in the field of agriculture and the opportunities afforded for distinct service to the State are greater than ever before in our history. In order that the larger vocations in agriculture may be presented to the youth of our State, the courses of study are so organized as to give specific training for the following major vocations:

- General Farming.
- Agricultural Extension Agents.
- Agricultural Specialists in State or Federal Departments.
- Stock-Raising and Dairying.
- Specialists in the Manufacture of Dairy Products.
- Fruit Growers.
- Truck Farming.
- Poultrymen.
- Agricultural Specialists in Foreign Lands.

In addition to these major vocations, the School of Agriculture gives instruction in Beekeeping, Floriculture, Forestry, and the basic instruction for teachers of Agriculture.

#### ADMISSION

Each applicant for admission must present evidence that he has satisfactorily completed a four-year curriculum of not less than fifteen units in a secondary school which is approved by the State Department of Education, or the equivalent of such a course as shown by examination.

Each applicant for admission must be at least sixteen years old, and must submit fifteen units of credit from an accredited high school. Of these units 8.5 are in specified subjects and 6.5 in elective subjects.

#### ADVANCED STANDING

Students who have attended other colleges will be allowed credit for work done upon the presentation of proper certificates to the Director of Instruction.

#### AGRICULTURAL CURRICULA FOR UNIVERSITY AND COLLEGE GRADUATES

Selected courses leading to the degree "Bachelor of Science" in Agriculture are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student, and in the light of credits presented from the institution from which the student has been graduated, subject to the approval of his adviser and the director of instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum he may

be graduated with a B. S. degree in one year. In no case should it take more than two years to complete the work for his B. S. degree.

### REQUIREMENTS FOR GRADUATION

The requirements for graduation are the satisfactory completion of one of the curricula outlined below.

A minimum of two hundred and sixteen (216) term credits and two hundred sixteen (216) points is required for graduation from the school of Agriculture. The term credits should be distributed as follows: A maximum of sixty (60) term credits in major department, and a minimum of eighteen (18) term credits in Language, twenty-eight (28) term credits in Science, nine (9) term credits in Social Science, twelve (12) term credits in Military Science or alternative, and six (6) term credits in Physical Education.

Students entering with advanced standing are required, during the remainder of their course, to earn at least as many points as the number of term credits remaining necessary for graduation.

### DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon the satisfactory completion of one of the curricula in Agriculture.

The degree of Master of Science in Agriculture is offered for the satisfactory completion of one year of graduate study in residence. Candidates for this degree are enrolled as students in the Graduate School.

The professional degree of Master of Agriculture may be conferred upon graduates after five years of service in Agriculture, and upon the acceptance of a satisfactory thesis.

### CURRICULA IN AGRICULTURE

The curricula in Agriculture offer a combination of practical and theoretical work. About half of the time is devoted to lectures and recitations, and the other half to work in shops, laboratories, greenhouses, dairy, poultry yards, and on the College farm.

In order that every graduate of the School of Agriculture shall acquire a liberal education in lieu of specializing too intensely, and shall become a leader having breadth of vision, the curricula in Agriculture contain courses in the languages, literature, history, and the social sciences. In addition, there is considerable opportunity for other broadening subjects.

### AGRICULTURAL ECONOMICS

Until recently agriculture has afforded individuals simply an occupation with little or no opportunity for a professional career. Today, however, agriculture is a vast commercial industry and provides many opportunities for the active and well trained individual. Positions in this field are as truly professional as those found in any other industry. To fill the positions normally available, however, students must pursue a definite course of instruction. It is the object of the agricultural economics curriculum, shown on the accompanying page, to supply this instruction. The first two years of the curriculum are devoted largely to fundamental

sciences and to the technical agricultural subjects, such as Poultry, Agronomy, Horticulture, and Animal Husbandry. Beginning with the Junior year the opportunity is given the student to specialize in agricultural economics. While the Senior year is devoted almost exclusively to courses in this field.

It is not possible to enumerate in this connection all of the positions which are commonly open to the graduates in agriculture. However, the following is presented as an indication of the types:

**Junior Agricultural Economist.** A position as a Junior Agricultural Economist involves research in Agricultural Economics. Such positions are usually available in the Governmental Departments such as United States Department of Agriculture and in various state institutions.

**Farm Manager.** There is a growing demand for men who have had practical farm experience and who have special training in farm organization and management. This field is practically a new one and there have been many requests for men with special training in farm management.

**County Agent.** The growing importance of marketing of agricultural products and the need for better organization of farms has given rise to a strong demand for county agents who have had special training in Agricultural Economics.

**Commercial Agricultural Agent.** There are many commercial firms dealing in agricultural products, materials, or equipment intended for the farm. These concerns are usually anxious to obtain men who have had actual agricultural experience, and who, in addition, have had special training in agricultural economics, accounting and statistics. This field is developing rapidly and offers a fine opportunity for students who wish to enter the purely commercial field.

**College Instructor in Agricultural Economics and Farm Management.** The Federal Government has recently passed an act appropriating a sum of money which will ultimately amount to \$60,000 annually for each of the Experiment Stations in the country. This together with growing demand for teachers and investigators in Agricultural Economics bids fair to absorb the increasing number of graduates specially trained for the work in this field.

## CURRICULUM IN AGRICULTURAL ECONOMICS

## Freshman Year

Courses	CREDITS		
	First Term	Second Term	Third Term
Composition and Rhetoric, Eng. 101.....	3	3	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101.....	4	4	0
American Economic History, and Geography, Hist. 101.....	3	3	3
General Poultry, Poul. 101.....	3	0	0
General Field Crops, Agron. 101.....	0	0	5
General Horticulture, Hort. 101.....	0	0	3
General Animal Husbandry, A. H. 101.....	0	3	0
Military Science, Mil. 101, or Human Relations, Soc. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
Mathematics, Math. 100, or European History, Hist. 102.....	3	3	0
	<u>19</u>	<u>19</u>	<u>17</u>

## Sophomore Year

*English.....	3	3	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101.....	4	4	0
General Chemistry, Chem. 101.....	4	4	0
General Economics, Econ. 103 and 210.....	3	3	0
Business Organization, Econ. 210.....	0	3	0
Agricultural Economics, Econ. 260.....	0	0	3
Soil Geology, Agron. 110.....	4	0	0
Soil Management, Agron. 115.....	0	0	4
Animal Nutrition, A. H. 102.....	0	0	5
Military Science, Mil. 102, or World History, Hist. 104.....	2	2	2
Physical Education, P. E. 102.....	1	1	1
	<u>21</u>	<u>20</u>	<u>18</u>

## Junior Year

Statistical Method, Econ. 212.....	3	0	0
Farm Management, Econ. 261.....	0	0	3
Accounting, Econ. 201 and 263.....	3	3	3
Marketing Methods, Econ. 215.....	3	3	0
General Sociology, Soc. 103.....	3	0	0
Rural Sociology, Soc. 202.....	0	3	0
Swine Production, A. H. 201.....	3	0	0
Cotton, Agron. 210, or Tobacco, Agron. 215.....	0	3	0
Legumes and Grasses, Agron. 205.....	0	0	4
Electives.....	3	6	8
	<u>18</u>	<u>18</u>	<u>18</u>

## Senior Year

Money Credit and Banking, Econ. 221.....	3	3	0
Farm Marketing, Econ. 264.....	3	0	0
Agricultural Cooperation, Econ. 266.....	0	3	0
Farm Management, Econ. 262.....	0	0	3
Grades, Standards, and Inspection, Econ. 268.....	0	3	0
Farmers' Movements, Soc. 205.....	3	0	0
Horticultural Marketing, Hort. 202.....	3	0	3
Selecting and Mating, Poul. 201.....	0	0	3
Electives.....	4	7	10
	<u>16</u>	<u>16</u>	<u>16</u>

\*A student whose record in English 101 was good will be required to take Business English (Eng. 201) in the first term, and elective courses in the second and third terms. A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term, Business English in the second term, and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

## GENERAL AGRICULTURE

The agricultural wealth of North Carolina is measured by the value of her field crops and animal products. The annual value of field crops constitute 80 percent of the agricultural wealth of this State with a total value in 1927 of \$361,000,000. Improving the fertility of the soil, the use of improved machinery, and the production of higher quality and yield in crops has resulted in an agricultural prosperity that has made possible a great industrial development, especially in the chemical and cotton industries of the State. Greater diversification of crops is now being practiced by successful farmers. This has resulted in many new problems in Soil Management and Crop Production. If North Carolina is to continue to develop industrially, agriculture must prepare the way. In order that agriculture may prepare the way for greater industrial expansion, competent farm leaders must be developed by the College for the various Agricultural Communities of the State.

Animals play a most important part in the life of our State on account of their uses for food and labor. The study of animals as relating to the farm economy and the markets of the State becomes, therefore, a most important matter. According to the report of the North Carolina Department of Agriculture, in 1927, the farm animals in this State made the following showing: 114,000 horses, 279,000 mules, 513,000 cattle, 77,000 sheep and 849,000 head of swine, with a total value of \$77,000,000. During the past twelve months 500 car loads of fat hogs valued at about \$7,000,000 were shipped out of the State to larger central markets. During this same period of time 2,500,000 pounds of creamery butter, 25,000,000 pounds of farm butter, 2,000,000 gallons of commercial ice cream, and 100,000 pounds of American Cheese was produced in North Carolina. By these figures we can realize the vastness of our livestock industry and the enormous sum of money here invested, besides the value of the animals themselves. It is evident from these figures that the livestock interests are keeping pace with the great industrial and manufacturing developments of our State.

Perhaps there is no place in American life today where there are more unsolved problems than in agriculture. The solution of these problems will require able leadership. This leadership should come from the men who are engaged in farming and who understand the farmer and his problems. One of the aims of the curriculum in General Agriculture is to train young men of this type who will return to the farm and give to agriculture a body of trained leaders. Training of this type should be as broad and fundamental as the training for any profession. Hence, the first two years of the curriculum in General Agriculture is devoted largely to general and educational subjects, the fundamental Sciences, and the general technical agricultural subjects.

The curriculum in General Agriculture trains students to become successful farm owners, farm managers and farm operators, and furnishes the basic instruction for men who expect to engage in any business closely related to agriculture.

## CURRICULUM IN GENERAL AGRICULTURE

## Freshman Year

Courses	CREDITS		
	First Term	Second Term	Third Term
Composition and Rhetoric, Eng. 101 .....	3	3	3
General and Organic Chemistry, Chem. 101 A and 141	4	4	3
General Botany, Bot. 101 and 102, or			
General Zoology, Zool. 101 .....	4	4	0
Field Crops, Agron. 101 .....	0	0	5
General Animal Husbandry, A. H. 101 .....	0	3	3
General Horticulture, Hort. 101 .....	0	0	3
General Poultry, Poul. 101 .....	3	0	0
American Economic History, Hist. 101-A, or How to			
Study and Occupations, Ed. 102 and 103 .....	3	3	0
Military Science, Mil. 101, or Human Relations,			
Soc. 101 .....	2	2	2
Physical Training, P. E. 101 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Sophomore Year

Farm Equipment, Agron. 130 .....	3	0	0
Soil Geology, Agron. 110 .....	4	0	0
Soil Management, Agron. 115 .....	0	0	4
Dairying, A. H. 103 .....	0	0	3
Animal Nutrition, A. H. 102 .....	0	0	5
Introduction to Economics, Econ. 102 .....	3	0	0
Vegetable Gardening, Hort. 103 .....	0	0	2
Agricultural Economics, Econ. 200 .....	0	3	0
Agricultural Physics, Phys. 105 .....	0	0	3
Animal Physiology, Zool. 102, or			
Plant Physiology, Bot. 103 .....	3	3	0
Poultry Production, Poul. 202, or			
Cereals, Agron. 201 .....	0	4	0
General Zoology, Zool. 101, or			
General Botany, Bot. 101 102 .....	4	4	0
Military Science, Mil. 102, or			
World History, Hist. 104 .....	2	2	2
Physical Training, P. E. 102 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Cotton, Agron. 210, or Tobacco, Agron. 215 .....	0	3	0
Legumes and Grasses, Agron. 205 .....	0	0	4
Terracing and Draining, Agron. 135 .....	0	0	3
Swine Production, A. H. 201 .....	3	0	0
Farm Meats I, A. H. 206 .....	3	0	0
Bacteriology, Bot. 203 .....	0	4	0
English .....	2	2	2
Pomology I, Hort. 104 .....	0	3	0
Genetics, Zool. 201 .....	4	0	0
Entomology, Zool. 202 .....	0	0	3
Electives .....	3	3	3
	<u>16</u>	<u>16</u>	<u>16</u>

## Senior Year

Rural Sanitation, Bot. 206 .....	0	3	0
Farm Conveniences, Agron. 147 .....	0	3	0
Farm Buildings, Agron. 145 .....	0	0	3
Soil Fertility and Fertilizers, Agron. 265 .....	0	5	0
Animal Breeding, A. H. 202, or			
Plant Breeding, Agron. 345 .....	1	0	0
Horses and Mules, A. H. 209 .....	3	0	0
Animal Diseases, A. H. 219, or			
Crop Diseases, Bot. 202 .....	0	0	2
Farm Marketing, Econ. 265 .....	3	0	0
Farm Management, Econ. 261 .....	0	0	2
Electives .....	6	5	7
	<u>16</u>	<u>16</u>	<u>16</u>

### CURRICULA FOR AGRICULTURAL SPECIALISTS

These curricula are intended for those who expect to become specialists in the various departments of technical agriculture. They are to be arranged in accordance with the vocational aim of the individual student, subject to the approval of his adviser and the director of instruction. Students specializing in this group will find vocational opportunities as:

1. Agricultural Specialists in State or Federal Departments, and Agricultural Colleges.

The School of Agriculture is particularly well equipped to train men in the fields of Animal Production, Animal Physiology, Bacteriology, Beekeeping, Dairy Manufacturing, Dairy Production, Entomology, Farm Crops, Floriculture, Forestry, Genetics, Olericulture, Plant Breeding, Plant Diseases, Plant Physiology, Pomology, Poultry Diseases, Poultry Nutrition, and Soils.

2. Agricultural Inspectors.

Most states now maintain inspection of fertilizers, seeds, nurseries, and insecticides. Most cities have special inspectors for city milk supplies. Students seeking vocational opportunities in these fields may elect appropriate subjects in their junior and senior years.

3. Agricultural Extension Specialists.

Students seeking opportunities in this group will find employment as agricultural agents for railroads and commercial firms dealing in agricultural products and as extension specialists in the various fields of agriculture in the Extension Departments of agricultural colleges and as county agricultural agents.

4. Specialists in Manufacturing Agricultural Products.

The School of Agriculture is well equipped to train men for agricultural industries such as manufacturing of fertilizers, livestock and poultry feeds, and farm machinery and for the manufacturing of dairy and horticultural products.

5. Agricultural Specialists in Foreign Lands.

The School of Agriculture is well equipped to train men as experts in cotton and tobacco production in foreign lands.

## CURRICULA FOR AGRICULTURAL SPECIALISTS

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition and Rhetoric, Eng. 101 .. . . . . .	3	3	3
General and Organic Chemistry, Chem. 101 A and 141	4	4	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101 .. . . . . .	4	4	0
Field Crops, Agron. 101 .. . . . . .	0	0	5
General Animal Husbandry, A. H. 101 .. . . . . .	0	3	3
General Horticulture, Hort. 101 .. . . . . .	0	0	3
General Poultry, Poul. 101 .. . . . . .	3	0	0
American Economic History, Hist. 101 A, or How to Study and Occupations, Ed. 102 and 103	3	3	0
Military Science, Mil. 101, or Human Relations, Soc. 101 .. . . . . .	2	2	2
Physical Training, P. E. 101 .. . . . . .	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Sophomore Year

Farm Equipment, Agron. 130 .. . . . . .	3	0	0
Soil Geology, Agron. 110 .. . . . . .	4	0	0
Soil Management, Agron. 115 .. . . . . .	0	0	4
Dairying, A. H. 103 .. . . . . .	0	5	0
Animal Nutrition, A. H. 102 .. . . . . .	0	0	5
Introduction to Economics, Econ. 102, .. . . . . .	3	0	0
Agricultural Economics, Econ. 260 .. . . . . .	0	3	0
Vegetable Gardening, Hort. 103 .. . . . . .	0	0	3
Agricultural Physics, Phys. 105 .. . . . . .	0	0	5
Animal Physiology, Zool. 102, or Plant Physiology, Bot. 103 .. . . . . .	3	3	0
Poultry Production, Poul. 202, or Cereals, Agron. 201 .. . . . . .	0	4	0
General Zoology, Zool. 101, or General Botany, Bot. 101-102, .. . . . . .	4	4	0
Military Science, Mil. 102, or World History, Hist. 104 .. . . . . .	2	2	2
Physical Training, P. E. 102 .. . . . . .	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Agricultural Major .. . . . . .	6	6	6
English .. . . . . .	3	3	3
Electives .. . . . . .	7	7	7
	<u>16</u>	<u>16</u>	<u>16</u>

## Senior Year

Agricultural Major .. . . . . .	6	6	6
Science .. . . . . .	3	3	3
Electives .. . . . . .	7	7	7
	<u>16</u>	<u>16</u>	<u>16</u>



## FORESTRY

Forestry includes the different subjects which have to do with the study of the cultivation, care, protection and uses of timber trees.

Some of the principal products that are manufactured from timber trees are lumber, mill work, flooring (furniture, paper pulp, and naval stores).

North Carolina has a very extensive list of valuable timber trees and also a considerable development of her wood using and pulp industries. North Carolina has been a leader among the Southern States in lumbering, naval stores, furniture manufacturing and in the production of paper pulp. However, as the more valuable timber resources are exhausted the supply of raw materials for these factories and mills become an increasingly important problem. The purpose of the Curriculum in Forestry is to train men who will help solve these problems. Students specializing in this curriculum will find vocational opportunities as:

1. Forest officers in the United States Forest Service.
2. District foresters or forestry specialists in the State service.
3. Foresters for commercial firms manufacturing forest products.

The first two years of this curriculum are devoted largely to general cultural and scientific subjects, with a minimum amount of general forestry. The last two years are devoted to technical forestry subjects, general economic subjects, entomology, plant diseases, economic geology and electives.

## CURRICULUM IN FORESTRY

## Freshman Year

COURSES	TERM CREDITS		
	First Term	Second Term	Third Term
Composition and Rhetoric, Eng. 101 .....	3	3	3
Botany, 101-102 and 204.....	4	4	3
Chemistry, Chem. 101-A, 141 .....	4	4	3
General Forestry, For. 101 .....	2	2	2
Plant Propagation, Hort. 102.....	3	3	3
Mathematics, Math. 100 .....	3	0	3
Military Science, Mil. 101, or .....	2	2	2
Human Relations, Soc. 101 .....	1	1	1
Physical Training, P. E. 101.....	1	1	2
	<u>19</u>	<u>19</u>	<u>20</u>

## Sophomore Year

Farm Forestry, For. 201 .....	0	3	0
Forest Protection, For. 202.....	0	0	3
Plant Physiology, Bot. 103.....	3	3	0
Dendrology, Bot. 207 .....	3	0	0
Surveying, C. E. 102, 103.....	0	3	3
Soil Management, Agron. 115.....	0	0	4
Soil Geology, Agron. 110.....	4	0	0
Introduction to Economics, Agricultural Economics, Econ. 102, 260.....	3	3	0
Economic and Social .....			
History of Agriculture, Hist. 206 .....	0	0	3
General Physics, Phys. 101.....	4	4	4
Military Science, Mil. 102, or .....			
World History, Hist. 104.....	2	2	2
Physical Training, P. E. 102.....	1	1	1
	<u>20</u>	<u>19</u>	<u>20</u>

## Junior Year

Major .....	5	5	3
Plant Ecology, Bot. 207.....	3	0	0
General Zoology and Entomology, Zool. 101, 202 .....	0	4	3
English .....	3	3	3
Electives .....	5	4	7
	<u>16</u>	<u>16</u>	<u>16</u>

## Senior Year

Major .....	8	8	5
Plant Diseases, Bot. 202.....	0	0	3
Economic Geology, Geol. 285, 286 .....	0	3	3
Land Economics, Econ. 264.....	0	0	3
Conservation, Econ. 338 .....	0	2	0
Accounting, Econ. 112.....	3	0	0
Electives .....	6	4	3
	<u>17</u>	<u>17</u>	<u>17</u>

### LANDSCAPE GARDENING

Landscape Architecture or Gardening is one of the arts of design, and is correctly classed with Architecture, Sculpture, and Painting.

The curriculum here offered is strictly undergraduate work, and while including training necessary for the landscape constructor as well as the landscape horticulturist or gardener, is designed to provide a broad and thorough foundation for the subsequent training necessary for the landscape artist or designer.

In addition to the professional curriculum here outlined, several individual courses are offered to the laymen in landscape art, and these are consequently open to students in all schools. These courses should lead to a keener appreciation of the beauties of the landscape and a better acquaintance with the methods employed in arranging land for use and the accompanying landscape for enjoyment. These courses should not only enable the student to improve his home grounds in a tasteful way, but also constrain him to become a public benefactor in the preservation of our native landscape beauties.

For students in the professional course the following objectives are possibilities:

1. Landscape Horticulturist or Gardener.
2. Extension Specialist in Landscape Gardening.
3. Landscape Engineer or Constructor.
4. Landscape Architect or Designer.

Those who elect to prepare themselves to be landscape horticulturists will in their junior and senior years make use of electives and substitutions along the lines of propagation, soil management, soil fertility, and the culture of vegetable, fruit, and flowering crops together with study of plant pests and methods of control. Those who elect to engage in Extension work will likewise study along the lines of educational methods as well. Those who prefer to be landscape engineers will take work in Engineering along the lines of building construction, grading and drainage, and in Agriculture along the lines of soil fertility, and management, together with economics and other work in Science and Business to meet their needs.

For the Landscape Architect or Designer subsequent training and professional practice should present an open door to the entire field of the Landscape Architect, the City Planner, or the Regional Designer.

## CURRICULUM IN LANDSCAPE GARDENING

## Freshman Year

COURSES	TERM CREDITS		
	First Term	Second Term	Third Term
Mathematical Analysis, Math. 101.....	3	3	3
Composition and Rhetoric, Eng. 101.....	3	3	3
Botany, General and Systematic, Bot. 101, 102 and 204.....	4	4	3
Engineering Drawing, M. E. 102.....	2	2	2
Arboriculture, Hort. 215.....	1	1	2
Chemistry, Chem. 101-A, 141.....	4	4	3
Military Science, Mil. 101, or Human Relations, Soc. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
	20	20	19

## Sophomore Year

*English.....	3	3	3
Botany, Bot. 103.....	3	3	0
Elements of Design, A. E. 102.....	2	1	1
Architectural Drawing, A. E. 105.....	1	1	1
Theory of Landscape Design, Hort. 218.....	0	0	5
Soil Geology, Agron. 110.....	4	0	0
Surveying, C. E. 102.....	0	3	2
Field Surveying, C. E. 103.....	0	0	1
Plant Materials, Hort. 216.....	2	2	2
Economics, Econ. 102.....	0	3	0
Military Science, Mil. 102, or World History, Hist. 104.....	2	2	2
Physical Training, P. E. 102.....	1	1	1
	18	19	18

## Junior Year

Major.....	6	0	6
Plant Ecology, Bot. 307.....	3	0	0
Zoology and Entomology, Zool. 101, 202.....	4	4	3
Electives.....	5	8	9
	18	18	18

## Senior Year

Major.....	6	6	6
Business Law, Econ. 211.....	0	0	3
Plant Diseases, Bot. 202.....	0	0	3
Fertilizers, Agron. 265.....	0	5	0
Electives.....	10	5	4
	16	16	16

\*A student whose record in English 101 was good will be required to take Business English (Eng. 201) in the first term, and elective courses in the second and third terms. A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term, Business English in the second term, and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

## SHORT COURSES IN AGRICULTURE

These courses are intended for men actually engaged in farming who feel the need for more knowledge either of the general field of agriculture or any special type of farming. The courses are arranged so that the student may prepare himself for general farming in any part of the State, or for specialized farming such as stock raising, dairying, truck farming, fruit growing, or poultry raising.

## ADMISSION

Each applicant for admission must be of mature years or have had two years of practical experience in farming.

## REQUIREMENTS FOR A CERTIFICATE

A student may select any number of courses, but will be limited to a maximum of twenty-one credits per term. On the satisfactory completion of any of the curricula outlined below, the student will be granted a certificate in Agriculture.

## TWO-YEAR CURRICULUM IN AGRONOMY

## First Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Cotton, Agron. 14.....	0	3	0
Farm Machinery, Agron. 13.....	3	0	0
Farm Forestry, Forestry 11.....	3	0	0
Farm Beautification, Hort. 11.....	3	0	0
Corn and Small Grains, Agron. 12.....	0	3	3
Soil Management, Agron. 17.....	0	3	0
Farm Conveniences, Agron. 23.....	0	3	0
Dairy Cattle, A. H. 21.....	0	3	0
Seed Judging, Agron. 34.....	0	3	0
Legumes and Grasses, Agron. 36.....	0	0	3
Terracing and Drainage, Agron. 16.....	0	0	3
Farm Poultry, Poul. 11.....	3	0	0
Fertilizers, Agron. 21.....	0	0	3
Farm Shop, Agron. 33.....	0	0	3
Livestock Breeds and Judging, A. H. 35.....	3	0	0
Work Stock, A. H. 22.....	3	0	0
Pork Production, A. H. 32.....	0	0	3
English A.....	3	3	3
	<b>21</b>	<b>21</b>	<b>21</b>

## Second Year

Tobacco, Agron. 22.....	0	3	0
Cotton Classing, Agron. 37.....	0	0	0
Market Grading of Farm Crops, Agron. 35.....	0	0	3
Crop Improvement, Agron. 38.....	3	0	0
Farm Engines, Agron. 24.....	0	3	0
Feeds and Feeding, A. H. 11.....	0	0	3
Soils, Types and Mapping, Agron. 18.....	3	0	0
Farm Butchering, A. H. 23.....	0	3	0
Farm Cost Accounting, Econ. 263.....	0	0	3
Farm Management, Econ. 261.....	0	0	3
Fruit Growing, Hort. 23.....	0	0	3
Rural Sanitation, Agron. 26.....	0	0	3
Farm Insects, Zool. 11.....	3	0	0
Vegetable Growing, Hort. 22.....	3	0	0
Diseases of Field Crops, Bot. 31.....	0	0	3
Breeding of Animals, A. H. 12.....	3	0	0
Farm Buildings and Drawings, Agron. 25.....	0	0	3
Farm Marketing, Econ. 65.....	3	0	0
Agronomy Problems, Agron. 40.....	3	3	0
Community Organization, Soc. 203.....	0	0	3
	<b>21</b>	<b>21</b>	<b>21</b>

## TWO-YEAR CURRICULUM IN ANIMAL HUSBANDRY

## First Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English A	3	3	3
Farm Machinery, Agron. 13	3	0	0
Farm Conveniences, Agron. 23	0	2	0
Farm Shop, Agron. 33	0	0	3
Corn and Small Grains, Agron. 12	0	2	0
Soil Management, Agron. 17	0	3	0
Animal Diseases, A. H. 39	3	3	3
Legumes and Grasses, Agr. 26	0	0	3
Fertilizers, Agron. 21	0	0	3
Livestock Breeds and Judging, A. H. 25	3	0	0
Dairy Cattle, A. H. 21	0	3	0
Sheep and Beef Cattle, A. H. 31	3	0	0
Farm Butchering, A. H. 23	0	3	0
Pork Production, A. H. 32	0	3	0
Farm Beautification, Hort. 11	3	0	0
Work Stock, A. H. 22	3	0	0
Livestock Management, A. H. 38	0	0	3
	21	21	21

## Second Year

Livestock Judging, A. H. 36	0	3	0
Farm Dairying, A. H. 34	0	3	0
Feeds and Feeding, A. H. 11	0	0	3
Farm Management, Econ. 261	0	0	3
Farm Butchering, A. H. 24	0	2	0
Farm Marketing, Econ. 65	3	0	0
Livestock Problems, A. H. 37	3	3	3
Breeding of Farm Animals, A. H. 12	3	0	0
Vegetable Growing, Hort. 22	3	0	0
Rural Sanitation, Agron. 26	0	0	3
Farm Poultry, Poul. 11	3	0	0
Fruit Growing, Hort. 23	0	3	0
Farm Beekeeping, Zool. 31	0	0	3
Farm Insects, Zool. 11	3	0	0
Rural Sociology, Soc. 202	0	3	0
Terracing and Drainage, Agron. 16	0	0	3
Plant Diseases, Bot. 23	3	0	0
Hatching and Rearing Poultry, Poul. 22	0	3	0
Community Organization, Soc. 203	0	0	3
	21	21	21

## ONE-YEAR CURRICULUM IN HORTICULTURE

COURSES	CREDITS		
	First Term	Second Term	Third Term
English A	3	3	3
Farm Machinery, Agron. 13	3	0	0
Farm Conveniences, Agron. 23	0	3	0
Farm Shop, Agron. 33	0	0	3
Terracing and Drainage, Agron. 16	0	0	3
Soil Management, Agron. 17	0	3	0
Fertilizers, Agron. 21	0	0	3
Farm Poultry, Poul. 11	3	0	0
Farm Marketing, Econ. 65	3	0	0
Fruit and Vegetable Insects, Zool. 21	0	0	3
Farm Beautification, Hort. 11	3	0	0
Fruit and Vegetable Diseases, Bot. 23	0	0	3
Beekeeping, Zool. 31	0	0	3
Marketing Fruits, Hort. 27	3	0	0
Fruit Growing, Hort. 23	0	3	0
Marketing Vegetables, Hort. 26	0	0	3
Vegetable Growing, Hort. 22	3	0	0
Com. Truck Farming, Hort. 24	0	3	0
Com. Fruit Growing, Hort. 25	0	3	0
	21	21	21

## ONE-YEAR CURRICULUM IN POULTRY

COURSES	CREDITS		
	First Term	Second Term	Third Term
Farm Poultry, Poul. 11	3	0	0
Marketing Farm Poultry, Poul. d. 21	0	3	0
Poultry Diseases, Poul. 31	0	0	3
Mating and Breeding, Poul. 12	0	0	3
Hatching and Raising, Poul. 22	0	3	0
Poultry Management, Poul. 32	0	0	3
English A	3	3	3
Farm Beautification, Hort. 11	3	0	0
Vegetable Growing, Hort. 22	3	0	0
Farm Shop, Agron. 33	0	0	3
Farm Insects, Zool. 11	3	0	0
Fruit Growing, Hort. 23	0	3	0
Farm Bookkeeping, Zool. 31	0	0	3
Farm Machinery, Agron. 12	3	0	0
Soil Management, Agron. 17	0	3	0
Farm Marketing, Econ. 65	3	0	0
Corn and Small Grains, Agron. 12	0	3	0
Farm Drying, A. H. 34	0	0	3
Rural Sanitation, Agron. 26	0	0	3
	21	21	21

## THE AGRICULTURAL EXPERIMENT STATION

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an Act of the General Assembly of 1877. Its work was greatly promoted by an Act of Congress of 1887, known as the Hatch Act, which contributed a definite sum to each state for the purpose of making investigations in agriculture. The funds for the Experiment Station were further supplemented by an Act of Congress of 1906, known as the Adams Act, and again the same way by an Act of Congress of 1925, known as the Purnell Act. Under the requirements of the Hatch Act the Station became a department of the College.

The Agricultural Experiment Station embraces a central farm located at the College, and a corps of trained investigators who devote their time and attention to solving the more important problems in soils, crops, animal industry, dairying, horticulture, poultry, plant diseases, and entomology, rural sociology and agricultural economics.

Some one hundred and ninety different projects have been approved and are being investigated by these workers.

"The agricultural research of the College and Experiment Station have been materially strengthened through the inauguration of plans whereby teachers in agriculture and the biological sciences have been given some time to do research. This has been definitely organized and is now administered under the Experiment Station, making it possible to coordinate related research work, and making possible closer cooperation between the teaching and research group."

Six branch Experiment Stations of the State Department of Agriculture are used cooperatively with the College for work in the field on the different soils and under the different climatic conditions of the State.

The Station conducts a large correspondence with farmers and others concerning agricultural matters, and it takes pleasure in receiving and answering questions. The Agricultural Experiment Station is always glad to welcome visitors and to show them the work in progress.

The purposes of the Agricultural Experiment Station are:

To carry on experiments for the improvement of agriculture which will be of service to the farmers, and to the agricultural teachers and extension workers:

To demonstrate improved methods of agriculture to the farmers of the State; and

To publish bulletins relating to agriculture, embodying the results of experiments, and to distribute them to the people of the State, thereby furthering the cause of agricultural progress.

#### CO-OPERATIVE AGRICULTURAL EXTENSION WORK

The Agricultural Extension Service of the College is conducted in cooperation with the State and the United States Departments of Agriculture and the various counties of the State. The work is supported by Federal funds derived from the Smith-Lever Act, from State appropriations which supplement the Smith-Lever Fund, and from county funds. The purposes of the Agricultural Extension Service are: (1) To carry new agricultural information and good practices to the farmers and farm women of the State through the County Agricultural and Home Demonstration Agents; (2) To conduct agricultural clubs for the boys and girls of the State, in which the young people are taught to grow crops and rear animals according to the teachings of modern agriculture; (3) To publish monthly letters and bulletins for the aid of extension workers and for the benefit of farmers; (4) To organize club schools during the summer, at which the members are given two or three days of technical instruction. In addition to these club schools there is also held at State College a short course for members of all clubs.

#### COLLEGE EXTENSION COURSES IN AGRICULTURE

General information about College extension and correspondence courses may be found elsewhere in this catalog, and bulletins giving detailed information are issued from time to time.



## THE SCHOOL OF EDUCATION

Thomas Everett Browne, Director of Instruction

This School was established by the Board of Trustees in response to a positive and urgent demand from the teaching profession and from people preparing to enter the profession for the purpose of serving the rural districts particularly.

The distinctive objectives of this School are as follows:

To prepare principals and teachers for the rural and urban high schools, especially those preparing to teach subjects which relate themselves peculiarly to rural life.

To train teachers of vocational agriculture to meet the growing demand in the State for men to teach agriculture in the rural high schools.

To prepare persons to teach industrial arts in the junior and senior high schools, and to meet the demands for persons to help promote the vocational education program in trade and industrial education.

To train teachers and counselors in vocational guidance.

To train teachers of commercial subjects.

To prepare teachers and directors for the rapidly developing field of Physical Education with a view to remedying physical defects and to promote wholesome recreation and sports.

To give women advantage of the broad opportunities offered by the teaching, research, and extension services suitable to their needs.

To train women to enter the field of home demonstration work as a vocation.

To give courses for women who are particularly concerned with training for the great vocation of home-making.

## AGRICULTURAL EDUCATION

The preparation of men to occupy positions as teachers of vocational agriculture in the high schools of the State, qualifying under the provisions of the Smith-Hughes Law, has become one of the major activities of the College. State College is the designated teacher-training institution for teachers of agriculture in the white schools. Men who are capable of meeting the complicated situations in which they find themselves in the rural schools require very specific and definite training for their jobs.

In the School of Education courses for the preparation of teachers of agriculture will be enlarged and strengthened by incorporating specific arrangements for organizing and conducting part-time and evening classes in nearby schools and requiring all seniors, in addition to their observation work at Cary High School, to organize and teach groups of adult farmers in evening classes. This work will be closely supervised by members of the teaching staff in the School.

The practice-teaching of the seniors in connection with the day school program will be greatly improved by having them do this work over a longer period, and by having members of the faculty give approximately one hundred per cent supervision to their teaching, which will take place in schools near the College.

The Department of Agricultural Education will conduct definite research studies in connection with the program in vocational agricultural

education. The results of this research work will be used to make more effective the program in teacher training.

As a service department for other schools, the School of Education will provide certain professional courses which may be elected by those preparing to enter the field of agricultural research or agricultural extension work.

### COURSES FOR WOMEN

This School will give women an opportunity to register at State College as regular students on exactly the same basis as men. The arrangements with other schools and departments will be as liberal as possible, allowing women to take the minimum requirements of the School of Education and to elect whatever courses they desire in other subjects of their special interest. A large per cent of the teachers of high school subjects are women. These women can get both subject-matter and professional courses preparatory for teaching high school subjects.

The opportunities of this School should appeal to women who are interested in training for positions in extension work. Such courses as poultry, dairying, landscape gardening, nutrition, chemistry, biology, textiles, ceramics, and physics, together with the courses in the social sciences, will be supplemented by professional courses dealing with methods. Particularly interesting to women in extension work will be courses in social problems, rural sociology, social psychology, child psychology, general economics, and methods of doing extension work. The headquarters of the home demonstration work being in the same building as the School of Education, and the close cooperation between the staffs of the two organizations make this a real opportunity for the person considering home demonstration work as a vocation.

Another group of women to whom this School should appeal is the farm women who wish to study certain subjects in agriculture, in textiles, and in the social and physical sciences. The College is desirous of having these women come and take advantage of what it has to offer. This group will profit from the teaching, research, and extension services of the College.

The College has no dormitory arrangements for taking care of women students during the regular session. For this reason women students, will not be admitted prior to the junior year, except those who live at home with their parents or mature women who come to the College for special work.

### RURAL SCHOOL PRINCIPALS AND TEACHERS

The rapid development of the consolidation movement in the rural school districts has created a demand for persons who are acquainted with the social and economic conditions of rural people. The rural school occupies a strategic position with reference to North Carolina's development. There are very definite social situations that are demanding organized effort. The rural school occupies the center of the community organization movement. The development of the rural sections, with their distinctive sociological and economic background, is dependent upon the proper type of rural organization. The principal or some teacher in this community school must assume the leadership in this movement. For this principal or teacher to measure up to the possibilities and opportunities of this distinctively rural

development he must have specific training in rural sociology, rural social problems, rural economics, and rural community organizations.

The School of Education is going to make a positive effort to train people for this particular situation. Liberal cooperative arrangements have been made with other schools and departments so that teachers preparing for the rural field will be required to take courses in agriculture and in the social sciences, designed to equip them for meeting the rural community problem.

Adequate provision will be made for the training of principals for the consolidated rural schools as well as for the preparing of teachers of high school subjects, with teaching combinations to conform to the requirements of the Teacher Training Division of the State Department of Public Instruction.

#### SCIENCE TEACHERS

The reorganization of the high schools has given to science a much larger place in the high school curriculum. The larger place given science has greatly accentuated the demand for trained science teachers. State College, with its well equipped laboratories in the physical sciences and its highly trained faculty, is adequately prepared to give the subject-matter courses for science teachers. The School of Education will supplement the technical courses in science with professional courses especially designed to prepare persons to teach science to students of secondary grade. In addition to courses in methods will be a course in materials, with the emphasis upon using the simplest material at hand and helping the teacher to take advantage of the home conditions and the school surroundings in teaching science. The excellent equipment for teaching science will be fully utilized and the technical courses supplemented with professional courses especially designed to train science teachers to meet the great demand in the State.

#### TEACHERS OF INDUSTRIAL ARTS

The problem of preparing teachers qualified to teach industrial arts in the junior and senior high schools is growing in importance. The demand is much greater than the supply, and we are calling on teacher-training institutions of other states for candidates to fill North Carolina positions.

State College is prepared to give courses for teachers in the field of industrial arts, for it is possible to combine the shop and drawing courses of the departments of engineering, the subject-matter courses of other departments, and the methods courses of the School of Education.

Teachers of shop practice in woodworking, machine shop, sheet metal, electrical work, textiles, automobile repair, printing, and mechanical drawing should have a thorough preparation in essential subject-matter concerning the principles of education, the methods of instruction, class-room management, and practice teaching as a background for their class work. Each prospective teacher should plan his course carefully with the aid of his adviser.

#### TEACHERS AND COUNSELORS OF VOCATIONAL GUIDANCE

The use of every available means to assist young people in the selection of, making preparation for, and getting established in life work most

satisfactorily adapted to individuals is challenging the attention of our educational institutions. There is a need for teachers with thorough preparation in this field. It is essential that these teachers have full knowledge of school objectives and practices, and an intimate acquaintance with the requirements of various occupations, trades, and professions.

State College, through the cooperation of the faculty advisers, the department of psychology with its opportunities in tests and measurements, and specialized instruction in the fields of vocational guidance and personnel work, is well suited to prepare individuals for this work.

While effective vocational guidance is dependent upon the cooperation of all teachers in a school or system, it is essential that some teachers prepare themselves to serve as leaders and counselors. The collection and preparation of suitable materials for the use of teachers and pupils, together with the counseling of individuals and groups, is a task requiring special preparation. Advisers in the School of Education will be glad to discuss with prospective students the planning and selecting of courses.

### VOCATIONAL TEACHERS IN TRADE AND INDUSTRIAL SUBJECTS

Our State is making rapid strides in the development of her industries. And while we have a fairly adequate number of workers in these fields, there is a great demand for persons with more technical knowledge and higher degrees of skill. To meet this demand and encourage growth and development along the lines of trades and industries, funds are available under the provisions of the Smith-Hughes Act, whereby financial aid may be given for the salaries of teachers of trade and industrial subjects. To give the required technical knowledge and establish satisfactory degrees of skill, especially prepared teachers are necessary. Teachers of both shop and related subjects courses are being sought. There is need, also, for a number of administrative officers, supervisors, and directors.

State College has been designated by the State Board for Vocational Education as the teacher-training institution for teachers, supervisors, and directors of work along trade and industrial lines. Cooperating with the faculties of the Schools of Engineering and Textiles, the School of Education offers special opportunities for those wishing to qualify for teaching and administering all-day trade schools, part-time schools, and evening schools.

Teachers and administrators of this work are always in demand. The greatest difficulty is in finding persons who are adequately prepared both from a practical and technical standpoint. The School of Education offers courses which will greatly assist practical persons in meeting the demands of the teaching positions, as well as helping students to qualify as teachers of related subjects. Advisers will gladly discuss plans and courses.

Students of the Textile and Engineering Schools who desire to prepare for teaching evening classes will find it to their advantage to select for their electives the following list of subjects: Trade Analysis, 3-0-0; Methods and Class Management, 0 2 0; Lesson Planning and Practice Teaching, 0-0-3. Those desiring to teach industrial subjects in the day school will find it necessary to take double this amount of work in Education plus one Summer School.

### GRADUATION REQUIREMENTS

Students taking the curriculum for Teachers of Agriculture will be required to complete a minimum of 210 term credits and 210 points for graduation.

Students taking the curriculum for Teachers of Industrial Arts will be required to complete a minimum of 218 term credits and 218 points for graduation.

Students taking all other curricula in the School of Education will be required to complete a minimum of 198 term credits and 198 points for graduation.

Students graduating in the School of Education will be required to take at least twenty-seven (27) term credits in Education, eighteen (18) term credits in Language, eighteen (18) term credits in Science, nine (9) term credits in Social Science, twelve (12) term credits in Military or the alternative, and six (6) in Physical Education. The remaining number of credits required for graduation are to be chosen from the technical subjects listed in the several curricula and from the electives.

### DEGREES

Students completing the curriculum in Agricultural Education will be granted the degree of Bachelor of Science in Agricultural Education. Students completing all other curricula in the School of Education will be granted the degree of Bachelor of Science in Education.

## CURRICULUM FOR TEACHERS OF AGRICULTURE

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Composition and Rhetoric, Eng. 101	3	3	3
General and Organic Chemistry, Chem. 101 A and 141	4	4	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101	4	4	0
Military Science, Mil. 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
*Options:			
General Poultry	3	0	0
General Animal Husbandry	0	3	3
General Horticulture	0	0	3
Field Crops	0	0	5
Vegetable Gardening	0	0	3
American Economic History	3	3	0
How to Study and Occupations, E. I. 102 103	3	3	0
Farm Equipment	3	0	0
Terracing and Drainage	0	0	3
Dairying	0	3	0
Advanced Stock Judging	0	0	3
	17	17	17 or 18

## Sophomore Year

Soil Geology, Agron. 110	4	0	0
Soil Management, Agron. 115	0	0	4
Animal Nutrition, A. H. 102	0	0	5
Introduction to Economics, Econ. 1	3	0	0
Agricultural Economics, Econ. 260	0	3	0
Agricultural Physics, Phys. 106	0	0	5
Animal Physiology, Zool. 102, or Plant Physiology, Bot. 103	3	3	0
Poultry Production, Poul. 202, or Cereals, Agron. 201	0	4	0
General Zoology, Zool. 101, or General Botany, Bot. 101 102	4	4	0
Physical Training, P. E. 102	1	1	1
Military Science	2	2	2
or World History, Hist. 104	2	2	2
Elective	3	3	3
	20	20	20

## Junior Year

English or Modern Language	3	0	3
Education, Ed. 201, 205, 208	3	3	3
Teaching Farm Shop Work, E. I. 217	3	3	0
Fertilizers, Agron. 265	0	3	0
Rural Sociology, Soc. 202	0	3	0
Field Crop Diseases, Bot. 201	0	0	3
Economic Entomology, Zool. 202	0	0	3
Electives	9	3	6
	18	17	18

## Senior Year

English or Modern Language	0	0	3
Materials in Agricultural Teaching, E. I. 212	0	3	0
School Organization and Administration, Ed. 326	0	0	3
Principles of Teaching, Ed. 210	5	0	0
Observation and Supervised Teaching, E. I. 212	0	5	0
Methods of Teaching Agriculture, E. I. 211	0	5	0
Evening and Part Time Classes in Agriculture, Ed. 311	0	3	0
Diseases of Farm Animals, A. H. 219	0	0	3
Farm Marketing, Econ. 267	0	0	3
Community Organization, Soc. 203	0	0	3
Electives	8	0	3
	16	16	15

## \*Options:

Courses in the option list above which are not elected in the freshmen year may be taken in the sophomore year.

## CURRICULUM FOR TEACHERS OF INDUSTRIAL ARTS

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
Chemistry, Chem. 101	4	4	4
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Engineering Drawing, M. E. 102	3	3	0
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, Mil. 101, or Physical Training, P. E. 101	1	1	1
Human Relations, Sociology 101	2	2	2
	19	19	19

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 101, 201, 202	5	5	5
Physics, Phys. 104	5	5	5
Metallurgy, M. E. 108	3	3	3
Mechanical Drawing, M. E. 107	1	1	1
Business English, Technical Writing, Public Speaking, Eng. 201, 203, 160, or Spanish I, M. L. 101	3	3	3
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	20	20	20

## Junior Year

Educational Psychology, Ed. 201	3	0	0
Introduction to Education, Ed. 205	0	0	0
Visual Aids, Ed. 208	0	0	3
Vocational Education, Ed. 321	0	3	0
Woodworking for Teachers, Ed. 230	3	3	3
Mechanical Drawing for Teachers, Ed. 204	2	2	2
Introduction of Economics, Econ. 102	3	0	3
Social Principles, Soc. 103	0	0	3
<i>Electives</i>			
Business Law, Econ. 211	3	0	0
Elements of Journalism, Eng. 150	0	0	3
Machine Shop, M. E. 119	1	1	1
Kinematics, M. E. 203	3	3	3
Military Science	3	3	3
Elective English or Modern Language	3	3	3
	17-18	17-18	17-18

## Senior Year

Principles of Teaching, Ed. 210	5	0	0
Observation and Individual Criticism, Ed. 348	0	0	3
School Organization and Administration, Ed. 320	0	0	3
Vocational Guidance, Ed. 320	0	3	0
Educational Tests and Measurements, Ed. 327	0	0	3
Methods of Industrial Art Teaching, Ed. 322	0	3	0
Metal Working for Teachers, Ed. 232	3	3	3
Practices of Industrial Arts Teaching, Ed. 211, <i>Electives</i>	2	2	2
Accounting I, Econ. 201	3	3	3
Advanced Journalism, Eng. 153	3	3	3
Economics, Econ. 103	0	3	0
Principles of Textile Manufacturing, I and II, Tex. 112, 113	3	0	3
Dyeing I, Tex. 107	2	2	2
Yarn Manufacture I, Tex. 106	2	2	2
Power Weaving, Tex. 105	1	1	1
Industrial Management, Econ. 250	3	3	3
Military Science	3	3	3
	16	16-17	16

## CURRICULUM FOR TEACHERS OF COMMERCIAL SUBJECTS

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
General Physics, Phys. 101 or General Chemistry, Chem. 101	4	4	4
American Economic History and Geography, Hist. 101	3	3	3
Human Relations, Soc. 101	2	2	2
*Freshman Option	3-4	3-4	3-4
Military Science I, Mil. 101 or Alternative	2	2	2
Physical Training, P. E. 101	1	1	1
	18-19	18-19	18-19

## Sophomore Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
†English	3	3	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101 and an elective Science	4	4	4
General Sociology, Soc. 103 and an elective Sociology	3	3	3
Accounting I, Econ. 201	3	3	3
General Economics, Econ. 103	3	3	3
World History, Hist. 104, or Military Science, Mil. 102	2	2	2
Physical Training, P. E. 102	1	1	1
	19	19	19

\*Freshman Option One of the following groups is to be chosen by the student and when elected must be pursued through the year:

1. Mathematical Analysis, 3 3 3.
2. French or German or Spanish, 3 3 3.
3. Psychology, Earth History, and Astronomy, 3 3 4.

4. One of the following, 3 3 (3-4):

First term: How to Study, Occupations or Psychology.

Second term: How to Study, Occupations or Earth History.

Third term: Psychology, or Science (Astronomy, Botany, Chemistry, Earth History, Physics, or Zoology).

†A student whose record in English 101 was good will be required to take Business English (Eng. 201) in the first term, and elective courses in the second and third terms. A student whose record in English was fair will be required to take Review of Composition and Rhetoric (Eng. 101) in the first term, Business English in the second term, and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

## Junior Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
English or Modern Language	5	5	3
Educational Psychology, Ed. 201	3	0	0
Introduction to Education, Ed. 205	0	3	0
Visual Aids, Ed. 208	0	0	3
Vocational Education, Ed. 221	0	3	0
Marketing Methods, Econ. 215	3	3	3
Electives	6-8	3-5	6-8
	15-17	15-17	15-17

## Senior Year

Educational Tests and Measurements, Ed. 327	0	0	3
Principles of Teaching, Ed. 401	5	0	0
School Organization and Administration, Ed. 326	0	0	3
Vocational Guidance, Ed. 320	0	0	3
Business Law, Econ. 211	3	0	0
Statistical Method, Econ. 212	3	3	0
Business Statistics, Econ. 214	0	0	3
Methods of Teaching Commercial Subjects	0	5	0
Electives	4-6	7-9	3-6
	15-17	15-17	15-17

Students qualifying for the teaching of typewriting and shorthand will present a statement to the Director of the School of Education showing their proficiency in these subjects. This requirement may be met during the course by special arrangement.



### HIGH SCHOOL TEACHERS

In view of the requirements of the curricula recommended by the State Department of Education for high schools of different sizes, and the suggested organization of schools adopting a given curriculum, the teaching combinations and fields open to students taking this curriculum are as follows:

1. English and Modern Language.
2. History and one of the following: English, Modern Language, Science, and Mathematics.
3. Science and Mathematics.
4. One of the following: English, Modern Language, History, Science, Mathematics, and Physical Education.

At the beginning of the sophomore year a student must select the teaching combination which he desires.

## CURRICULUM FOR HIGH SCHOOL TEACHERS

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
American Economic History and Geography, Hist. 101	3	3	3
Science (Botany, Chemistry, Physics, or Zoology)	4	4	0
Military Science, Mil. 101	2	2	2
Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
*Freshman Option	3 5	3 5	7 9
	18-20	18-20	18 20

## Sophomore Year

Science (Botany, Chemistry, Physics, or Zoology)	4	4	0
English or Modern Language	3	3	3
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
Electives (See group requirements)	8	8	12
	18	18	18

## Junior Year

Educational Psychology, Ed. 201	3	0	0
Education, Ed. 205, 208	0	3	3
Electives (See group requirements)	12 14	12 14	12 14
	15-17	15 17	15 17

## Senior Year

Principles of Teaching, Ed. 215	5	0	0
Education	0	9-12	3-6
Electives (See group requirements)	10 12	3 5	12 11
	15 17	15-17	15 17

\*Freshman option. One of the following groups is to be chosen by the student and when elected must be pursued through the year:

1. Algebra, Solid Geometry and Trigonometry, 3 3 5.
2. French or German or Spanish, 3 3 4.
3. Psychology, Earth History and Astronomy, 3 3 4.
4. Math. 100, 3 3 3.
5. One of the following:

First term—How to Study, Occupations, or Psychology, 3 credits.

Second term—How to Study, Occupations, or Earth History, 3 credits.

Third term—Psychology or Science (Astronomy, Botany, Chemistry, Earth History, Physics or Zoology), 3 3 5 credits.

†A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term. A student whose record in English 101 was poor will be required to take Review of Composition and Rhetoric (Eng. 103) in the first and second terms.

## GROUP REQUIREMENTS

To qualify in any of the above teaching combinations, a student's work must include minimum hours as follows:

1. For teaching English 36 hours of English.
2. For teaching Modern Languages—36 hours of Modern Language.
3. For teaching History 36 hours of History.
4. For teaching Mathematics 20 hours of Mathematics.
5. For teaching Physical Training—15 hours of Physical Training.
6. For teaching Science 54 hours of Science, which shall include 8 hours of Botany, 8 hours of Chemistry, 8 hours of Physics, 8 hours of Physical and Commercial Geography, and 8 hours of Zoology.

In all teaching combinations a student graduating after 1929 must take at least 33 hours in Education.

## THE SCHOOL OF ENGINEERING

WALLACE CARL RIDDICK, *Dean*

HOWARD BURTON SILAW, *Director of Engineering Experiment Station*

### ORGANIZATION

The School of Engineering of the North Carolina State College of Agriculture and Engineering embraces the departments of Architectural, Ceramic, Chemical, Civil, Electrical, Highway, Mechanical, and Mining Engineering, and the Engineering Experiment Station.

State College has progressively increased its emphasis on engineering education for the youth of the State. The objectives of the School of Engineering have been defined and its threefold program of instruction, research, and extension established. The instruction in engineering has been improved and advanced; important research is in progress with its stimulating effect upon teachers and students, and the Extension Service is fulfilling its promise of usefulness.

The reasons for the establishment of the College and the support of the General Assembly indicate that this is the technical institution of the State for Engineering as well as for Agricultural education. The State has already made large investments for buildings and equipment for engineering here.

Measured by its facilities for instruction, its shops and laboratories, its technical and industrial equipment, the personnel of its force for teaching and investigation, and the number of students, the School of Engineering is substantially equipped to render, and is rendering, great service in engineering education and in the State's industrial development.

The location of the College is particularly favorable for the study of engineering. Raleigh, besides being the Capital and having the several State Departments, the State Highway Commission, the State Board of Health, and other important State institutions, is a rapidly growing city, marked by remarkable developments in residential, commercial, and municipal construction. This local building and engineering goes on the year round, and affords excellent opportunities for observation and study. There are in the vicinity commercial chemical works, woodworking mills, railway shops, machine shops, and other manufacturing industries.

Raleigh is also the center from which electric power is distributed to a large section of the State. A transformer and meter substation adjoins the campus and from it high-tension lines radiate in four directions. In addition to a fine steam plant within the city, hydro-electric and steam-electric plants are within easy reach on the Cape Fear River. The important systems of highways centering in Raleigh are exceptionally valuable for the observation and study of the construction, use, and maintenance of roads.

### THE PURPOSE OF THE SCHOOL

The purpose of the School of Engineering is threefold: (1) to educate men for professional service in Architectural, Ceramic, Chemical, Civil, Electrical, Highway, Mechanical, and Mining Engineering, and at the same time to equip them to participate in commercial and public affairs and to develop their capacities for intelligent leadership; (2) to aid in the development of our commerce and industry through research and experimentation, to investigate natural resources and demonstrate their value to

the people of the State; (3) to cooperate with private companies, municipalities, and public authorities for the purpose of improving our public utilities, and with commercial and industrial organizations through scientific research for increasing technical skill, improving the value of manufactured products, and eliminating waste.

In order to make effective these purposes, the School of Engineering offers instruction in Architectural, Ceramic, Chemical, Civil, Electrical, Highway, Mechanical and Mining Engineering, and maintains the Engineering Experiment Station and the Extension Service. The courses of instruction are grouped into programs of studies, or curricula, definitely aimed to prepare for professional services as:

- Architects, Architectural and Structural Engineers.
- Ceramic Engineers and Technologists and Managers in the Ceramic Industry.
- Engineers and Managers in Chemical Industries and in the Vegetable Oil Industry.
- Engineers in Professional Practice and as Consulting Engineers.
- Municipal and Sanitary Engineers, City Managers, and Engineers in Public Utility Service.
- Engineers in Hydro-Electric Developments.
- Engineers in Electrical Manufacturing and Contracting and in Central Electric Station and Telephone Service.
- Highway Engineers.
- Engineers in the Construction, Maintenance, and Operation of Steam and Electric Railways.
- Engineers in the Design and Manufacture of Machinery, in the Operation of Shops, and in the Furniture Industry.
- Mining Engineers and Metallurgists.
- Sales Engineers.
- Research Engineers.

#### CURRICULA

All of the curricula contain courses of general educational value for the purpose of preparing students for those activities which constitute the duties of citizenship in a democracy. However, the curricula are primarily technical and practical, and designed to prepare young men for professional practice and for definite vocations as well as for leadership in the industrial advancement of the State.

The instruction is such as will foster the individual talent, imagination, and initiative of students and instill in them ideals of accomplishment, service, and good citizenship, while assuring to them that scientific education and practical training which will prepare them for professional service and leadership in engineering and in industry. In this way the School of Engineering aids in the advancement of commerce and industry and furthers the development and utilization of the State's resources.

All the engineering curricula emphasize thoroughness in the study of English and of the sciences Mathematics, Physics, and Chemistry with a thorough drill in the application of fundamental principles to engineering and industrial problems. Engineering is taught as a profession, and the students come to realize that it is both honorable and learned, and that it offers opportunities for success and for service.

The several engineering curricula are only slightly differentiated in the freshman and sophomore years, in which the students study English, Mathematics, Drawing, Shop Work, Physics, and Chemistry. In the junior and senior years the students are directed definitely to the professional aims in the carefully considered and well balanced curricula in Architectural, Ceramic, Chemical, Civil, Electrical, Highway, Mechanical, and Mining Engineering. Arrangements have been made for instruction in the design and manufacture of furniture and in the manufacture of vegetable oils.

#### REQUIREMENT OF SUMMER WORK

At least six weeks of summer employment under the direction of the School of Engineering, preferably in the summer following the junior year, has been an additional requirement for graduation in Engineering.

The purpose of this is to have every student before graduation get the valuable experience of actual work with responsibility and pay in the field of his vocation. Departmental advisers will aid in securing summer employment and will supervise and direct it.

In order to familiarize himself with the practice of his profession, each senior in Engineering is required as a part of his curriculum to make the departmental inspection trips. None will be excused except for grave reasons.

#### ENGINEERING CURRICULA FOR UNIVERSITY AND COLLEGE GRADUATES

Selected courses leading to the degree "Bachelor of Science" in Engineering are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student, and in the light of credits presented from the institution from which the student has been graduated, subject to the approval of his adviser and the director of instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum he may be graduated with a B. S. degree in one year. In no case should it take more than two years to complete the work for his B. S. degree.

#### SHORT COURSE FOR ELECTRICAL METERMEN

A school for electrical metermen, lasting one week, is conducted during the second term. The work consists of lectures by meter experts and members of the faculty, demonstrations of metering apparatus and inspection, calibration and adjustments of meters of all types. The greater part of the time is given to actual practice by the students in installing and testing and adjusting watt-hour meters. The Electrical Engineering laboratories are well equipped with rotating standards of all makes, voltage regulators, phase shifters, load boxes, and phantom loads, and a large collection of watt-hour meters.

#### SHORT COURSE FOR CLAYWORKERS

Instruction in Clayworking and Ceramics covering one week in the second term is offered to clayworkers who wish a short intensive course of study in the subjects of the origin of clays, dryers and drying, kilns and burning, prospecting, clayworking equipment, boilers and electric motors.

The instruction consists of lectures and laboratory demonstrations by members of the faculty and ceramic experts. It is designed to meet the

needs of practical clayworkers, and deals especially with the principles underlying the work of plant managers, superintendents, foremen, burners and others concerned with the manufacture of ceramic products.

### DEGREES

Upon the completion of any one of the curricula in engineering the degree of Bachelor of Science in Engineering is conferred.

The degree of Master of Science in Engineering is offered for the satisfactory completion of one year of graduate study in residence. Candidates for the degree of Master of Science in Engineering enter and are enrolled as graduate students in the Graduate School.

The professional degree of Architectural Engineer, Ceramic Engineer, Chemical Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer, and Mining Engineer may be conferred upon graduates after three years professional practice in responsible charge of important work, and upon the acceptance of a thesis on a subject related to the practice in which the applicant has been engaged.

### ADMISSION

Each applicant for admission must present evidence that he has satisfactorily completed a four year curriculum of not less than fifteen units in a secondary school which is approved by the State Department of Education, or the equivalent of such a course as shown by examination.

Each applicant for admission must be at least sixteen years old and must submit fifteen units of credits from an accredited high school. Of these units, 8.5 are in specified subjects and 6.5 in elective subjects.

### ADVANCED STANDING

Students who have attended colleges of approved standing will be given appropriate credit for work completed there, upon the presentation of the proper certificate to the Dean of the School of Engineering, who will determine the credits for the curriculum which the student wishes to take.

### REQUIREMENTS FOR GRADUATION

The requirements for graduation in Engineering are the satisfactory completion of all the courses in one of the prescribed curricula (see tabulations of curricula on the pages following), a total of not less than 222 term-credits, and also not less than 222 points calculated under the point system.

Of the minimum of 222 term credits required for graduation in Engineering 114 are common to all curricula, that is, 18 term credits in Language, 12 in Economics and Sociology, 12 in Chemistry, 15 in Physics, 9 in Mechanics, 12 in Military Training (or Social Science alternatives) and 6 in Physical Education.

Each of the curricula permits election of 18 term credits and contains not more than 96 term credits technical to Engineering of which not more than 66 are special technical.

### SPECIAL STUDENTS

Special Students in the School of Engineering are admitted by the Dean, who will see to the arrangement of their courses, in conformity to the provisions for special students in all the schools of the College.

## ARCHITECTURAL ENGINEERING

The purpose in Architectural Engineering is to prepare young men for the practice of the profession by equipping them with a sound foundation of general education, fundamental and technical knowledge, and the ability to use it.

Architecture is the result of man's efforts to build beautifully. It brings those who practice it into close touch with everyday life. As such, it offers a life of absorbing interest, because Architecture belongs to the fine arts, and the daily work of the architect deals alike with these arts, with the many-sided field of applied science, and with business.

The first requirement in Architecture is the ability to design, both from the artistic side, that the structure may present an agreeable appearance, and from the practical side, that it may be adapted to its purpose. Next in importance are those allied engineering studies so necessary to safe and economical construction. Last, but not least, the student of Architecture must school himself in those fundamentals of that broad training everywhere recognized as indispensable to an architect's success.

The curriculum is so arranged as to give to the student a thorough grounding in the general engineering principles underlying good architectural practice together with design and composition. Rendering in various mediums is given so as to enable the student to present his work to the best advantage. The curriculum for the freshman year is the same as that for the entire School of Engineering. Each of the succeeding years specializes more in the problems of the architectural engineer.

## CURRICULUM IN ARCHITECTURAL ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101.			
102, 103	5	5	5
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Engineering Drawing, M. E. 102	3	3	6
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, Mil. 101, or			
Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral			
Calculus, Math. 201, 202, 203	7	5	5
Business English, Technical Writing			
Public Speaking, Eng. 201, 203, 260, or			
French, M. L. 101	3	3	3
Physics, Phys. 104	7	5	5
Plane Surveying, C. E. 111	0	0	0
Elements of Design, A. E. 102	2	2	2
Masonry Construction, A. E. 104	0	0	2
Shades and Shadows, A. E. 105	2	0	0
Military Science, Mil. 102, or			
World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Mechanics, C. E. 105	3	3	3
Graphic Statics, C. E. 209	1	0	0
Architectural Drawing I, A. E. 105	1	1	1
Working Drawings, A. E. 203	2	0	0
History of Architecture, A. E. 206	2	2	2
Architectural Design I, A. E. 202	3	3	3
Economics, Accounting, Sociology, Econ. 102, 112, and Soc. 102	3	3	3
<sup>2</sup> Electives	3	6	6
	<u>18</u>	<u>18</u>	<u>18</u>

Summer requirement—six weeks industrial employment.

## Senior Year

Strength of Materials and Reinforced Concrete, C. E. 205	3	3	3
Roof Stresses, C. E. 212	3	0	0
Materials Testing Laboratory, H. E. 201	0	1	1
Business Law, Econ. 211	0	0	3
Architectural Drawing II, A. E. 201	1	1	1
Professional Practice, A. E. 203	2	2	2
Architectural Design II, A. E. 204	3	3	3
Structural Drawing, A. E. 207	1	2	2
Building Sanitation, A. E. 107	2	0	0
History of Ornament, A. E. 208	0	3	0
<sup>2</sup> Electives	3	3	3
	<u>18</u>	<u>18</u>	<u>18</u>

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in modern language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the college with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.



## CERAMIC ENGINEERING

Ceramic Engineering includes the different phases of engineering which have to do with the study of all the materials and the manufacture of products of the silicate industries. Principal among these products are those made of clay and minerals associated with clay, such as building brick, hollow tile, sewer pipe, refractories, white wares, tableware, pottery, electrical porcelain, chemical and sanitary stoneware, building glass, chemical glassware, enameled iron and steel, Portland and hydraulic cements, and limes.

North Carolina has enormous deposits of shale, clay, kaolin, feldspar, sand, and limestone, equal in quality to any in the United States, and with the introduction of modern processes and methods will soon produce quantities of ceramic products and adequately develop its ceramic industries.

The demand for ceramic engineers has far exceeded the supply for a number of years past, and it is with the idea of supplying this demand and developing the latent resources of North Carolina that a four-year curriculum in Ceramic Engineering, leading to the degree of Bachelor of Science in Engineering, is offered.

The instruction in Ceramic Engineering is enriched by the intensive investigation of ceramic resources and manufactures now well under way in connection with the Engineering Experiment Station. Students will have the great advantage of these investigations along with their other instruction.

Courses in advanced subjects for graduate students are offered in Advanced Refractories and Furnaces, Industrial Adaptability of Clays, Designing of Ceramic Equipment and Plants, Glazes and Colors, and Ceramic Research.

The curriculum in Ceramic Engineering contains fundamental courses and courses in Ceramic, Chemical, Civil, Electrical, and Mechanical Engineering, as well as Economics and Accounting, to provide for the general training in engineering with the particular study of Ceramic Engineering. The Ceramic Engineering courses consist of the theoretical and practical study of the mining, manufacturing, and testing ceramic products as well as the design of ceramic equipment and plants.

## CURRICULUM IN CERAMIC ENGINEERING

## Freshman Year

Courses	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Engineering Drawing, M. E. 102	3	3	0
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203	5	5	5
Silicate Analysis, Cer. E. 102	3	3	0
Physics, Phys. 104	3	3	3
Physical Chemistry, Chem. E. 207	0	0	5
Physical Geology, Geol. 120	0	0	0
Ceramic Materials, Cer. E. 103	0	3	0
Ceramic Processes, Cer. E. 104	0	0	3
Mechanical Drawing, M. E. 107	1	1	1
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Mechanics, C. E. 105	3	3	3
Public Speaking, Business English, Technical Writing, Eng. 260, 201, 203, or French I, M. L. 101	3	3	3
Bodies, Glazes, and Colors, Cer. E. 207	0	0	3
Dryers and Drying, Cer. E. 208	3	0	0
Kilns and Burning, Cer. E. 213	0	2	0
Ceramic Calculations, Cer. E. 209	0	0	3
Ceramic Products, Cer. E. 212	0	0	2
Heat Engines II, M. E. 113	1	3	0
Mechanical Laboratory II, M. E. 121	1	1	1
Plane Surveying, C. E. 111	2	0	0
Electives	3	2	3
	<u>18</u>	<u>16</u>	<u>18</u>

Summer requirement six weeks industrial employment.

## Senior Year

Refractories, Cer. E. 301	0	0	3
Ceramic Laboratory, Cer. E. 215	3	3	3
Ceramic Designing, Cer. E. 211	0	4	4
Cements, Glasses, and Enamels, Cer. E. 210	0	3	0
Elements of Electrical Engineering, E. E. 102	2	2	2
Pyrometry, Cer. E. 214	1	1	1
Strength of Materials, M. E. 206	3	0	0
Economics, Accounting, Sociology, Econ. 102, 112, and Soc. 102	3	3	3
Business Law, Econ. 211	3	0	0
Electives	3	3	3
	<u>18</u>	<u>18</u>	<u>18</u>

All seniors will be required to go on the inspection trip as part of their curriculum.

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in Modern Language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the college with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## CHEMICAL ENGINEERING

North Carolina is rapidly becoming the industrial and manufacturing center of the South. A large per cent of the total manufactured products of the State are chemical products, with an annual valuation of over one hundred million dollars. Some of the largest chemical industries of the United States are located in North Carolina. Many other industries employ chemical engineering processes and principles. The municipalities are awake to the fact that chemical engineers are necessary to safeguard the healthfulness of the community by proper design and supervision of the water supplies and sanitary disposal system. Competition is forcing the industries to abandon rule-of-thumb methods and to seek men trained in the principles of chemical engineering for supervision and exact control of their processes, plants, and operation. Chemical Engineering, therefore, offers inviting opportunities for employment and promotion in a profession which is rendering a distinct service to the welfare and comfort of the people of the State.

Chemical Engineering pertains to the engineering problems of chemical industries and chemical processes. The curriculum offers technical training in the fundamentals of Chemical Engineering. It is arranged to equip trained engineers for any field of applied chemistry.

The chemical engineer is expected to determine the process, the material, design, and the economic capacity of the equipment needed. Efficient production requires exact control in every stage of the process. The student is taught the importance of devising efficient and economical methods, machinery and appliances, of discovering sources of loss and the remedy, of by-products, of recovering and converting waste products into useful substances, as well as industrial calculations of input, output, efficiency, and quality.

Instruction is given in the processes of manufacturing industrial chemical products, and in the waterpower and fuel resources for such production. North Carolina is rapidly increasing its electrochemical plants and its plants for manufacturing such products as paper pulp, fertilizers, vegetable oils, leather, rubber goods, aluminum, metallurgical products, gas, cheese, asbestos products, fire extinguishers, paints, varnishes, shoe polish, fish oil and scrap, and tanning extracts. Careful study is made of industrial opportunities and research is carried on to further the utilization of the natural resources of the State. Research in the Engineering Experiment Station is coordinated with classroom instruction.

Graduates in Chemical Engineering may expect to find employment as plant control chemists, industrial research chemists, chief chemists, superintendents, gas plant chemists and superintendents, sanitary and municipal engineers, engineers in the State and Federal health service, consulting chemical engineers, manufacturers of chemicals and of chemical equipment, chemical salesmen and representatives, and as promoters of new chemical industries in the South. The training provides the basic courses in Chemistry, as well as Engineering, so that the graduate is prepared to enter successfully into any field of chemical activity.

## CURRICULUM IN CHEMICAL ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103 .....	5	5	5
Rhetoric and Composition, Eng. 101 .....	3	3	3
General Chemistry, Chem. 101 .....	4	4	4
Engineering Drawing, M. E. 102 .....	3	3	0
Descriptive Geometry, M. E. 103 .....	0	0	3
Shopwork, M. E. 104 .....	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101 .....	2	2	2
Physical Training, P. E. 101 .....	1	1	1
	19	19	19

## Sophomore Year

<sup>1</sup> Public Speaking, Business English, Technical Writing, Eng. 200, 201, 203, or <sup>2</sup> German I, M. L. 102 .....	3	3	3
Physics, Phys. 104 .....	5	5	5
Qualitative Analysis, Chem. 111 .....	4	0	0
Quantitative Analysis, Chem. 112, 113 .....	0	4	4
Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203 .....	..	5	5
Military Science, Mil. 102, or World History, Hist. 104 .....	2	2	2
Physical Training, P. E. 102 .....	1	1	1
	20	20	20

## Junior Year

Mechanics, C. E. 105 .....	3	3	3
Economics I, Accounting, Sociology, Econ. 102, 112, and Soc. 102 .....	3	3	3
Elements of Electrical Engineering I, E. E. 102 .....	2	2	2
Organic Chemistry, Chem. 221 .....	4	4	4
Industrial Chemistry, Chem. E. 201 .....	3	3	3
<sup>3</sup> Electives .....	3	3	3
	15	15	15

Summer requirement six weeks industrial employment.

## Senior Year

Machine Shop, M. E. 218 .....	0	1	1
Heat Engines II, M. E. 113 .....	3	3	0
M. E. Laboratory, M. E. 114 .....	1	1	1
Physical Chemistry, Chem. 231 .....	4	4	4
Mineralogy, Geol. 230 .....	0	0	3
Chemistry of Water Supplies, Chem. E. 204 .....	3	0	0
Chemistry of Engineering Materials, Chem. E. 205 .....	0	3	0
Business Law, Econ. 211 .....	0	0	3
Principles of Chemical Engineering, Chem. E. 202 .....	3	3	3
<sup>3</sup> Electives .....	3	3	3
	17	18	17

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in modern language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## CIVIL ENGINEERING

- I. General Civil Engineering
- II. Highway Engineering
- III. Construction Engineering

The aim of the curricula in Civil Engineering is to give such training as will enable young men to take an active part in the work of advancing our State along material lines, such as developing its water power, building railroads and public highways, and constructing water supply and sewerage systems for our towns.

The theoretical and classroom work is supplemented with practical work in the field, drawing rooms, and laboratories to demonstrate the relations existing between theory and practice. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore, a thorough course is given in all those branches of applied mathematics which are used in the solution of engineering problems.

The work, accompanied as it is by the cultural training acquired through the instruction in Mathematics, English, Chemistry, Economics, Modern Languages, and Military Science, especially equips a young man to fit into the present-day needs of the country.

The curricula are arranged to give the student an understanding of the principles underlying the various branches of the profession and at the same time teach him to apply these principles to the practical problems with which the Civil Engineer has to deal.

Those students taking the General Civil Engineering curriculum may at the beginning of the senior year elect the Highway Engineering option, as set forth in the curriculum of Civil Engineering II, Highway Engineering.

Those students taking the general Civil Engineering curriculum may at the beginning of the Junior year elect a Construction Engineering option as set forth in the curriculum of Civil Engineering III, Construction Engineering.

For instruction in Civil Engineering, the following are provided: Surveying instruments, plane tables, current meters, sextants, cement laboratory apparatus, for demonstrating classroom problems.

The curriculum in General Civil Engineering provides the undergraduate instruction in Sanitary Engineering. Special attention is called to the opportunity now provided for continuing the study of Sanitary Engineering in the Graduate School. See Announcement of the Graduate School, Sanitary Engineering.

Particular attention is called to the engineering construction options to the general curriculum in Civil Engineering, which have been introduced in response to the State-wide demand for education for building, construction, and contracting.

## CURRICULUM IN CIVIL ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103 .....	5	5	5
Rhetoric and Composition, Eng. 101.....	3	3	3
General Chemistry, Chem. 101 .....	4	4	4
Engineering Drawing, M. E. 102 .....	3	3	0
Descriptive Geometry, M. E. 103 .....	0	0	3
Shopwork, M. E. 104.....	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203.....	5	5	5
Business English, Technical Writing, Public Speaking, Eng. 201, 203, 260, or Spanish I, M. L. 103 .....	3	3	3
Physics, Phys. 104 .....	5	5	5
Elements of Design II, A. E. 103 .....	1	1	1
Materials of Construction, C. E. 104 .....	3	0	0
Theoretical Surveying I, C. E. 102.....	0	3	2
Field Surveying, C. E. 103.....	0	0	1
Military Science, Mil. 102, or World History, Hist. 104 .....	2	2	2
Physical Training, P. E. 102 .....	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

Physical Geology, Geol. 120.....	3	0	0
Mechanics, C. E. 105 .....	3	3	3
Theoretical Surveying, C. E. 208 .....	3	3	0
Field Surveying II, C. E. 207 .....	1	1	1
Highway Engineering, H. E. 201 .....	0	3	3
Graphic Statics, C. E. 209.....	1	0	0
Topographical Drawing, C. E. 208 .....	0	1	0
Heat Engines III, M. E. 115.....	0	0	3
Engineering Office Practice, C. E. 210.....	0	0	1
Economics, Accounting, Sociology, Econ. 102, 112, and Soc. 102 .....	3	3	3
Elements of Electrical Engineering, E. E. 102 .....	2	2	2
Electives .....	3	3	3
	<u>19</u>	<u>19</u>	<u>19</u>

Summer requirement—six weeks industrial employment.

## Senior Year

Strength of Materials and Reinforced Concrete, C. E. 203 .....	3	3	3
Roofs and Bridges, C. E. 204 .....	3	3	3
Hydraulics, C. E. 205 .....	3	0	0
Water Supply, C. E. 205.....	0	3	0
Astronomy, C. E. 301 .....	0	0	3
Engineering Field Problems, C. E. 201 .....	1	0	0
Materials Testing Laboratory, H. E. 204.....	0	1	1
Sanitary Engineering, C. E. 303 .....	0	0	0
Railroad Engineering, C. E. 306.....	0	0	3
Business Law, Econ. 211.....	3	0	0
Electives .....	3	3	3
	<u>16</u>	<u>16</u>	<u>16</u>

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in modern language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

### CIVIL ENGINEERING II—HIGHWAY ENGINEERING

North Carolina has, during the past ten years, made wonderful progress in the building of good roads; and the beneficial effect of these well-constructed highways is being shown in the development of the State along social and industrial lines. Not only has the State undertaken, on a large scale, the building of an adequate highway system, but most of the counties and cities in the State are spending vast sums in the building of new roads or the improvement of old roads. And what has already been done is possibly only a beginning, for it is likely that even larger road construction programs by the State and its political subdivisions will be necessary if the material prosperity of the State—dependent so largely on adequate transportation facilities—is to continue.

The building of roads and their proper maintenance are engineering problems to be handled by technically trained men. To meet the need and demand for such men, the North Carolina State College offers a four-year curriculum in Highway Engineering. Since Highway Engineering is, fundamentally, a special division of the broad field of Civil Engineering, the curriculum for the first three years is identical with the regular Civil Engineering curriculum. In the fourth year, however, the student who specializes in Highway Engineering is given more specific instruction in those subjects pertaining to Highway Engineering. The entire curriculum is arranged so that graduates in this department will not only be well trained technically, but will have that broad general education so essential to success in engineering.

State College, due to its favorable location, offers unusual opportunities to young men to study Highway Engineering. Not only are the necessary facilities available for theoretical instruction, but there are in and near Raleigh many opportunities for studying the practical application of the principles of highway construction. Raleigh and Wake County have built, or have under construction, most of the different types of road surfaces; the laboratories of the State Highway Commission are available for inspection, and numerous experimental sections of road constructed by the Commission near Raleigh can be examined.

## CURRICULUM IN HIGHWAY ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Engineering Drawing, M. E. 102	3	3	0
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	19	19	19

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203	5	5	5
Business English, Technical Writing			
Public Speaking, Eng. 201, 203, 260, or Spanish I, M. L. 103	3	3	3
Physics, Phys. 104	4	5	3
Elements of Design II, A. E. 105	1	1	1
Materials of Construction, C. E. 104	3	0	0
Theoretical Surveying I, C. E. 102	0	3	2
Field Surveying I, C. E. 103	0	0	1
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	20	20	20

## Junior Year

Physical Geology, Geol. 120	3	6	0
Mechanics, C. E. 105	3	3	3
Theoretical Surveying, C. E. 206	3	3	0
Field Surveying, C. E. 207	1	1	1
Highway Engineering, H. E. 201	0	3	3
Graphic Studies, C. E. 209	1	0	0
Topographical Drawing, C. E. 205	0	1	0
Treat Engines III, M. E. 115	0	0	3
Engineering Office Practice, C. E. 210	0	0	1
Economics, Accounting, Sociology, Econ. 102, 112, and Soc. 102	3	3	2
Elements of Electrical Engineering, E. E. 102	2	2	2
Electives	3	3	3
	19	19	19

Summer requirement—six weeks industrial employment.

## Senior Year

Strength of Materials and Reinforced Concrete, C. E. 203	3	3	3
Roads and Bridges, C. E. 204	3	3	3
Hydraulics, C. E. 205	3	0	0
Business Organization, Econ. 210	0	0	0
Astronomy, C. E. 301	0	0	0
Highway Office Practice and Design, H. E. 302	1	0	0
Materials Testing Laboratory, H. E. 204	0	1	1
Highway Engineering II, H. E. 301	3	3	3
Electives	3	3	3
	16	16	16

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in modern language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.



### CIVIL ENGINEERING III—CONSTRUCTION ENGINEERING

This curriculum, which varies little from that in general Civil Engineering, is offered in order to educate men for the profession of Engineering particularly as it is related to construction.

North Carolina's progress indicates great increase in building and general construction. Construction needs more and better trained men to meet the immediate demands as well as to anticipate the greatly increased demands of the future. Builders, as few others, need to know at all times exactly where they stand on the projects they undertake. The contractor, to be successful must conduct his business systemically and economically. Therefore, he must learn not only general engineering technique but also something of Architecture and business methods and practices; he must delve further into construction and learn the principles involved, the methods, practices, and successful policies in use.

Combined into this curriculum are the fundamental courses in the Civil Engineering curriculum, a few courses in Architecture, a few additional courses dealing with business, and special courses in Construction Engineering in the junior and senior years.

The theory in the Construction Engineering courses is supplemented by frequent inspection trips to projects under construction and particular emphasis is placed upon estimating, modern methods, and management of operations.

This curriculum is designed to prepare the student to enter the work of actual construction of modern structures and to lay a foundation for future work as owners, managers, or executives in the construction industry.

CURRICULUM IN CONSTRUCTION ENGINEERING

Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Engineering Drawing, M. E. 102	3	3	3
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, MIL 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203	5	5	5
Business English, Technical Writing, Public Speaking, Eng. 201, 203, 260, or Spanish I, M. L. 103	3	3	3
Physics, Phys. 104	3	5	5
Elements of Design II, A. E. 103	1	1	1
Materials of Construction, C. E. 104	3	0	0
Theoretical Surveying I, C. E. 102	0	2	2
Field Surveying I, C. E. 103	0	0	1
Military Science, MIL 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

Junior Year

Mechanics, C. E. 105	3	3	3
Theoretical Surveying, C. E. 206	3	3	0
Field Surveying II, C. E. 207a	1	1	0
Graphic Statics, C. E. 209	1	0	0
Topographical Drawing, C. E. 208	0	1	0
Engineering Office Practice, C. E. 210	0	0	1
Economics, Accounting, Sociology, Econ. 102, 112 and Soc. 102	3	3	3
Engineering Economics, Econ. 247	0	0	3
Architectural Drawing I, A. E. 105	1	1	1
Office Methods, C. E. 106	2	2	2
Elements of Electrical Engineering, E. E. 102	0	0	3
Construction Engineering I, C. E. 211	3	3	3
<sup>2</sup> Electives			
	<u>19</u>	<u>19</u>	<u>19</u>

Summer requirement six weeks industrial employment.

Senior Year

Strength of Materials and Reinforced Concrete, C. E. 203	3	3	3
Roofs and Bridges, C. E. 204	3	3	3
Hydraulics, C. E. 205	3	0	0
Materials Testing Laboratory, H. E. 204	1	1	0
Sanitary Engineering, C. E. 308	0	3	0
Business Law, Econ. 211	3	3	3
Construction Engineering II, C. E. 302	3	3	3
Specifications, C. E. 309	0	0	1
<sup>2</sup> Electives	3	3	3
	<u>16</u>	<u>16</u>	<u>16</u>

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in modern language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## ELECTRICAL ENGINEERING

The future of North Carolina depends in no small degree upon the proper development and use of electric power. The State already possesses notable electric transmission systems, which are spreading rapidly and constitute a system of electrical highways which have already become one of the controlling factors in the growth of the State. Trained men are needed for the construction and operation of these electric systems and for the proper utilization of the power that they provide. Our telephone and telegraph systems are growing, in many cases at a rate limited only by the supply of equipment, while the replacement of manually operated telephone exchanges by machine switching brings a new call for trained men. The electrification of certain sections of our railways, particularly in the mountain districts, is destined to receive careful consideration, while the universal introduction of automatic signaling on the railways cannot be long delayed. For all of these applications trained men are needed.

The purpose of the four-year curriculum in Electrical Engineering is to prepare young men for all of the fields of the electrical industry and at the same time to give them a general education in order that they may become useful citizens as well as skilled and capable engineers. The courses in Electrical Engineering are accompanied by laboratory practice, problems and design, thus securing satisfactory coordination of theory with practice. In order that the student may receive early a clear understanding of the economic and sociological side of engineering and of business and social life, courses in Economics, Accounting, and Sociology are given in the Sophomore year.

Each student is also required to spend at least six weeks in satisfactory industrial employment before receiving his degree and during the Senior year to make an inspection trip to a number of modern electric installations.

## CURRICULUM IN ELECTRICAL ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Engineering Drawing, M. E. 102	3	3	0
Descriptive Geometry, M. E. 103	0	0	3
Shopwork, M. E. 104	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	19	19	19

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203	5	5	5
Technical Writing, Business English			
Public Speaking, Eng. 203, 201, 260, or French I, M. L. 101	3	3	3
Physics, Phys. 104	5	5	5
Economics, Accounting, Sociology, Econ. 102, 112, and Soc. 102	3	3	3
Plane Surveying, C. E. 111	2	0	0
Electrical Practice, E. E. 101	0	1	0
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	21	20	19

## Junior Year

Mechanics, C. E. 105	3	3	3
Heat Engines V, M. E. 120	3	3	3
Mechanical Engineering Laboratory II, M. E. 121	1	1	0
Fundamentals of Electrical Engineering, E. E. 105	0	1	0
Direct Current Machinery, E. E. 106	0	1	0
Elements of Alternating Currents, E. E. 107	0	1	0
Electrical Engineering Laboratory, E. E. 108	4	4	4
Electives	3	3	3
	18	18	18

Summer requirement six weeks industrial employment.

## Senior Year

Business Law, Econ. 211	0	0	3
Engineering Economics, Econ. 247	3	0	0
Hydraulics, C. E. 205	0	3	0
Strength of Materials, M. E. 208	3	0	0
Hydraulic Machinery, M. E. 213	0	0	3
Alternating Current Machinery, E. E. 201	4	4	0
Electrical Transmission, E. E. 202	0	0	4
Electrical Distribution, E. E. 204	2	0	0
Electric Lighting, E. E. 301 or Electric Traction, E. E. 302 or Electric Communication, E. E. 303	0	2	0
Central Station Economics, Econ. 248	0	0	3
Electric Power Plants, E. E. 305	3	3	2
Electrical Engineering Laboratory, E. E. 203	3	3	3
Electives	3	3	3
	18	18	18

All Seniors will be required to go on the inspection trip as a part of their curriculum.

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in Modern Language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>The Sophomore Class will be divided into two sections for Field Surveying, one section taking this course the first term, the other the second term.

<sup>4</sup>The Sophomore Class will be divided into three sections for Electrical Practice, one section taking this course each term.

<sup>5</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## MECHANICAL ENGINEERING

The Mechanical Engineer is primarily a designer and builder of standard and special machines. However, in the last few years he has been called upon to make an economic application of all classes of machinery in their respective fields of production. He is called upon not only in the technical application, but also in the executive management of the manufacturing and the transportation industries. For the Mechanical Engineer to be well grounded in his profession, he must be thoroughly familiar with both the science and the art of engineering.

The curriculum in Mechanical Engineering begins with a thorough training in mathematics, physics, and chemistry as a foundation for the technical work, which is later developed along several parallel lines. The application of these fundamental sciences to the physical properties of the materials of construction and the relation of heat to engineering is brought to the attention of the student by courses in drafting, mechanics, and thermodynamics, and by the work in the woodshop, forge shop, foundry, machine shop, and mechanical laboratory.

For students in Mechanical Engineering who desire to learn something of the design and construction of furniture, an option is offered which is intended to prepare the student for positions in the manufacturing and selling of furniture, as well as responsible positions in other allied woodworking industries. This option includes the fundamental laws of design through the study of good examples and through practice in construction. It also includes a study of the characteristics of the different periods, which enables the student to identify an article by its style, and to name and understand its different style points. Since the furniture used in the dormitories and that required for special equipment is largely made in the woodworking department, the student has special advantages in this phase of the work.

## CURRICULUM IN MECHANICAL ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103 .....	5	5	5
Rhetoric and Composition, Eng. 101 .....	3	1	3
General Chemistry, Chem. 101 .....	4	1	4
Engineering Drawing, M. E. 102 .....	3	3	0
Descriptive Geometry, M. E. 103 .....	0	0	3
Shopwork, M. E. 104 .....	1	1	1
Military Science, MIL. 101, or Human Relations, Soc. 101 .....	2	2	2
Physical Training, P. E. 101 .....	1	1	1
	19	19	19

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203 .....	5	5	5
<sup>1</sup> Public Speaking, Business English, Technical Writing, Eng. 200, 201, 203, or <sup>2</sup> Spanish I, M. L. 103 .....	3	3	3
Physics, Phys. 104 .....	5	5	5
Mechanical Drawing, M. E. 107 .....	1	1	1
Metallurgy, M. E. 108 .....	3	3	3
Military Science, MIL. 102, or World History, Hist. 104 .....	2	2	2
Physical Training, P. E. 102 .....	1	1	1
	20	20	20

## Junior Year

Economics, Accounting, Sociology, E. S. 102, 112, and S. C. 102 .....	3	3	3
Mechanics, C. E. 105 .....	3	3	3
Machine Shop II, M. E. 219 .....	1	1	1
Heat Engines IV, M. E. 120 .....	3	3	3
Mechanical Laboratory II, M. E. 121 .....	1	1	1
<sup>3</sup> Kinematics, M. E. 203 .....	2	0	0
Plane Surveying, C. E. 111 .....	3	2	3
<sup>4</sup> Electives .....	19	17	17

## Senior Year

Power Plants, M. E. 212 .....	3	3	3
Strength of Materials, M. E. 205 .....	3	0	0
Hydraulics, C. E. 205 .....	0	0	3
Heating and Ventilating, M. E. 210 .....	0	3	0
<sup>5</sup> Machine Design, M. E. 206 .....	2	2	2
<sup>6</sup> Gas Engines, M. E. 209 .....	0	3	0
<sup>6</sup> Refrigerations, M. E. 211 .....	0	0	3
Mechanical Laboratory III, M. E. 207 .....	1	1	1
Electrical Engineering II, E. E. 103 .....	3	3	3
Business Law, Econ. 211 .....	3	0	0
<sup>4</sup> Electives .....	3	3	3
	18	18	18

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in Modern Language may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Furniture Option, M. E. 205.

<sup>4</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

<sup>5</sup>Furniture Option, M. E. 215.

## MINING ENGINEERING

The purpose in Mining Engineering is to stimulate the development of the mining and quarrying industries of North Carolina and the South through research and to train students who will aid in this development.

The mineral resources of the State, both metallic and non-metallic, have received so little attention that this is practically a virgin field. In the western part of the State there exist valuable deposits of copper, nickel, iron, mica, feldspar, granite, limestone, and other minerals; in the central part, coal deposits of promising quantity and quality and large areas of pyrophyllite, granite, and other valuable building stones; and in the eastern part, phosphate and marls.

The curriculum in Mining Engineering is designed to train students especially for mining conditions to be met in North Carolina and the South. On account of the emphasis placed on Geology and Civil Engineering subjects, graduates will also be particularly fitted for positions with State geological surveys; with oil and mining companies in geological engineering capacities, and with hydropower companies on dam work. Students will also have the additional advantage of coming in close contact with the research which is being done on the minerals of the State and which of necessity will be greatly enlarged within the next few years.

## CURRICULUM IN MINING ENGINEERING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103 .....	5	5	5
Rhetoric and Composition, Eng. 101 .....	3	3	3
General Chemistry, Chem. 101 .....	4	4	4
Engineering Drawing, M. E. 102 .....	3	3	0
Descriptive Geometry, M. E. 103 .....	0	0	3
Shopwork, M. E. 104 .....	1	1	1
Military Science, Mil. 101, or .....		2	2
Human Relations, Soc. 101 .....	1	1	1
Physical Training, P. E. 101 .....	1	1	1
	19	19	19

## Sophomore Year

Analytical Geometry, Differential Calculus, Integral Calculus, Math. 201, 202, 203 .....	5	5	5
Silicate Analysis, Cer. E. 102 .....	3	3	0
Physics, Phys. 104 .....	3	3	5
Physical Geology, Geol. 120 .....	3	0	0
Theoretical Surveying I, C. E. 102 .....	0	3	2
Field Surveying I, C. E. 103 .....	0	0	1
Mechanical Drawing, M. E. 107 .....	1	1	1
Military Science, Mil. 102, or .....			
World History, Hist. 104 .....	2	2	2
Physical Training, P. E. 102 .....	1	1	1
	20	20	20

## Junior Year

Mechanics, C. E. 105 .....	3	3	3
<sup>1</sup> Public Speaking, Business English, Technical Writing, Eng. 260, 201, 202, or .....			
<sup>2</sup> Spanish I, M. L. 103 .....	3	3	3
Physical Chemistry, Chem. E. 207 .....	0	0	3
Field Surveying II, C. E. 207 .....	1	1	1
Topographical Drawing, C. E. 208 .....	0	1	0
Historical Geology, Petrology, Geol. 125, 251 .....	3	3	0
Mineralogy, Geol. 230, 235 .....	3	3	0
Heat Engines III, M. E. 115 .....	0	0	3
Mechanical Laboratory I, M. E. 114 .....	1	1	0
<sup>3</sup> Electives .....	3	3	3
	17	18	17

Summer requirement six weeks industrial employment.

## Senior Year

Strength of Materials, M. E. 208 .....	3	0	0
Elements of Electrical Engineering I, E. E. 102 .....	2	2	2
Petrography, Economic Geology, Geol. 295, 285, 286 .....	3	3	1
Metallurgy, M. E. 108 .....	2	2	2
Refractories, Cer. E. 301 .....	0	0	3
Ceramic Materials, Cer. E. 103 .....	0	3	0
Examinations and Reports, Mine Methods and Operation, E. M. 204 .....	2	2	2
Economics I, Accounting, Sociology, Econ. 102, 112, Soc. 102 .....	3	3	3
<sup>4</sup> Electives .....	3	3	3
	18	18	18

<sup>1</sup>Either Elements of Journalism, Eng. 150, or one term of a course in American or English Literature may be elected in place of Public Speaking.

<sup>2</sup>With the consent of the adviser, another course in Modern Languages may be elected in place of the one prescribed as alternative to the courses in English.

<sup>3</sup>Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.



## THE ENGINEERING EXPERIMENT STATION

A majority of the land-grant colleges of the United States have established engineering experiment stations, which have proved to be of exceptional value in aid of the industrial and engineering developments of their respective states. The Engineering Experiment Station of the North Carolina State College of Agriculture and Engineering was established in 1923, as provided by the General Assembly of that year. It is an integral part of the School of Engineering, and has formulated an organized program of research consisting of individual projects carefully defined and approved, which are carried on by engineering teachers, investigators, and assistants. Thus, the Station fits the program of instruction, research, and extension upon which State College is actively engaged.

### Purpose

The purposes of the Engineering Experiment Station, to which it is directing efforts, are:

To make, publish, and distribute the results of such studies, tests, investigations, and research as will be of the greatest benefit to the people of the State of North Carolina, to its engineers, to its industries, and to its engineering teachers.

To make research upon which to base education in engineering.

To adapt and to aid in the use and spread of engineering knowledge, thought, and the best modern practice generally among the citizens of the State.

To investigate resources, environs, processes, products, and markets, and in this way join in the progressive development of the State, of its industries, of its engineering works, and particularly in the economic utilization of its resources.

To make research which will extend the boundaries of engineering knowledge.

### Research in Progress

The North Carolina Station has proved itself a potent agent of the State in aiding the development of industries, the economic utilization of natural resources, and the provision of gainful occupations. Usually considerable time, as well as constructive direction of research is required in order accurately to point the way to the best industrial development; the results of the ceramic engineering research of the Station, however, have been immediate, and these languishing industries have taken on new life and trebled their investments within a year after State College was instrumental in clearly presenting the industrial opportunities and the values of raw materials and modern processes.

Substantial progress has been made with the whole program of research, which is intensifying and enlarging. The investigation of house-heating in Raleigh has enabled the publication of instructions for the selection of the most suitable coal and for the greatest economy in its use.

Methods have been determined for the refining of vegetable oils and for removing objectionable odor and taste of fish oils. Valuable results have been obtained as to the deterioration of cotton seed.

The investigation of methods for reducing and refining North Carolina ores, in connection with which the double-current electric furnace was invented, is being projected on an industrial scale.

The scope of the investigation of highway transport economics has widened. The results of studies of motor vehicle services and costs have been published. Investigation of the economics of road surfaces are in progress, some of them completed. The measurement of the power required on different road surfaces is made with the new and unique gasoline-electric truck which has been devised and constructed. The cooperation of the State Highway Commission in the construction of the truck has been essential; this is the agency which can best apply the results.

Several series of projects have been formulated for the investigation of building materials in North Carolina such as marble, granite, local building stone, brick, tile, concrete block, and gravel. Cherokee marble is showing well in the investigation. It has been found necessary to devise a highly accelerated weathering test in order to get reliable comparisons of different building stones. Such a weathering test has been devised and is now under investigation with promise of its proving exceptionally valuable.

Plans are under way for the Museum of North Carolina Resources, which with the laboratory of the Engineering Experiment Station is to be located in the new part of the Engineering building now under construction. The exhibits of natural resources and finished products are to be selected for their usefulness or for their promise of commercial development as determined by investigations and tests.

The Engineering Experiment Station invites and joins in hearty cooperation with State, educational, and other agencies on projects which promise to be of value to the State and are within its sphere of usefulness. To be effective, it is essential that such cooperation be definitely formulated with complete mutual understanding and clear definition of the responsibilities and efforts of all the parties to the cooperative project.

## THE SCHOOL OF SCIENCE AND BUSINESS

BENJAMIN FRANKLIN BROWN, *Dean*

C. C. TAYLOR, *Director of the Bureau of Economic and Social Research*

### PURPOSE OF THE SCHOOL

Fundamentally, the object aimed at in the School of Science and Business is to prepare young men for participation in business and science. To furnish them with the best educational equipment for those dominant phases of the State's agricultural and industrial life, and to meet the increasing needs in these fields, curricula in the various branches of science, business, and related vocational subjects have been added, and these curricula appear in the catalog for the first time.

The complete roster of vocational majors in this School divides naturally into three groups and are as follows:

In Science; Chemistry, Biology, Physics, and \*Geology.

In Business Administration; Accounting, Finance and Banking, Marketing, and Industrial Management.

In Social Science; Journalism, General Business, Public Administration, and Rural and Industrial Sociology.

In addition to the vocational majors, this School gives to the students of all the Schools at State College instruction in those cultural and humanitarian subjects, such as English, History, Economics, Sociology, Modern Languages, etc., which are the natural accompaniment of the technical curricula.

### REQUIREMENTS FOR ADMISSION

Each applicant for admission must present evidence that he has satisfactorily completed a four-year curriculum of not fewer than fifteen units in a secondary school which is approved by the State Department of Education, or the equivalent of such a course as shown by examination.

Each applicant for admission must be at least sixteen years old, and must submit fifteen units of credit from an accredited high school. Of these units 8.5 are in specified subjects and 6.5 in elective subjects.

### ADVANCED STANDING

Students coming from colleges of approved standing will be allowed credit for work done upon presentation of proper certificates to the Dean, who will evaluate their credit rating. Only entrance credit is allowed for work done in secondary schools.

### REQUIREMENTS FOR GRADUATION

A minimum of one hundred and ninety-eight (198) term credits and one hundred ninety-eight (198) points is required for graduation from the School of Science and Business. The term credits should be distributed as follows: A maximum of sixty (60) term credits in major department, and a minimum of eighteen (18) term credits in Language, twenty-four (24) term credits

\*There is always a moderate demand for well trained geologists in connection with State and Federal geological surveys, oil and mining companies, industrial companies, the leading railways, and as teachers of geology. Students desiring to take a major in Geology should begin specializing in that subject in the sophomore year. This may be done by consulting with the vocational adviser in Geology and the Dean of the School of Science and Business.

in Science, nine (9) term credits in Social Science, twelve (12) term credits in Military Science or the alternative, six (6) term credits in Physical Education, and sixty-nine (69) term credits in Electives.

Students entering with advanced standing are required, during the remainder of their course, to earn at least as many points as the number of term credits remaining necessary for graduation.

Every regularly enrolled freshman or sophomore is required to take not fewer than seventeen nor more than nineteen term credits each term, including the required Physical Education and the required Military Science or alternative. Every regularly enrolled junior or senior is required to take not fewer than fourteen nor more than seventeen term credits each term. Students who have previously demonstrated superior scholarship may be permitted to take extra work the following term.

### DEGREES

Upon satisfactory completion of the work in any curriculum of the School, the degree of Bachelor of Science is conferred.

For advanced degrees, see statement of the Graduate School.

### CURRICULA

The first year's work is substantially the same for all students in the School of Science and Business. The training is general, which fact gives the student a good opportunity to make a wise choice in his vocation, for he may, if he chooses, change his vocational group at the beginning of his sophomore year or in some cases even as late as the beginning of his junior year. Any important change made after this would necessitate more than four years for graduation.

### SCIENCE AND BUSINESS CURRICULA FOR UNIVERSITY AND COLLEGE GRADUATES

Selected courses leading to the degree "Bachelor of Science" in Science and Business are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student and in the light of credits presented from the institution from which the student has been graduated, subject to the approval of his adviser and the director of instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum he may be graduated with a B. S. degree in one year. In no case should it take more than two years to complete the work for his B. S. degree.

### BUSINESS ADMINISTRATION

The curriculum in Business Administration is designed to train the student in the broad fundamentals underlying the administration of successful business enterprise. The courses are so arranged that the student will receive four years of preparation in the methods, practices and problems of business.

The prescribed course of study for the first two years is the same for all students. It is expected that by the time a student reaches his junior year he will have a definite major interest. Instruction is given in three major fields of business activity—Marketing, Accounting, and Finance from

which the student is to make his selection. Each represents a major field and is designed to guide a student in his preparation for that field.

The courses covered include Commercial Banking, Investment Banking, Accounting, Advertising, Marketing and Selling, and Retailing. The purpose of these courses is to prepare the student for executive or other positions in various industries. This training will enable the student to become active in the Textile, Tobacco, Furniture, Lumbering, Transportation, and Tile and Brick industries and other important industries and business enterprises that are rapidly developing within the State. Wholesalers, jobbers, department stores, trade associations, banks, chambers of commerce, and business in general utilize men having a fundamental business training offered in Business Administration.

## CURRICULUM IN BUSINESS ADMINISTRATION

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101. ....	3	3	3
General Physics, Phys. 101 or General Inorganic Chemistry, Chem. 101.....	4	4	4
American Economic History and Geography, Hist. 101.....	3	3	3
Human Relations, Soc. 101.....	2	2	2
Military Science, Mil. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
*Freshman Option.....	3-4	3-4	3-4
	15-19	18-19	18-19

## Sophomore Year

†English.....	3	3	3
General Botany, Bot. 101 and 102 or General Zoology, Zool. 101 and an elective Science.....	4	4	4
General Economics, Econ. 103.....	3	3	3
General Sociology, Soc. 103 and an elective Sociology.....	3	3	3
Accounting I, Econ. 201.....	3	3	3
World History, Hist. 104 or Military Science, Mil. 102.....	0	2	0
Physical Training, P. E. 102.....	1	1	1
	19	19	19

## Junior Year

## ACCOUNTING GROUP

Accounting II, Econ. 301.....	3	3	3
Marketing Methods, Econ. 215.....	3	3	3
Money, Credit and Banking, Econ. 221.....	3	3	3
Business Finance, Econ. 223.....	0	0	3-
Industrial Management, Econ. 230.....	3	3	3
Electives.....	3-5	3-5	3-5
	15-17	15-17	15-17

## FINANCE AND BANKING GROUP

Accounting II, Econ. 301.....	3	3	3
Marketing Methods, Econ. 215.....	3	3	3
Money, Credit and Banking, Econ. 221.....	3	3	0
Business Finance, Econ. 223.....	0	0	3
Industrial Management, Econ. 230.....	3	3	3
Electives.....	3-5	3-5	3-5
	15-17	15-17	15-17

\*Freshman Option One of the following groups is to be chosen by the student and when elected must be pursued through the year:

1. Mathematical Analysis, 3 3-3.
2. French or German or Spanish, 3 3-3.
3. Psychology, Earth History, and Astronomy, 3 3-4.
4. One of the following, 3 3 (3 4):

First Term: How to Study, Occupations or Psychology.

Second Term: How to Study, Occupations or Earth History.

Third Term: Psychology or Science (Astronomy, Botany, Chemistry, Earth History, Physics, or Zoology.)

†A student whose record in English 101 was good will be required to take Business English (Eng. 201) in the first term, and elective courses in the second and third terms. A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term, Business English in the second term, and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

COURSES	MARKETING GROUP		
	First Term	Second Term	Third Term
Marketing Methods, Econ. 210	3	3	3
Money, Credit and Banking, Econ. 221	3	3	0
Business Finance, Econ. 225	0	0	3
Industrial Management, Econ. 250	3	3	3
Electives	0 8	0 8	0 8
	15 17	15 17	15 17
	<b>Senior Year</b>		
	ACCOUNTING GROUP		
Statistical Methods, Econ. 212	3	3	0
Business Statistics, Econ. 214	0	0	3
Business Law, Econ. 211	0	0	0
Personnel Management, Econ. 340	0	3	3
Cost Accounting, Econ. 303	3	3	3
Accounting Systems, Econ. 302	3	3	3
Electives	3 5	3 5	3 5
	15 17	15 17	15 17
	FINANCE AND BANKING GROUP		
Statistical Methods, Econ. 212	3	3	0
Business Statistics, Econ. 214	0	0	3
Business Law, Econ. 211	3	0	0
Personnel Management, Econ. 340	0	3	3
Investments, Econ. 226	3	0	0
Public Finance, Econ. 225	0	3	0
Foreign Exchange and Trade, Econ. 324	0	0	3
Electives	0 8	0 8	0 8
	15 17	15 17	15 17
	MARKETING GROUP		
Statistical Methods, Econ. 212	3	3	0
Business Statistics, Econ. 214	0	0	3
Business Law, Econ. 211	3	0	0
Personnel Management, Econ. 340	0	3	3
Foreign Exchange and Trade, Econ. 324	0	0	3
Advertising, Econ. 217	3	0	0
Sales Management, Econ. 218	0	3	3
Electives	0 8	0 8	3 5
	15 17	15 17	15 17

### INDUSTRIAL MANAGEMENT

The Industrial Management curriculum is designed to assist the student to develop towards management and executive positions in industry from the production side of manufacturing. The need of the executive to understand management problems and general business administrative functions has been carefully considered for training a well-rounded individual capable of developing into the higher executive.

Students should expect to gain their practical experience by entering the industrial field in some subordinate position in order to learn the the technic of the industry they wish to follow. A wide selection of electives is permitted for further strengthening of engineering fundamentals of production, or they may be concentrated in the School of Science and Business, so that one may easily adjust himself to the sales departments of industrial plants and also possess a good understanding of production problems. Every effort has been made to prepare thoroughly the student for a successful approach in the handling of men, machines and materials, and to be able to adjust himself to any industry.

The student will be qualified, depending upon his choice of electives, to enter the industrial field with fundamental equipment for positions such as Production Foreman, Mill Superintendent, Factory or Mill Manager, Purchasing Agent, Personnel and Employment Manager, Industrial Accountant, Production Manager, Time Study Analyst, etc. The student's desire and preference for entering Textile, Tobacco, Furniture, Metal Trades, Automotive, and Brick Industries will be considered.

## CURRICULUM IN INDUSTRIAL MANAGEMENT

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101 . . . . .	3	3	3
Science (General Botany, Bot. 101 and 102, or General Zoology, Zool. 101) . . . . .	4	4	0
American Economic History and Geography, Hist. 101 . . . . .	3	3	3
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, and 103 . . . . .	5	5	5
Shopwork, M. E. 104 . . . . .	1	1	0
Military Science, Mil. 101 . . . . .	2	2	1
Physical Training, P. E. 101 . . . . .	1	0	3-5
Electives . . . . .	0	0	
	<u>19</u>	<u>19</u>	<u>17-19</u>

## Sophomore Year

*English . . . . .	3	3	3
Physics for Engineers, Phys. 104 . . . . .	3	3	3
General Economics, Econ. 103 . . . . .	3	3	3
Accounting I, Econ. 201 . . . . .	3	3	3
Human Relations, Soc. 101 . . . . .	2	2	2
Military Science, Mil. 102 or World History, Hist. 104 . . . . .	2	2	2
Physical Training, P. E. 102 . . . . .	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Junior Year

Elements of Electrical Engineering II, E. E. 104 . . . . .	3	3	3
Heat Engines, M. E. 115 . . . . .	0	0	3
Psychology, Ed. 101 and 101A . . . . .	3	3	2
Industrial Management, Econ. 230 . . . . .	3	3	3
General Sociology, Soc. 103 . . . . .	3	3	0
†Electives . . . . .	3-5	6-8	4-6
	<u>15-17</u>	<u>15-17</u>	<u>15-17</u>

## Senior Year

Heating and Ventilating, M. E. 210 . . . . .	0	3	0
Labor Problems, Econ. 239 . . . . .	3	0	0
Personnel Management, Econ. 340 . . . . .	0	3	3
Industrial Psychology, Econ. 238 . . . . .	3	0	0
Traffic Management, Econ. 241 . . . . .	3	0	0
Purchasing and Storeskeeping, Econ. 229 . . . . .	0	0	3
Time Study, Econ. 242 . . . . .	0	0	3
Industrial Sociology, Soc. 310 . . . . .	0	0	3
†Electives . . . . .	6-8	6-8	6-8
	<u>15-17</u>	<u>15-17</u>	<u>15-17</u>

\*A student whose record in English 101 was good will be required to take Business English (Eng. 201) in the first term, and elective courses in the second and third terms. A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term, Business English in the second term, and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

†Students wishing to study French, German, or Spanish may elect the subject beginning the Junior year. Other electives to be chosen in the School of Science and Business or in Engineering.



### BIOLOGY

Opportunity is offered in the Departments of Botany and Zoology for students to prepare for the profession of Biology Teacher in high schools and colleges. The student with this aim is advised to lay a broad foundation in science in his freshman and sophomore years, after which he may take equal amounts of work in Botany and Zoology, or he may if he desires specialize in one or the other of these subjects.

The Departments of Botany and Zoology offer these fundamental courses which are required for entrance by standard medical colleges. Any student contemplating a medical career should consult the Department of Zoology in regard to the subject-matter and arrangement of his courses.

## CURRICULUM IN BIOLOGY

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
General Botany, Bot. 101, 102 and Systematic Botany, Bot. 204 or General Zoology, Zool. 101, and Ornithology, Zool. 103	4	4	4
General Inorganic Chemistry, Chem. 101a and Practical Organic and Biological Chemistry, Chem. 141	4	4	3
American Economic History and Geography Hist. 101	3	3	3
Human Relations, Soc. 101	2	2	2
Military Science, Mil. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	<u>19</u>	<u>19</u>	<u>18</u>

## Sophomore Year

General Botany, Bot. 101, 102 or General Zoology, Zool. 101	4	4	0
Animal Physiology, Zoology 102 or Plant Physiology, Bot. 103	3	3	0
Economic Entomology, Zool. 202 or Plant Diseases, Bot. 202	0	0	3
English	3	3	3
Modern Language	3	3	3
Historical Geology, Geol. 125	0	3	0
Descriptive Astronomy, Phys. 107	0	0	4
Introductory Sociology, S. C. 102	3	0	0
Introduction to Economics, Econ. 102	2	2	2
Military Science, Mil. 102, or World History, His. 104	1	1	1
Physical Training, P. E. 102	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Junior Year

Biology	3	4	4
Modern Language	3	3	3
General Physics, Phys. 101	4	4	4
Electives	4-6	4-6	4-6
	<u>15-17</u>	<u>15-17</u>	<u>15-17</u>

## Senior Year

Biology	6	6	6
Electives	10	10	10
	<u>16</u>	<u>16</u>	<u>16</u>

## CHEMISTRY

The curricula in Chemistry are designed to train students for two particular fields: (1) those desiring to continue Chemistry for an advanced degree, or as analysts or teachers; (2) those who are looking forward towards plant management and executive positions.

The prescribed course of study for the first two years is the same for all students. It is expected that by the end of the sophomore year the student will have a definite aim.

Students desiring to specialize in pure chemistry will find Group I so arranged that there is a larger number of hours left open for electives which should be chosen after consulting with their advisers.

In Group II the student is given a thorough knowledge of analytical methods, organic and physical chemistry, so that he may do successfully the chemistry required in a plant. A sufficient number of courses in economics and business administration is given for a foundation towards management and executive positions.

## CURRICULUM IN CHEMISTRY

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Inorganic Chemistry, Chem. 101	4	4	4
Rhetoric and Composition, Eng. 101	3	3	3
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, and 103	5	5	5
Human Relations, Soc. 101	2	2	2
Military Science, Mil. 101	2	2	2
Physical Education, P. E. 101	1	1	1
	<u>17</u>	<u>17</u>	<u>17</u>

## Sophomore Year

Qualitative and Quantitative Analysis, Chem. 111 and 112	4	4	4
Physics for Engineers, Phys. 104	5	5	5
General Economics, Econ. 103	3	3	3
American Economic History and Geography, Hist. 101	3	3	3
Military Science, Mil. 102 or World History, Hist. 104	2	2	2
Physical Education, P. E. 102	1	1	1
	<u>18</u>	<u>18</u>	<u>18</u>

## Junior Year

Organic Chemistry, Chem. 221	4	4	4
General Botany, Bot. 101, 102 or General Zoology, Zool. 101	4	4	0
Bacteriology, Bot. 203	0	3	0
German	3	3	3
Mineralogy, Geol. 230	0	0	3
Electives	6	3	6
	<u>17</u>	<u>17</u>	<u>16</u>

## Senior Year

Physical Chemistry, Chem. 231	4	4	4
Chemistry elective	2	2	2
German	3	3	3
Electives	8	8	8
	<u>17</u>	<u>17</u>	<u>17</u>

## CURRICULUM IN INDUSTRIAL CHEMISTRY

## Freshman Year

and

## Sophomore Year

The same as in the Curriculum in Chemistry, immediately above.

## Junior Year

Organic Chemistry, Chem. 221	4	4	4
General Botany, Bot. 101 or General Zoology, Zool. 101	4	4	0
Marketing Methods, Econ. 215	3	3	3
Accounting I, Econ. 201	3	3	3
Electives	3	3	7
	<u>17</u>	<u>17</u>	<u>17</u>

## Senior Year

Physical Chemistry, Chem. 231	4	4	4
Money, Credit and Banking, Econ. 221	3	3	0
Business Finance, Econ. 223	0	0	3
Industrial Management, Econ. 230	3	3	3
Journalism, Eng. 250	3	0	0
Public Speaking, Eng. 260	0	3	0
Business English, Eng. 201	0	0	3
Elective	4	4	4
	<u>17</u>	<u>17</u>	<u>17</u>

### PHYSICS

There is an ever-increasing demand for men trained in the more theoretical side of engineering and the foundation of the physical sciences. Such men are generally trained as expert physicists. For example: radio experts and men employed in the most exact measurements of electrical, heat, and light devices usually prepare themselves by taking undergraduate and graduate courses in Physics. The United States Bureau of Standards, United States Patent Office, United States Geodetic Survey, as well as scores of manufacturing concerns each year, look for men so trained. The course in Physics prepares students for these positions. It also is offered for students who wish to teach Physics. Mathematics is required in the freshman and sophomore years.

This curriculum also affords a student who is scientifically inclined and yet not decided as to his specific line in science an opportunity to acquire a broad foundation in cultural subjects and a good start in at least two of the physical sciences.

## CURRICULUM IN PHYSICS

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
General Physics, Phys. 101.....	4	4	4
Algebra, Solid Geometry, and Trigonometry, Math. 101, 102, and 103.....	5	5	5
Rhetoric and Composition, Eng. 101.....	3	3	3
American Economic History and Geography, Hist. 101.....	3	3	3
Military Science, Mil. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
	<u>18</u>	<u>18</u>	<u>18</u>

## Sophomore Year

Advanced Physics, Phys. 201.....	5	5	5
Analytical Geometry, Differential Calculus and Integral Calculus, Math. 201, 202, 203.....	5	5	5
General Inorganic Chemistry, Chem. 101.....	4	4	4
Human Relations, Soc. 101.....	2	2	2
Military Science, Mil. 102 or World History, Hist. 104.....	2	2	2
Physical Training, P. E. 102.....	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Junior Year

Mechanics, Phys. 301.....	0	3	3
Heat, Phys. 303.....	3	0	0
General Botany, Bot. 101 and 102 or General Zoology, Zool. 101.....	4	4	4
General Economics, Econ. 103.....	3	3	3
German.....	3	3	3
Elective.....	3	3	3
	<u>16</u>	<u>16</u>	<u>16</u>

## Senior Year

Electricity and Magnetism, Phys. 302.....	3	3	0
Light, Phys. 303.....	0	3	3
Undergraduate Research, Phys. 300.....	3	0	0
German.....	3	3	3
English.....	3	3	3
General Sociology, Soc. 103.....	0	0	3
Electives.....	3-5	3-5	3-5
	<u>15-17</u>	<u>15-17</u>	<u>15-17</u>

## CURRICULUM IN SOCIAL SCIENCE

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
General Physics, Phys. 101 or General Inorganic Chemistry, Chem. 101	4	4	4
American Economic History and Geography, Hist. 101	3	3	3
Human Relations, Soc. 101	2	2	2
Military Science, Mil. 101	2	2	2
Physical Training, P. E. 101	1	1	1
*Freshman Option	3-4	3-4	3-4
	18-19	18-19	18-19

## Sophomore Year

†English	3	3	3
General Botany, Bot. 101 and 102, or General Zoology, Zool. 101 and an elective Science	4	4	4
General Economics, Econ. 101	3	3	3
General Sociology, Soc. 103 and an elective Sociology	3	3	3
World History, Hist. 104 or Military Science, Mil. 102	2	2	2
Physical Training, P. E. 102	1	1	1
††Electives	3	3	3
	19	19	19

## Junior and Senior Years

At the beginning of his junior year, the student enrolled in this curriculum must select a major from one of the following:

- I. Journalism.
- II. General Business
- III. Public Administration
- IV. Rural and Industrial Sociology

He must also at that time select an appropriate minor in consultation with his vocational adviser and the Dean.

The major requirement for graduation is not fewer than thirty-six (36), nor more than sixty (60) term credits in the major subject; and the minor requirement for graduation is not fewer than eighteen (18) term credits in the minor subject selected. Beginning courses may not be used to satisfy the minor requirement.

Any credits, in addition to those earned in required subjects, necessary to make the number required for graduation, are made up from elective courses.

\*Freshman Option: One of the following gamuts is to be chosen by the student and when elected must be pursued through the year.

1. Mathematical Analysis, 3 3 3.
2. French or German or Spanish, 3 3 3.
3. Psychology, Earth History, and Astronomy, 3-3-4.
4. One of the following 3 3-(3-4):  
 First term: How to Study, Occupations, or Psychology.  
 Second term: How to Study, Occupations or Earth History.  
 Third term: Psychology or Science (Astronomy, Botany, Chemistry, Earth History, Physics or Zoology).

†A student who record in English 101 was good will be required to take Business English (Eng. 201) in the first term and elective courses in the second and third terms. A student whose record in English 101 was fair will be required to take Review of Composition and Rhetoric (Eng. 103) in the first term, Business English in the second term and an elective course in the third term. A student whose record in English 101 was poor will be required to take English 103 in the first and second terms, and Business English in the third term.

††Students who expect to change to the Accounting or the Banking group in Business Administration should take Accounting I.

### I. JOURNALISM GROUP

Students pursuing the major group in Journalism should find vocational opportunities as editors and managers of rural weeklies, industrial or agricultural news editors, newspapermen on city dailies, and publicity workers.

A major in Journalism requires the completion of the following courses: Technical Writing, Eng. 203; History and Principles of Journalism; Eng. 250; Newspaper Reporting, Eng. 251; Feature and Editorial Writing, Eng. 252; Agricultural News Writing, Eng. 254; Industrial News Writing, Eng. 255; Advertising Copy, Eng. 256; Copy-reading, Make-up, and Editorial Practice, Eng. 350; Newspaper Management, Eng. 351.

### II. GENERAL BUSINESS GROUP\*

This group major prepares the student for a less specialized position in the business world than does any in Business Administration. It should be taken by those who desire a general knowledge of business, and with it the more liberal education made possible by the minor subject and the more numerous electives.

A major in General Business requires the completion of the following courses: Accounting I, Econ. 201; Marketing Methods, Econ. 215; Money, Credit and Banking, Econ. 221; Business Finance, Econ. 223; Industrial Management, Econ. 230; Statistical Methods, Econ. 212; and Business Statistics, Econ. 214.

### III. PUBLIC ADMINISTRATION GROUP

Graduates majoring in Public Administration should be able to render valuable service in positions connected with the administrative departments of state, county, and city government. Opportunities are available as assistants to county accountants, county and city managers, state officials, and administrators in all branches of public service. With experience the graduate should advance to responsible administrative positions.

A major in Public Administration requires the completion of the following courses: Government, Hist. 209; History of the United States, Hist. 302; History of North Carolina, Hist. 303; Accounting I, Econ. 201; Public Finance, Econ. 225; Political Theory, Hist. 210; and Public Administration, Hist. 300.

### IV. RURAL AND INDUSTRIAL SOCIOLOGY GROUP

The objective of this group major is the preparation of specialists in rural social research work under the Purnell Act; industrial social workers; institutional directors; boys' workers and, after sufficient graduate training, teachers of general, rural, and industrial sociology.

A major in Rural and Industrial Sociology requires the completion of the following courses; General Sociology, Soc. 103; Industrial Sociology, Soc. 203; Criminology, Soc. 201; Social Pathology, Soc. 205; Rural Sociology, Soc.

\*Students who expect to go into the Real Estate business should elect in their junior year the necessary prerequisites to Economics 309, Real Estate; C. E. 102, Theoretical Surveying; and C. E. 103, Field Surveying, which latter subjects should be taken in the senior year. Certain additional courses in Engineering and Economics are also desirable, and should be chosen with the advice of the Dean.



202; Community Organization, Soc. 303; Social Psychology, Soc. 305; Rural Social Psychology, Soc. 309; Farmers' Movements, Soc. 304; Sociology of City Life, Soc. 302; Race Relations, Soc. 307; Methods of Social Research, Soc. 308.

#### BUREAU OF ECONOMIC AND SOCIAL RESEARCH

The Bureau of Economic and Social Research is the experiment station of the School of Science and Business. It conducts economic and social investigations in the fields of agriculture, industry, and business. In addition to members of the faculty who give a portion of their time to such researches, there are a number of research fellows who give one-half of their time to this work. The Bureau is used to a particular advantage in relation to graduate work being done in the fields of General Science, Economics, and Sociology.

A number of projects are now under way and a number under contemplation. Those completed or under way are:

1. A graphic analysis and display of the natural resources of North Carolina.
  2. A study of farm organization and management in the Coastal Plain Region.
  3. A study of farm organization and management in the Tidewater Region.
  4. A study of farm organization and management in the Piedmont Region.
  5. Production, consumption, and marketing of farm products in Cumberland County.
  6. The strawberry situation in Southeastern North Carolina.
  7. An economic and social study of boys' and girls' club work in Alamance County.
  8. A study of agricultural community fairs.
  9. A study of rural population and community organization in Wake County.
  10. A study of the standard of living of one thousand typical farm families.
  11. A study of the membership problem of large farmers' marketing associations.
  12. Industrial and vocational guidance surveys in High Point, Greensboro, and Raleigh.
  13. A study of national and State farmers' organizations.
  14. A study of the Farmers' Alliance in North Carolina.
  15. The cost of producing cotton.
  16. A statistical study of farm prices.
- Those under consideration are:
1. A study of the marketing of the soybean crop of North Carolina.
  2. A study of the Farmers' Union in North Carolina.
  3. A study of the marketing of tobacco.
  4. A study of the Farmers' Federation at Fairview, North Carolina.
  5. A study of farm organization in a mountain county.

6. Labor turnover costs in North Carolina cotton mills.
7. A study of poultry and egg marketing in North Carolina.
8. A study of home curing and local marketing of pork.
9. A study of visual aids in agricultural teaching.
10. The influence of school consolidation on community life and social processes.
11. A financial analysis of rural government.
12. An industrial survey of a typical Piedmont area.

A number of the above studies have been or are being conducted in co-operation with the United States Department of Agriculture. One of the advantages not to be overlooked by the prospective student is that such co-operation makes possible contacts with Federal officials and representatives engaged in this field. The data secured are valuable for instructional purposes as well as being basic to the solution of definite problems.

# THE TEXTILE SCHOOL

THOMAS NELSON, *Dean*

## ORGANIZATION

The Board of Trustees at its meeting on June 8, 1925, established the Textile School in place of the Textile Department of the School of Engineering. This step was taken and the building and other facilities, especially those for research, have been increased in order to serve adequately the whole State, not only in the production of cotton goods, but also in marketing and in all other phases of the textile industry. A complete program of instruction, research, and extension has been developed to meet the great opportunities and needs of the textile industry in the State and in the South. Thus to serve the State, State College has dedicated its Textile School.

The Textile School comprises the following divisions: (a) Textile Manufacturing; (b) Textile Dyeing; (c) Textile Research. The aim of each division is definite and the courses and curricula offered make special contribution to the profession.

## THE PURPOSE OF THE SCHOOL

The purpose of the Textile School is: (1) To promote the textile interests of the State by giving instruction in the theory and practice of all branches of the textile industry; (2) to cooperate with the textile mills of the State in securing, through scientific research and experimentation, reliable data pertaining to the textile industry; (3) to educate men for professional service in Textile Manufacturing, Textile Dyeing, and at the same time develop their capacities for intelligent leadership, so they may participate in public affairs; (4) to demonstrate the value of economic diversification and to aid in the development of the textile industry through research and experimentation.

The students are guided in their studies systemically, so as to get the best results from their work, and in this way they accumulate the necessary knowledge which, together with actual experience after graduation, enables them to fill such responsible positions as overseer, superintendent, treasurer, manager, and other executive positions in cotton mills; specialists in various branches of the textile industry, such as designers and analysts of fabrics; machinery, yarn, cloth, and dyestuff salesmen, and various positions with commission houses and fabric converters.

## Rayon

Rayon is an important factor in the development of the Textile Industry in North Carolina and the South. Many classes of fabrics are made which are embellished with Rayon, and it is also used extensively in the manufacture of hosiery and underwear. It has opened up new fields and created many complex problems for the Textile Manufacturers.

The Textile School is cognizant of these problems and offers instruction in dyeing and finishing, winding of filling, preparation of warps, weaving and knitting of Rayon. An outline of the instruction given in Rayon is as follows: History and study of the different kinds; scouring and bleaching; dyeing; sizing; beaming; various methods of oiling, such as spraying and

dipping; winding for filling and knitting; preparation of shuttles; timing and setting of harness; weaving. Study of Shiners, means and preparation for their prevention. Finishing Rayon fabrics.

### CURRICULA

The freshman year in all curricula is the same. This forms the foundation for the various curricula, and enables the student to select the special field in which he is interested.

### TEXTILE CURRICULA FOR UNIVERSITY AND COLLEGE GRADUATES

Selected courses leading to the degree "Bachelor of Science" in Textile are offered to graduates of universities and standard colleges. These are arranged in accordance with the vocational aim of the individual student and in the light of credits presented from the institution from which the student has been graduated, subject to the approval of his adviser and the director of instruction. In cases where the student presents enough credits which may be used for courses required in his curriculum he may be graduated with a B. S. degree in one year. In no case should it take more than two years to complete the work for his B. S. degree.

### SHORT COURSE FOR TEXTILE MILL MEN

Instruction in yarn manufacture, weaving, designing, fabric analysis, and dyeing, lasting two weeks in the second term, is offered for textile mill men who wish to make a short and intensive study of any of these subjects. The subject-matter will be selected to suit the requirements of each individual.

### DEGREES

Upon the completion of any one of these curricula in Textiles the degree of Bachelor of Science in Textiles is conferred.

The degree of Master of Science in Textiles is offered for the satisfactory completion of one year of graduate study in residence. Candidates for the degree of Master of Science in Textiles enter and are enrolled as Graduate Students in the Graduate School.

The professional degree of Master of Textiles may be conferred upon graduates of the Textile School after three years of professional practice in responsible charge of important work and upon the acceptance of a satisfactory thesis.

### REQUIREMENTS FOR ADMISSION

Each applicant for admission must present evidence that he has satisfactorily completed a four-year curriculum of not less than fifteen units in a secondary school which is approved by the State Department of Education, or the equivalent of such a course as shown by examination.

Each applicant for admission must be at least sixteen years and must submit fifteen units of credit from an accredited high school. Of these units, 8.5 are in specified subjects and 6.5 in elective subjects.

### ADVANCED STANDING

Students who have attended colleges of approved standing will be given credit for work completed there upon the presentation of the proper certificate to the Dean of the Textile School.

A student having the necessary entrance requirements and who has had practical experience in the mill may, at the discretion of the Dean, substitute other courses for freshman and sophomore practical work in the Textile School.

### REQUIREMENTS FOR GRADUATION

A minimum of two hundred and twenty-two (222) term credits and two hundred and twenty-two (222) points is required for graduation from the Textile School. The term credits are distributed as follows: A maximum of sixty-six (66) special and thirty (30) general technical credits, a minimum of eighteen (18) term credits in Language, twenty-seven (27) term credits in Physical Science, eighteen (18) term credits in Social Science, fifteen (15) term credits in Mathematics, twelve (12) term credits in Military Science or the alternatives, six (6) term credits in Physical Education and thirty (30) term credits in general education and elective courses.

Students entering with advanced standing are required, during the remainder of their course, to earn at least as many points as the number of term credits remaining necessary for graduation.

### SPECIAL STUDENTS

Special Students in the Textile School are admitted by the Dean, who will see to the arrangement of their courses, in conformity to the provision for Special Students in all the Schools of the College.

### COLLEGE EXTENSION COURSES IN TEXTILES

General information about College Extension Courses may be found in this catalog. Bulletins giving detailed information as to College Extension Courses are issued.

Plans for extension classes, lectures, and correspondence study in Textiles are announced elsewhere.

## CURRICULUM IN TEXTILE MANUFACTURING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101	3	3	3
General Chemistry, Chem. 101	4	4	4
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103	5	5	5
Engineering Drawing, M. E. 101	2	2	2
Shopwork, M. E. 104	1	1	1
Textile Principles, Tex. 101	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101	2	2	2
Physical Training, P. E. 101	1	1	1
	<u>19</u>	<u>19</u>	<u>19</u>

## Sophomore Year

Economics, Accounting, Social Problems, Econ. 102, 112, and Soc. 102	3	3	3
Physics, Phys. 101	5	5	5
Cotton, Cotton Classing, Agron. 105, 225	3	0	0
Yarn Manufacture I, Tex. 103	0	2	2
Power Weaving, Tex. 105	2	2	2
Fabric Structure, Fabric Analysis I, Tex. 104, 105	2	2	2
Knitting, Tex. 108, 207	2	2	3
Military Science, Mil. 102, or World History, Hist. 104	2	2	2
Physical Training, P. E. 102	1	1	1
	<u>20</u>	<u>20</u>	<u>20</u>

## Junior Year

English or Modern Language, Option	3	3	3
Heat Engines I, M. E. 110	2	2	2
Machine Shop, M. E. 219	1	1	1
Yarn Manufacture II, Tex. 201	2	2	2
Dobby Weaving, Tex. 202	2	2	2
Fabric Design, Fabric Analysis II, Tex. 203, 204	2	2	2
Dyeing I, Tex. 107	2	2	2
*Electives	3	3	3
	<u>17</u>	<u>17</u>	<u>17</u>

## Senior Year

Electrical Equipment of Mills, E. E. 104	2	2	2
Industrial Management, Personnel Management, Econ. 230-A, 240	3	3	3
Yarn Manufacture III, Tex. 301	2	2	2
Fancy and Jacquard Weaving, Tex. 302	2	2	2
Fancy and Jacquard Design, Tex. 303	3	3	3
Fabric Analysis III, Tex. 304	0	1	1
Dyeing II, Tex. 108	2	0	0
Fabric Testing, Tex. 111	1	0	0
*Electives	3	3	3
	<u>18</u>	<u>18</u>	<u>18</u>

\*Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## CURRICULUM IN TEXTILE DYEING

## Freshman Year

COURSES	CREDITS		
	First Term	Second Term	Third Term
Rhetoric and Composition, Eng. 101.....	3	3	3
General Chemistry, Chem. 101.....	4	4	4
Algebra, Solid Geometry, Trigonometry, Math. 101, 102, 103.....	5	5	5
Engineering Drawing, M. E. 101.....	2	2	2
Shopwork, M. E. 104.....	1	1	1
Textile Principles, Tex. 101.....	1	1	1
Military Science, Mil. 101, or Human Relations, Soc. 101.....	2	2	2
Physical Training, P. E. 101.....	1	1	1
	19	19	19

## Sophomore Year

Qualitative and Quantitative Analysis, Chem. 111, 112, 113.....	4	4	4
Physics, Phys. 103.....	3	3	5
Cotton, Cotton Classing, Agron. 105, 225.....	3	3	0
Yarn Manufacture I, Tex. 102.....	2	0	2
Power Weaving, Tex. 103.....	0	2	2
Knitting, Tex. 106, 207.....	2	2	3
Military Science, Mil. 102, or World History, Hist. 104.....	2	2	2
Physical Training, P. E. 102.....	1	1	1
	19	19	19

## Junior Year

Organic Chemistry, Chem. 221.....	4	4	4
Economics, Accounting, Social Problems, Econ. 102, 112, and Soc. 102.....	3	3	3
Testing Textile Materials, Tex. 113.....	2	2	2
Dyeing III, Tex. 205.....	4	4	4
English or Modern Language, Option.....	3	3	3
*Electives.....	3	3	3
	19	19	19

## Senior Year

Industrial Chemistry, Chem. Eng. 201.....	3	3	3
Industrial Management, Personnel Management, Econ. 230, 240.....	3	3	3
Dyeing IV, Tex. 305.....	5	5	5
Textile Printing, Tex. 206.....	2	2	2
Fabric Testing, Tex. 111.....	1	0	0
Microscopy, Tex. 112.....	0	1	1
*Electives.....	3	3	3
	17	17	17

\*Electives may be selected from any department of the College with the consent of the adviser, but the total of 66 special technical and 96 total technical credits must not be exceeded.

## TEXTILE RESEARCH

One of the most important developments in connection with the Textile School is the expansion of Textile Research. This will have a decided influence on cotton production as well as cotton manufacturing.

The aims of this research are:

1. A study of the cotton fibre from various sections of the cotton-growing areas of North Carolina and elsewhere, with special emphasis on their affinity for bleaching, dyeing, and mercerization.
2. Testing yarns and fabrics from different cottons to determine shrinkage, standard breaking strength, etc.
3. Testing starches used in sizing, and testing dyes and their properties.
4. Studying the problem of waste, due to selection of imperfect fibre, and improper use of machinery.
5. Testing the uses of the cotton fibre for mechanical as well as domestic uses and extending the research into market demands.
6. Studying designs and methods of finishing goods and the economic advantage to be derived from manufacturing fabrics of higher standards.
7. Studying the cotton mills of North Carolina, their mechanical equipment, and what gradual changes may be effected in order to meet the market demands of the future.
8. Investigating the possible mechanical uses of the cotton fibre, with a view to enlarging the demands for the fibre, thus making it possible to increase cotton production without creating a depressing effect on the producer.

State College has an ideal environment for the Textile School that will be helpful alike to the manufacturer and the cotton farmer. We have the cotton produced at the Experiment Station, and specialists in plant breeding, seed selection, soils, proper use of fertilizers, etc.

Other departments of the College are well equipped to give aid along mechanical and scientific lines. The Research Department is equipped with a full complement of machinery for yarn manufacturing, and also with the necessary apparatus for testing fibres, yarns, and fabrics.

It is, therefore, possible to make a complete study of fibre from the field to the finished fabric.



# THE GRADUATE SCHOOL

CARL C. TAYLOR, *Dean*

## GENERAL STATEMENT

The Graduate School and its work at North Carolina State College is based upon the assumption that there is a wider educational function to perform in relation to technical occupations than trade training. Agriculture, engineering, and business are no longer mere occupations—they are now sciences and professions. In their larger aspects they are studies of world affairs and world problems. They, therefore, need the best trained scientists and statesmen which colleges can produce, in order to cope with the world problems which relate themselves to these professions.

The particular need of a graduate school in North Carolina in the field of technical education is indexed by the fact that a large majority of our teachers, experimenters, and research men now operating in the State were trained in Northern and Western institutions. These Northern and Western institutions are superior training schools, but men trained in them find themselves handicapped in Southern agriculture and industry because of not having received their training in the environment and in the presence of problems with which it is later their task to work.

The South needs men to fill government and state positions as experts in agricultural and industrial research. It is the birthright of Southern men to have their states provide them with educational training to fill these positions. An undergraduate course of study cannot furnish this training for men to hold positions as experts. The whole undergraduate course must necessarily be general and path finding. Men are trained by our undergraduate study to be partial technicians in their various occupations, not experts, leaders, and statesmen in the great fields of endeavor. The time will come when all Southern states will have graduate schools so as to fully equip themselves for the problems which ought to be theirs.

North Carolina State College of Agriculture and Engineering is particularly well located to develop and formulate graduate study and research in the fields of agriculture, industry, and the sciences which are basic to these fields. The State of North Carolina at the present holds undisputed priority among the states of the Southeast in agricultural production. Certain types of manufacturing are developing more rapidly in North Carolina than in any other state in the Union. The State is fortunate in being able to produce practically all kinds of agricultural and industrial products which are found in the South. Particularly notable among these are cotton, tobacco, and truck products in agriculture, and textile, aluminum, pulp wood, furniture, and vegetable oils in manufactures.

The natural resources of the State are almost unlimited and quite undeveloped. The State College of Agriculture and Engineering is anxious in addition to training men for the technical production of agricultural and manufactured goods, to train men for leadership in the future development of the State. There is no reason why the College should not serve the whole South in these same fields, particularly since the State is so representative of the whole South.

If an outstanding graduate school of agriculture, industry, science, and business is not provided in the South, the inevitable result is that the insti-

tutions of higher learning in this section of the country must look elsewhere for trained men as college teachers, investigators, and leaders.

A graduate school, located in the area and environment where the problems develop and where the solutions to these problems are to be found should be of major importance and unlimited service to all persons concerned with these problems.

### THE CHARACTER OF GRADUATE STUDIES

The purpose of the Graduate School is to provide the student with the methods and discipline of original research, to the end that he may ultimately contribute to the advancement of knowledge. The graduate student is unhampered by restrictions which must necessarily obtain in undergraduate work. His associations with other graduate students and more mature students in the personage of his instructors should not be deemed less valuable among the factors in his professional training.

At the best it is difficult for a student to acquire an adequate professional education from an undergraduate course of four years, especially since much of his time in the undergraduate college must be given to general educational studies. It is, therefore, highly desirable that persons who expect to attain professional status pursue further college training. This additional training permits of closer contact with instructors, more time for surveying the attainments in the field under study, and opportunity and time for original and scientific research.

In carrying on studies in a graduate school, the student is expected to assume the initiative and responsibility. All the research, library, laboratory and field facilities of the College are open to graduate students in so far as they are qualified to make use of them.

### FACILITIES FOR RESEARCH

The facilities for research at North Carolina State College of Agriculture and Engineering are exceptional. The Agricultural Experiment Station, the Engineering Experiment Station, and the Bureau of Economic and Social Research are integral parts of the College. A large corps of permanent research men are constantly carrying on research investigations in these fields. The Federal Government liberally supplements the College funds for research. These permanent investigations and continuous research projects are always available for the observation and use of graduate students. In a great many instances graduate students can be assigned official research projects in connection with these stations.

The State of North Carolina, with its various crops and mineral resources, its varied geographic and climatic conditions, and its apt location in relation to the future industrial and agricultural development of the South, offers a rich field for profitable research.

The City of Raleigh, with its many official State bureaus, commissions, and departments, offers exceptional opportunities for observation and assistance in research and investigation.

The cotton industry in North Carolina, when considered from the standpoint of seed selection and breeding through all stages of culture, and the processes of manufacturing, offers a field of research illustrative of the opportunities within the State and at the College.

### ADMISSION

The conditions for admission to the Graduate School are as follows:

1. The candidate's training must be substantially equivalent to that required for a Bachelor's degree at North Carolina State College of Agriculture and Engineering.

2. Graduates of other institutions in which the requirements for the Bachelor's degree are not equivalent to those at North Carolina State College of Agriculture and Engineering may be admitted to the Graduate School, but may not immediately register for an advanced degree.

3. Although admission to the courses given in the Graduate School does not necessarily mean that a student may immediately become a candidate for an advanced degree, if he is not prepared to do graduate work at once he may pursue part-time undergraduate courses which will best fit him for advanced work.

4. A student may fulfill one-third of the residence requirement by having completed practical work or having had practical experience which is approved by the Graduate Council. A student may also receive graduate credit for correspondence courses or for project work definitely assigned and done in absentia. Not more than one-third of the credits required for graduation with an advanced degree may be gained by work done in absentia.

5. A student may enter the Graduate School at the beginning of any regular term or at the beginning of the summer term.

### REGISTRATION

1. Candidates for advanced degrees shall comply with the regular registration rules for undergraduates, and must register for each term for which they wish to receive credit.

2. All applications for admission to the Graduate School should be made in writing to the Dean of the Graduate School, North Carolina State College of Agriculture and Engineering, Raleigh, North Carolina.

3. It is highly desirable that students send the official transcripts of their previous college work to the Dean of the Graduate School some weeks in advance of the opening of the term in which they expect to first matriculate.

4. A student upon arriving at the College should first see the Dean of the Graduate School and file a transcript of his undergraduate work, if he has not already mailed it. He will receive an entrance blank and be given all further necessary instruction for registration.

### SCHOLARSHIPS AND FELLOWSHIPS

The College offers annually eight graduate scholarships and six graduate fellowships, and a number of teaching and research fellowships. These scholarships and fellowships are assigned on the basis of competition. Any graduate of any standard college or university in the United States may compete for them. The graduate scholarships carry a stipend of \$225 per year, paid in nine equal installments of \$25 each, beginning with October 25. A student holding one of these scholarships may be required to render a maximum of six hours per week service to the department in which he is majoring.

The graduate fellowships carry a stipend of \$450 per year, paid in nine equal installments of \$50 each, beginning with October 25. A student

holding one of these fellowships may be required to render a maximum of 10 hours per week service to the department in which he is majoring.

The teaching and research fellowships carry a stipend of \$750 and tuition. A student holding one of these fellowships may not carry more than one-half of a full graduate studies schedule. The remainder of his time must be given to teaching in the classroom or in the laboratory, or doing research in one of the Experiment Stations or in the Bureau of Economic and Social Research.

## DEGREES

The degrees offered by the College are as follows:

### Residence

Master of Science.	Master of Science in Engineering.
Master of Science in Agriculture.	Master of Science in Textile.
Master of Science in Education	

### Professional

Ceramic Engineer.	Electrical Engineer.	Master of Agriculture.
Chemical Engineer.	Mechanical Engineer.	Master of Textiles.
Civil Engineer.		

## MASTER'S DEGREES

A candidate for one of the degrees of Master of Science is required to be in residence one academic year. He must earn a minimum of 36 term credits, and in addition gather data and prepare a thesis for graduation.

A graduate student may elect the courses which he chooses, but if he is a candidate for a Master's Degree he must select a major in which he must earn at least eighteen credits, nine of which must be in courses numbered 400.\* The remainder of his credits may be secured in allied courses. In all courses listed in the catalog as undergraduate-graduate, i. e., courses numbered 200 he must receive at least a grade of B in order to receive graduate credit.

A candidate for a Masters Degree must earn at least 9 credits in 400 courses and at least 27 credits in 300 and 400 courses. He may present as many as 9 credits in 200 courses in his minor.

The candidate may pursue graduate work during the summer term. In each summer term he may receive as much as one-half a term credit, or six graduate credits. Under the direction of some college instructor, and with the approval of his major professor and the Dean of the Graduate School, he may pursue field or laboratory research during the summer months, and receive such credit as his work merits. In exceptional cases he may pursue such work throughout other periods of the year.

Each candidate for a Master's degree is required to prepare a thesis on a subject approved by the teacher in charge of this major work and by the Dean of the Graduate School. Directions for the technical preparation of the thesis may be secured from the Dean of the Graduate School.

\*A major consists of a gamut of courses in some one department.

**PROFESSIONAL DEGREES****In Agriculture**

The degree of Master of Agriculture may be conferred upon graduates of the School of Agriculture not sooner than five years after graduation, and upon the graduates of other state colleges who have been in the service of the State of North Carolina for a continuous period of five years. The applicant for the degree of M. Agr. must file, with the Dean of the Graduate School, his application for enrollment at least nine months before he expects to be granted the degree. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present. The candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based. If the record of his work be approved and his thesis be accepted, he shall then present himself for oral or written examination upon the subjects of his work and thesis. No person holding a masters degree is eligible for the degree Master of Agriculture. No employe of the college, resident on the campus, is eligible for this degree.

**In Engineering**

The professional degrees of Ceramic Engineer, Chemical Engineer, Civil Engineer, Electrical Engineer, and Mechanical Engineer may be conferred upon graduates of the School of Engineering not sooner than three years after graduation. An applicant for one of these degrees must file his application for enrollment with the Dean of the Graduate School at least nine months before he expects to be granted the degree. He must file with his application a statement of the work he has done since graduation, and also the title of the thesis which he will present. The record of the work and the subject of the thesis must be approved by the department in which he specialized as an undergraduate and by the Graduate Council. His thesis must be submitted not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted. No work as a teacher can be credited toward one of these degrees.

A candidate must submit with his thesis tangible records of the work he has done and upon which his application for a degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

If the record of the work be approved and the thesis accepted by the Graduate Council, the candidate, upon notification, shall present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

**In Textiles**

The degree of Master of Textiles may be conferred upon graduates of the Textile School not sooner than three years after graduation. The applicant for the degree of Master of Textiles must file with the Dean of the Graduate School his application for enrollment at least nine months before

he expects to be granted the degree. He must file with his application a statement of the work he has done since graduation, and the title of the thesis which he will present. The candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based. If the record of his work be approved and his thesis be accepted, he shall then present himself for oral or written examination upon the subjects of his work and thesis.

#### Graduate Work by Members of the College Staff

Any member of the instructional, research, or extension staff of the College, subject to the approval of his dean, may carry not to exceed three graduate credit hours per term. In exceptional cases he may be allowed to carry five credit hours upon the approval of his dean, the Dean of the Graduate School, and the President of the College.

## DEPARTMENT OF INSTRUCTION

### AGRONOMY

#### CROPS

##### Courses for Graduates and Advanced Undergraduates

Agron. 302.	Advanced Cotton Classing .....	3 3 0 or 3 0 3
Agron. 303.	Advanced Cotton Production .....	3 3 0 or 3 0 3
Agron. 305.	Crop Breeding .....	3-3-3
Agron. 320.	Seed Judging .....	3 0 0
Agron. 334.	Taxonomy of Field Crops .....	3 0 0
Agron. 335.	Market Grading of Field Crops .....	3 0 0
Agron. 340.	Experimental Methods .....	0 3 0
Agron. 345.	Plant Breeding .....	4-0-0
Agron. 350.	Agronomy Problems .....	1-1-1
Agron. S351.	Crop Research .....	9 credits

##### Courses for Graduates Only

Agron. 401.	Crop Research .....	3 or 3 or 3
Agron. 404.	Advanced Tobacco Production .....	3 3 0 or 3 0 3
Agron. 410.	Seminar .....	1-1-1
Agron. 415.	Plant Breeding Research .....	3 or 3 or 3

#### SOILS

##### Courses for Graduates and Advanced Undergraduates

Agron. 300.	Fertilizer Production Experimentation .....	0 0 3
Agron. 320.	Pedology .....	0-3-0
Agron. 321.	Soil Technology I .....	2-2-2
Agron. 322.	Soil Problems .....	3-3-3
Agron. 323.	Soil Technology II .....	2-2-2

##### Courses for Graduates Only

Agron. 430.	Soil Research .....	3 3 3
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#### Agricultural Engineering

##### Courses for Graduates and Advanced Undergraduates

Agron. 355.	Problems in Agricultural Engineering .....	3 3 3
Agron. 360.	Agricultural Drainage .....	0-0-3
Agron. 365.	Farm Structures .....	0-0-3

### ANIMAL HUSBANDRY

##### Courses for Graduates and Advanced Undergraduates

A. H. 301.	Dairy Manufacture .....	3-3-3
A. H. 303.	Advanced Judging of Swine .....	0 0 3
A. H. 304.	Herd Improvement .....	0-0-3
A. H. 306.	Comparative Physiology .....	3 0-0, 0 3 0 or 0 0-3
A. H. 307.	Problems in Advanced Animal Breeding .....	3 0 0, 0-3 0 or 0-0 3

### Courses for Graduates Only

A. H. 402.	Research Studies in the Breeds of Swine .. .	3-0-0, 0-3-0	or	0-0-3
A. H. 404.	Advanced Nutrition .. .	3 0 0, 0-3-0	or	0 0 3
A. H. 405.	Special Problems in Parasitology and Immunology .. .	3 0 0, 0-3 0	or	0 0 3
A. H. 408.	Special Problems in Dairy Manufacturing Practice .. .	3 0 0, 0-3 0	or	0-0-3
A. H. 409.	Seminar .. .			1 1 1

## ARCHITECTURAL ENGINEERING

### Courses for Graduates and Advanced Undergraduates

A. E. 301.	Architectural Design III .. .			3-3-3
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### Courses for Graduates Only

A. E. 401.	Architectural Historical Research .. .			8-8-8
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## BOTANY

### Courses for Graduates and Advanced Undergraduates

Bot. 301.	Plant Pathology .. .			5 or 5 or 5
Bot. 302.	Advanced Bacteriology .. .			0-3-0
Bot. 303.	Plant Morphology: The Lower Plants .. .			3 or 5-0-0
Bot. 304.	Plant Morphology: The Green Land Plants .. .			0-3 or 5-0
Bot. 305.	Mycology .. .			0-3-3
Bot. 306.	Advanced Plant Physiology .. .			5 or 5 or 5
Bot. 307.	Plant Ecology .. .			3 or 5-0-0

### Courses for Graduates Only

Bot. 401.	Pathology of Special Crops .. .			3-3-3
Bot. 402.	Bacteriology: Special Studies .. .			3 or 3 or 3
Bot. 403.	Systematic Botany .. .			3-0-0 or 0-0-3
Bot. 404.	Plant Physiology .. .			3-3-3
Bot. 405.	Plant Ecology .. .			3-0 0 or 0-0-3
Bot. 406.	Research in Botany .. .			3-3-3
Bot. 407.	Seminar .. .			1-1-1

## CERAMIC ENGINEERING

### Courses for Graduates and Advanced Undergraduates

Cer. E. 301.	Refractories .. .			0-0-3
Cer. E. 302.	Glazes and Colors .. .			3-3-3
Cer. E. 303.	Designing of Ceramic Equipment and Plants .. .			3-3-3

### Courses for Graduates Only

or Cer. E. 401.	Advanced Refractories and Furnaces .. .			3-3-3
or Cer. E. 402.	Industrial Adaptabilities of Clays .. .			3-3-3
or Cer. E. 403.	Ceramic Research .. .			3-3-3

## CHEMICAL ENGINEERING

### Courses for Graduates and Advanced Undergraduates

Chem. E. 301.	Electrochemical Processes .. .			0-0-3
Chem. E. 302.	Vegetable Oils and Their Products .. .			3-0-0
Chem. E. 303.	Gas Manufacture and Distribution .. .			0-0-3

### Courses for Graduates Only

Chem. E. 401.	Chemical Technology .. .			3-3-3
Chem. E. 402.	Industrial Chemical Research .. .			3-0-0
Chem. E. 403.	Chemical Engineering Research .. .			0-3-0

## CHEMISTRY

### Courses for Graduates and Advanced Undergraduates

Chem. 301.	Advanced Inorganic Chemistry and Inorganic Preparations .. .	0-2-2	or	0-3-3
Chem. 308.	Chemical Literature .. .			2-0-0
Chem. 309.	Methods of Teaching Chemistry .. .			2-2-2

Chem. 310.	Laboratory Administration .....	0-0-2
Chem. 311.	Advanced Quantitative Analysis .....	4-0-0
Chem. 315.	Advanced Quantitative Methods .....	0-3-0 or 0-0-3
Chem. 335.	Chemistry of Colloids .....	0-3-0
Chem. 336.	Catalysis .....	0-0-3
Chem. 341.	Chemistry of Life .....	3-0-0
Chem. 342.	Plant and Animal Substance .....	3-0-0
Chem. 343.	Chemistry of Plant Life .....	0-3-0
Chem. 344.	Food, Nutrition and Diet .....	0-3-0
Chem. 381.	Contemporary American Chemists .....	1-1-1

#### Courses for Graduates Only

Chem. 401.	Atomic Structure .....	0-0-2
Chem. 417.	Microchemical Analysis .....	4-0-2
Chem. 421.	Organic Chemistry, Advanced .....	3-3-3
Chem. 422.	Organic Qualitative Analysis .....	3-0-0
Chem. 423.	Organic Quantitative Analysis .....	0-3-0
Chem. 424.	Organic Micro-Analysis .....	0-0-3
Chem. 491.	Seminar .....	1-1-1

#### CIVIL ENGINEERING

##### Courses for Graduates and Advanced Undergraduates

C. E. 301.	Applied Astronomy .....	0-0-2
C. E. 302.	Construction Engineering II .....	3-3-4
C. E. 305.	Water Supply .....	0-3-0
C. E. 306.	Railroad Engineering .....	0-3-0
C. E. 307.	Drainage .....	0-3-0
C. E. 308.	Sanitary Engineering .....	0-3-0
C. E. 309.	Specifications .....	0-0-1

#### Courses for Graduates Only

C. E. 401.	Sewage Disposal Research .....	3-3-0
C. E. 402.	Public Water Supply Research .....	0-3-3

#### ECONOMICS

#### AGRICULTURAL ECONOMICS AND BUSINESS ADMINISTRATION

##### Courses for Graduates and Advanced Undergraduates

Econ. 301.	Accounting II .....	3-3-3
Econ. 302.	Modern Accounting Systems .....	3-3-3
Econ. 303.	Principles of Cost Accounting .....	3-3-3
Econ. 304.	Auditing .....	3-3-3
Econ. 324.	Foreign Exchange and Trade .....	0-0-3
Econ. 338.	Conservation of Natural Resources .....	0-2-0
Econ. 340.	Personnel Management .....	0-3-3
Econ. 364.	Land Ownership and Tenancy .....	3-0-0
Econ. 366.	Marketing Methods and Problems .....	3-0-0
Econ. 369.	Real Estate .....	3-3-3

#### Courses for Graduates Only

Econ. 401.	Advanced Economic Theory .....	3-3-0
Econ. 402.	History of Economic Doctrines .....	0-0-3
Econ. 403.	Economics of Agricultural Production .....	3-0-0
Econ. 404.	Farm Organization and Management .....	0-3-0
Econ. 405.	Agricultural Finance and Taxation .....	0-0-3
Econ. 406.	Agricultural Marketing Methods and Practices .....	0-0-3
Econ. 416.	The Economics of Distribution .....	3-3-3
Econ. 424.	Advanced Economic Statistics .....	3-3-3
Econ. 430.	Advanced Industrial Management .....	0-3-0
Econ. 439.	Advanced Labor Problems .....	0-3-0
Econ. 440.	Advanced Personnel Management .....	0-0-3
Econ. 447.	Advanced Engineering Economics .....	3-3-3
or Econ. 448.	Advanced or Public Utilities .....	3-3-3

#### EDUCATION

##### Courses for Graduates and Advanced Undergraduates

Ed. S303.	Problems of High School Teacher .....	3 credits
Ed. S305.	Methods of Study .....	3 credits
Ed. 311.	Evening and Part Time Classes in Agriculture .....	0-3-0
Ed. 312.	Materials for Agriculture Teaching .....	0-3-0
Ed. S315.	Methods of Teaching Modern Language .....	3 credits



Ed. S316.	Methods of Teaching English	3 credits
Ed. S317.	Methods Teaching History	3 credits
Ed. 320.	Vocational Guidance	0 3-0 or 0-0-3
Ed. 321.	Vocational Education	0 3-0
Ed. 322.	Methods in Industrial Teaching	0 3-0
Ed. Ex. 325.	Principles of Education	3 credits
Ed. 326.	School Organization and Administration	0-0 3
Ed. 327.	Educational Tests and Measurements	0-0 3
Ed. 330.	Visual Instruction	3 0-0 or 0-3 0
Ed. S33.5.	Problems in School Administration	3 credits
Ed. S336.	Problems in Secondary Education	3 credits
Ed. 338.	Methods of Science Teaching	0 3-0
Ed. 339.	Materials in Science Teaching	3 0-0
Ed. 341.	Teaching of Physics	0 3-0
Ed. 343.	Rural Education	0 0-0
Ed. 347.	Trade Analysis	3 0-0
Ed. 351.	Organization and Administration of Parttime and Continuation Schools	3 credits
Ed. Ex. S372.	Industrial Arts for the Elementary Schools	3 credits
Ed. S354.	Practical Arts Problems	3 credits
Ed. S360.	Special Problems in Teaching Agriculture	3 credits
Ed. 362.	Psychology of Secondary School Education	0 3-0
Ed. 364.	History of Education	3 credits
Ed. 366.	Philosophy of Education	3 credits
Ed. 370.	Advanced General Psychology	3 3-0
Ed. 371.	Child Psychology	0 3-0
Ed. 380.	College Teaching	0 0-3

#### Courses for Graduates Only

Ed. S401.	Advanced Methods of Science Teaching	3 credits
Ed. 405.	History of Education in the United States	0 3 or 3 0
Ed. 405.	Education and Modern Psychology	0 3 or 3 0
Ed. 406.	Philosophy of Education	3 0-3 or 3 0
Ed. 407.	Problems in County and Rural School Administration	0 0-3
Ed. 410.	Administration of Vocational Education	3-0 0
Ed. 411.	The Supervision of Vocational Education	0 3-0
Ed. 412.	Occupational Counseling	0 0-3
Ed. 415.	Psychological Methods in Vocational Guidance	0 0-0
Ed. 416.	Problems in Agricultural Teaching	0 3 or 3 0
Ed. 417.	Principles of Agricultural Education	0 3 or 3 0
Ed. 418.	Experimental Psychology	0 3 or 3 0
Ed. 419.	Seminar in Education	1 1-1
Ed. 420.	Agricultural Education Seminar	1 1-1

### ELECTRICAL ENGINEERING

#### Courses for Graduates and Advanced Undergraduates

E. E. 301.	Electric Lighting	0 3-0
E. E. 302.	Electric Fraction	0 2-0
E. E. 303.	Electric Communication	0 2-0
E. E. 305.	Electric Power Plants	0 0-3

#### Courses for Graduates Only

E. E. 401.	Fundamental Principles in Electrical Engineering	3-3-3
or E. E. 402.	Electric Transmission	3-3-3
or E. E. 403.	Industrial Applications	5-3-3

### ENGLISH

#### Courses for Graduates and Advanced Undergraduates

Eng. 323.	The English Novel	3-0 0
Eng. 326.	Modern Drama	0 3-0
Eng. 327.	Development of the Drama	0-0 3
Eng. 330.	Shakespeare	3 0-0
Eng. 332.	The Romantic Period	0-3 0
Eng. 336.	Victorian Prose	0 0-3
Eng. 337.	Contemporary American Literature	0-0 3
Eng. 350.	Copy Reading, Make Up and Editorial Practice	4 4-1
Eng. 351.	Newspaper Management	0-3 0
Eng. 361.	Argumentation and Debate	3 3-0
Eng. 362.	Persuasion	0 0-3
Eng. 363.	Public Address	0 0-3

### GEOLOGY

#### Courses for Graduates and Advanced Undergraduates

Geol. 305.	Structural and Field Geology	0 3-3
Geol. 320.	Geological Research	2-2 2

## HIGHWAY ENGINEERING

## Courses for Graduates and Advanced Undergraduates

H. E. 301.	Highway Engineering II .....	3-3-3
H. E. 302.	Highway Office Practice .....	1-0-0

## Courses for Graduates Only

H. E. 401.	Highway Research .....	3-3-3
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## HISTORY

## Courses for Graduates and Advanced Undergraduates

Hist. 300.	Public Administration .....	3-3-3
Hist. 301.	United States History to 1860 .....	3-0-0
Hist. 302.	United States History since 1860 .....	0-3-0
Hist. 303.	History of North Carolina .....	0-0-3
Hist. 307.	Advanced United States and North Carolina History .....	3-3-3
Hist. 318.	Economics and Social History of Agriculture .....	0-0-3

## HORTICULTURE

## Courses for Graduates and Advanced Undergraduates

Hort. 301.	Experimental Pomology .....	0-3-0
Hort. 302.	Commercial Fruit Production .....	3-0-0
Hort. 303.	Commercial Vegetable Production .....	3-0-0
Hort. 304.	Horticulture—Problems .....	1-1-1

## Courses for Graduates Only

Hort. 403.	Methods of Horticulture Research .....	3-3-3
Hort. 404.	Seminar .....	1-1-1

## INDUSTRIAL ENGINEERING

## Courses for Graduates and Advanced Undergraduates

Econ. 301.	Accounting II .....	3-3-3
Econ. 302.	Modern Accounting Systems .....	3-3-3
Econ. 303.	Principles of Cost Accounting .....	3-3-3
Econ. 328.	Conservation of Natural Resources .....	0-2-0
Econ. 340.	Personnel Management .....	0-3-3
Econ. 369.	Real Estate .....	3-3-3

## Courses for Graduates Only

Econ. 430.	Industrial Management—Advanced .....	0-3-0
Econ. 439.	Labor and Employment Problems—Advanced .....	0-3-0
Econ. 440.	Personnel Management—Advanced .....	0-0-3
Econ. 447.	Engineering Economics—Advanced .....	3-3-3
or Econ. 448.	Public Utilities—Advanced .....	3-3-3

## INDUSTRIAL MANAGEMENT

## Courses for Graduates and Advanced Undergraduates

Econ. 338.	Industrial Psychology .....	3-0-0
Econ. 340.	Personnel Management .....	0-0-3
Econ. 342.	Time Study .....	0-0-3

## Courses for Graduates Only

Econ. 420.	Advanced Industrial Management .....	0-3-0
Econ. 439.	Advanced Labor Problems .....	0-3-0
Econ. 440.	Advanced Personnel Management .....	0-0-3

## MATHEMATICS

## Courses for Graduates and Advanced Undergraduates

Math. 301.	Advanced Calculus .....	0-3-0
Math. 302.	Theory of Equations .....	0-0-3
Math. 303.	Differential Equations .....	0-0-3
Math. 304.	Advanced Analytical Geometry .....	3-0-0

## MECHANICAL ENGINEERING

## Courses for Graduates and Advanced Undergraduates

M. E. 302.	Design of Heating and Ventilating Systems .....	3-3-3
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## Courses for Graduates Only

M. E. 401.	Power Plant Design .....	3-3-3
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## MODERN LANGUAGE

## Courses for Graduates and Advanced Undergraduates

M. L. 301.	Industrial and Scientific French	3-3-3
M. L. 304.	Advanced Scientific German	3-3-3
M. L. 310.	French Civilization	3-3-0
M. L. 311.	Spanish Civilization	3-3-0
M. L. 312.	German Civilization	3-3-3
M. L. 313.	French Prose Masterpieces	3-3-3
M. L. 314.	German Prose Masterpieces	3-3-3

## PHYSICS

## Courses for Graduates and Advanced Undergraduates

Phys. 301.	Mechanics	0-3-3
Phys. 302.	Electricity and Magnetism	3-3-0
Phys. 303.	Heat	3 0 0 or 4-0-0
Phys. 304.	Sound	0-0-3 or 0-0-4
Phys. 305.	Light	0-3-3 or 0-4-4
Phys. 306.	Photography	3-0-0
Phys. 307.	History of Physics	0-3-0
Phys. 308.	Modern Physics	0-3-3
Phys. 309.	Research	2-2-2
Phys. 310.	Physics Colloquium	No credit

## Courses for Graduates Only

Phys. 401.	Theoretical Mechanics	3-3-3
Phys. 402.	Geometrical Optics	3-0-0
Phys. 403.	Physical Optics	0-3-3
Phys. 404.	Kinetic Theory of Gases	3-0-0
Phys. 405.	Isotopes	0-3-0
Phys. 406.	Crystal Structure and X Rays	0-3-0
Phys. 407.	Mathematical Theory of Electricity and Magnetism	3-3-3
Phys. 408.	Thermodynamics	0-0-3
Phys. 409.	Discharge of Electricity in Gases	0-3-0
Phys. 410.	Experimental Optics	0-2-2
Phys. 411.	Research	3-3-3

\*In 1929 only two of the following alternate exams will be given: either 401 or 402 and 403, or 404, 405 and 406 and either 407 or 408 and 409.

## POULTRY

## Courses for Graduates and Advanced Undergraduates

Poul. 302.	Poultry Judging	3-0-0
Poul. 303.	Poultry Nutrition	0-3-0
Poul. 304.	Poultry Anatomy	3-3-0
Poul. 305.	Poultry Disease	0-3-3
Poul. 306.	Commercial Poultry Plant Management	3-0-0
Poul. 307.	Poultry Problems	1-1-1
Poul. 308.	Laboratory Diagnosis in Poultry Disease	3-3-3
Poul. 309.	Sero Bacteriological Studies in Poultry Diseases	3-3-3
Poul. 310.	Poultry Survey Studies	3-3-3
Poul. 311.	Poultry Physiology	3-0-0

## Courses for Graduates Only

Poul. 404.	Poultry Histology	3 or 3 or 3
Poul. 405.	Poultry Pathology	3 or 3 or 3
Poul. 406.	Production Studies and Experiments	3 or 3 or 3
Poul. 408.	Graduate Seminar	3 or 3 or 3

## SOCIOLOGY

## Courses for Graduates and Advanced Undergraduates

Soc. 300.	Criminology	0-0-3
Soc. 301.	Social Pathology	0-0-3
Soc. 302.	Sociology of City Life	0-3-0
Soc. 303.	Community Organization	0-0-3
Soc. 304.	Farmers Movements	3-0-0
Soc. 306.	Social Psychology	2-0-0
Soc. Ex. 306.	Family Organization	3
Soc. 307.	Race Relations	3-0-0
Soc. 308.	Methods of Social Research	0-0-3
Soc. 309.	Rural Social Psychology	0-0-3
Soc. 310.	Industrial Sociology	0-0-3
Soc. 311.	Rural Sociology	0-3-0

## Courses for Graduates Only

Soc. 401.	Advanced Social Theory ..	.....	3-0-0
or Soc. 402.	History of Social Thought ..	.....	3-0-0
Soc. 403.	General Anthropology ..	.....	0-0-3
or Soc. 404.	Cultural Anthropology ..	.....	0-0-3
Soc. 405.	Advanced Social Psychology ..	.....	0-3-0
Soc. 406.	Seminar in Social Theory ..	.....	1-1-1

## TEXTILE

## Courses for Graduates and Advanced Undergraduates

Textile 301.	Yarn Manufacture III ..	.....	2-2-2
Textile 302.	Fancy and Jacquard Weaving ..	.....	2-2-2
Textile 303.	Fancy and Jacquard Design ..	.....	3-3-3
Textile 304.	Fabric Analysis III ..	.....	0-1-1
Textile 305.	Dyeing IV ..	.....	5-5-5

## Courses for Graduates Only

Textile 401.	Yarn Manufacture ..	.....	2-2-2
Textile 402.	Textile Design and Weaving ..	.....	2-2-2
Textile 403.	Textile Dyeing ..	.....	2-2-2
Textile 404.	Textile Testing ..	.....	2-2-2
Textile 405.	Seminar ..	.....	1-1-1

## ZOOLOGY

## Courses for Graduates and Advanced Undergraduates

Zool. 301.	Applied Entomology ..	.....	3-3-3
Zool. 302.	Advanced Genetics ..	.....	3-3-3
Zool. 304.	Systematic Entomology or Zoology ..	.....	0 3 or 5 3 or 5
Zool. 309.	Field Zoology ..	.....	0-3-3
Zool. 310.	Laboratory Technique ..	.....	3 or 5, 3 or 5, 3 or 5

## Courses for Graduates Only

Zool. 401, 402.	Systematic Entomology ..	.....	3-3-3
Zool. 403, 404.	Research in Zoology ..	.....	3-3-3
Zool. 405.	Seminar ..	.....	1-1-1

# COLLEGE EXTENSION DIVISION

FRANK CAPPS, *Director*

## PURPOSE

The North Carolina State College of Agriculture and Engineering offers technical education in Agriculture, Engineering, Science and Business to all properly qualified students who come within its walls. There are many persons in North Carolina, however, who for various reasons cannot attend classes on the campus, although they have a desire and a need for the type of training which is offered by this institution. Further, persons who have already completed the college course in residence often desire additional training in the fields of their several vocations, or in subjects supplementary to their vocations, which they were unable to get while in college. In every community throughout the State there are numbers of men and women who desire practical instruction along the lines of their everyday work. The College recognizes its opportunity for public service by carrying the benefits of its teaching and research activities to those in the State who find it impossible to attend the regular courses of resident instruction offered on the campus. Therefore, the College offers correspondence courses, lecture courses, and extension class instruction to the citizens of the State in the fields of Agriculture, Engineering, Science and Business.

## FOR WHOM INTENDED

The College Extension Division offers courses similar to those given on the campus to any one who desires to take such courses and who is qualified to do the work. The courses offered, although making a general appeal, will be particularly helpful for the following classes of persons:

1. College students who are unable to pursue continued resident study.
2. Rural grade and high school teachers who cannot avail themselves of resident instruction.
3. Teachers and others who have partially completed work for a college degree and who desire to pursue work along some special line, or who desire further training to better equip themselves for their vocations.
4. Instructors in higher institutions who desire assistance in an advanced study of some particular subject.
5. Professional and business men who wish to supplement their training with technical information.
6. Farmers, county agents, and others who desire additional information and training in any phase of agricultural work.
7. Practical men engaged in the various industries who want to become more efficient in their occupations.

## THE INSTRUCTION OFFERED

The work offered through the Extension Division is carried on by three distinct methods: by actual contact in extension classes established throughout the State, by lectures, and by correspondence courses.

College credit and teacher certification credit is given for a number of courses completed either in extension classes or by the correspondence study

method. Also, courses which do not carry college credit are given through extension classes and by correspondence.

*Extension Classes.* The North Carolina State College of Agriculture and Engineering has organized and is carrying on extension classes throughout the State as a part of its extension program. When fifteen or more individuals in the same community desire to enroll for the same subject, and wish to have a class organized, they should communicate at once with the College Extension Division, giving information concerning the subject desired, and as to the probable number who will enroll. Then the College Extension Division will send a representative to meet with this group and make all arrangements for the class. Instructors for such groups are selected from the members of the College faculty. These instructors will visit the classes at stated intervals. Selected courses in Agriculture, Engineering, Science and Business are available for these extension classes.

*Lectures.* Lecture courses—either individually or in a series on various topics, including Agriculture, Engineering, Science and Business, are offered through the College Extension Division wherever there is a demand or need for them. Both general and technical lectures are available. Rural Chautauquas, Schools, Teachers' Institutes, Farmers' Conventions and Meetings, Engineering Clubs, Manufacturing Associations, Factories, Civic Clubs, and various other groups and organizations may secure lectures by applying for them.

*Correspondence Study.* A very large and important part of the College extension work is done through correspondence, thus giving to large numbers of men and women who cannot go to college opportunity to profit by well-directed reading and study, and by scholarly criticism. Although correspondence courses cannot entirely substitute for residence study, there are certain advantages in the correspondence study methods. Each student does all of the work of each assignment. He first works out his assignment independently, and then he receives correction, criticism, and help individually. He is placed in direct personal relation with his instructor, so that he may proceed as rapidly as his time and his ability permit. Thus, a correspondence course promotes thoroughness and self reliance, and enables a person to make the maximum progress of which he is capable.

All the courses are prepared under the supervision of the Deans of the several Schools at the College, and taught by specialists assigned to the work of corresponding courses.

### CREDITS

For admission to courses for college credit, the student must meet the regular college entrance requirements. Persons of mature age, however, who are qualified to do the work may be admitted without meeting the regular entrance requirements. The ability of the student to enter upon the work of any individual course is passed upon by the instructor in charge of the course. Not more than fifty term credits may be earned by correspondence.

Collegiate credit for courses completed by correspondence shall conform as nearly as possible to the same regulations that govern resident work. Correspondence courses are based upon the unit course, which is divided, when practicable, into sixteen assignments, representing a three-credit course

for one term in residence. Variations from the unit course are indicated by the number of credits, or by the number of assignments or class meetings when college credits is not given. No student will be allowed to take more than two courses by correspondence at one time, and it is recommended that one course be completed before beginning another.

Students may be admitted to the Graduate School for correspondence courses or work in absentia by meeting the requirements, information as to which will be furnished upon application to the Dean of the Graduate School; but no student can meet the requirements for one of the residence degrees without fulfilling the residence requirements.

The Division of Certification of the State Department of Public Instruction will credit toward State teachers' certificates certain courses completed by correspondence or extension classes for which the College gives credit toward a degree. It is possible, therefore, for teachers to earn both certification and degree credit at the same time.

### FEEES

For courses involving five term hours of credit, a fee of \$12 is charged, and a proportionate fee is charged for courses of less than five credit hours, based on a fee of \$2.50 per term hour of credit. No fees can be refunded after a course is once begun. The registration fee holds good for twelve months only, unless further time is granted by the Director of Extension.

### COURSES

Any person who desires to obtain college credit by means of extension classes or by correspondence courses should write to the College Extension Division, requesting one of the extension bulletins which contains complete information concerning methods of instruction, fees, and the conditions upon which college credit will be granted. In all cases where college credit is desired, a final examination must be taken by the student, either at State College or under the supervision of some one in the community designated by the College. The examination given will be parallel with that given for the same course at the College. If no college credit is desired, the student may be excused from the examination.

The courses for correspondence study and extension classes, with the college credit indicated in parentheses, are listed below.

Agronomy: 101 (5), 201 (3), 205 (4), 245 (4), 255 (4), 270 (3).

Animal Husbandry: 101 (3 or 6), 102 (5), 103 (3), 202 (4), 204 (3), 208 (3).

Architectural Engineering: 102 (5).

Botany: 101 (4), 102 (4), 203 (3 or 5), 212 (3); Ex. 230 (2 or 3.)

Ceramic Engineering: 101 (1), 103 (3), 104 (3), 208 (3), 209 (3), 210 (3), 211 (4), 214 (3).

Chemical Engineering: 201 (3, 6 or 9), 203 (3, 6, or 9).

Chemistry: 101 (4, 8, or 12), 242 (3); Ex. 260 (3).

Civil Engineering: 102 (3), 104 (3), 105 (3, 6, or 9), 106 (3 or 6), 109 (1), 110 (1), 203 (3, 6, or 9), 204 (3, 6, or 9).

Economics: 102 (3), 103 (3, 6, or 9), 112 (3), 201 (3, 6, or 9), 211 (3), 215 (3 or 6), 221 (3 or 6), 230 (3 or 6), 240 (3), 260 (3), 261 (3), 262 (3), 265 (3).

**Education:** 101 (3), 201 (3), 205 (3), 208 (3), 210 (3), 215 (5), 220 (5), 230 (3), 235 (3), 236 (3), 245 (3), 250 (3), 255 (3), 305 (3 or 5), 210 (3); Ex. 275 (3).

**Electrical Engineering:** 12 (no credit), 202 (3), 204 (3), 206 (3).

**English:** 150 (3), 201 (3), 202 (3), 230 (3); 251 (3); 252 (3); Ex. 260 (3).

**Geology:** 120 (3).

**Highway Engineering:** 201 (3 or 6), 202 (3, 6, or 9), 203 (1).

**History:** 203 (3 or 6); Ex. 205 (3).

**Horticulture:** 101 (3).

**Mathematics:** 101 (5), 102 (5), 103 (5), 104 (5), 201 (5), 202 (5).

**Mechanical Engineering:** Ex. 30 (no credit), 102 (2, 4, or 6), 103 (2) 107 (3), 113 (3 or 6), 201 (3, 6, or 9), 211 (3).

**Modern Drama:** Eng. 226 (3).

**Modern Language:** 101 (3, 6, or 9); 107 (3), 201 (3 or 6), 206 (3 or 6), 207 (3); 210 (3, 6, or 9); Ex. 213 (3).

**Physics:** 101 (4, 8, or 12), 106 (5).

**Poultry Science:** 101 (3), 204 (3 or 6), 207 (3).

**Sociology:** 102 (3), 103 (3), 104 (3), 201 (3), 202 (3).

**Zoology:** 202 (3), 208 (3); Ex. 220 (2 or 3).



## SUMMER SCHOOL

The Summer School of the North Carolina State College of Agriculture and Engineering begins with registration on Monday, June 11, and closes with final examinations on Friday, July 20, 1928. It is designed to meet the special needs of that group of persons interested in the program of Secondary Education and in courses for college credit. Since the adoption of this new policy, the increasing interest of people in high school education throughout the State has been gratifying demonstrated by the growing enrollment of high school teachers and principals in the State College Summer School. There are subject-matter and special methods courses offered in practically all subjects in secondary schools; courses for teachers of Industrial Arts and teachers of Trade and Industrial subjects are given. Graduate work will be given in Summer School in all fields where there is sufficient demand.

In addition to the courses just mentioned, the Summer School offers opportunities to college students wishing to get off work during the summer. The six weeks term enables a college student to get off half the work of a full college term. It is also an opportunity for students to get off back work.

The Textile School, with its enlarged plant and equipment, has been placed at the command of the textile industry of North Carolina, and during the Summer School courses will be offered for any group of persons, either college students or men already engaged in the industry, to continue their training in textiles or to take special courses designed to increase the efficiency of the workers.

The courses in Cotton Classing are arranged to instruct the producer in grading staple, to induce him, in consequence, to try to grow cotton of better staple, and to aid him in selling his product to better advantage. They are open, also, to buyers of cotton. The courses are arranged for young and middle-aged men, and are not intended for boys or for men who lack earnestness of purpose. There are no entrance requirements for the Cotton Classing courses, except that the applicant should be well trained in English.

The regular session of State College is divided into three terms, consequently "credit" refers to term credit, or twelve weeks work, unless otherwise designated. In order for the college-credit courses to count for a full term's work, they will be given, if for five credits, ten periods a week; if for three credits, five periods a week.

The Department of Education of the Summer School is broadening the scope of its service to the teachers of the State by adding the following important courses: "Methods of Teaching Third-Year Science," "The Supervisory Activities of the Principal," "Philosophy of Education," "History of Education," and "Child Psychology." There is a wide variety of professional courses which the teacher may select. All the professional and subject-matter courses carry both college and certificate credit.

In addition to the six weeks term, there will be offered a two weeks' course for teachers of vocational agriculture, a special week's course for boys' and girls' club leaders, and a week's course for farm women. There will be

conferences designed to meet the needs of particular groups in technical subjects.

The conference on Science, which has become an important part of the Summer School, will be favored by special lectures from Dr. Otis W. Caldwell of the Lincoln School of Columbia University, and Dr. W. L. Poteat of Wake Forest College. Dr. James F. Hosis of Columbia University will conduct the conference on the Supervisory Activities of the Principal.

A current bulletin of the Summer School, which may be obtained from the Registrar, gives complete detailed information.

Members of the Summer School will have access to the College Library, and to the Raney Library, and to the State Library for reference work.

The College Infirmary, in charge of the hospital matron, will be conducted for the school. The College Physician will make daily visits to those who may be sick in the Infirmary.

This school is an approved State Summer School, and the courses offered have the approval of the State Department of Education.

## DESCRIPTION OF COURSES

### AGRONOMY

#### Term Courses

- Agron. 12. Corn and Small Grains.** 0-3-0  
The classification, adaptation, culture, harvesting, marketing, and uses of corn and the small grains. Some of the phases of the culture of these crops included in the course are soil, regional adaptation, preparation of the soil, fertilization, seeding, harvesting; varieties, seed selection and improvement, and rotations. Mr. Darst.
- Agron. 13. Farm Machinery.** 3-0-0  
This course consists of a detailed study of modern field machinery, including tillage, cultivating, and harvesting machines. Other farm machines such as silo fillers and corn-shellers are also studied. Mr. Weaver.
- Agron. 14. Cotton.** 3-0-0  
Lectures and recitations on history, production, adaptation, type, and varieties, cultivation, harvesting, grading and marketing. Laboratory consists of variety studies and the classing of cotton lint. Mr. Cotner.
- Agron. 16. Terracing and Drainage.** 0-0-3  
This course is a study of the different methods of disposing of surplus water. The use of the improved terracing level is taught, also how to make surveys for areas of small farm tracts. Special attention is also given to the reclaiming of small wet areas for agricultural purposes. The laboratory work includes laying out of imaginary terraces and making surveys of small fields. Three lectures and two laboratory periods. Mr. Weaver.
- Agron. 17. Soil Management.** 0-3-0  
A course dealing with the origin, properties, and management of the soil. A study is made of soil texture and structure, soil moisture and its conservation, soil acidity and liming, the use of organic matter in soil building, etc. Mr. Cobb.
- Agron. 18. Soil Types and Mapping.** 3-0-0  
A study of the more important North Carolina soil types, including a consideration of their origin, characteristics, crop adaptation and fertilizer requirements. A farm map showing the distribution of soil types and the location of buildings, roads, ditches, fences, etc., is made by each student. Mr. Cobb.
- Agron. 21. Fertilizers.** 0-0-3  
A study of the different fertilizing materials and their use. Special attention is given to fertilizer formulas for North Carolina soils and to home mixing. Mr. Cobb.

- Agron. 22. Tobacco.** 0-3-0  
Lectures and recitations on history, production, adaptation, type and varieties, cultivation, harvesting, grading, and marketing. Laboratory consists of variety studies and the grading of tobacco. Mr. Cotner.
- Agron. 23. Farm Conveniences.** 0-3-0  
Water supply systems, electric lighting plants, sewage disposal devices, heating systems, and other modern farm equipment relating to the house and barn form the materials for study in this course. Mr. Weaver.
- Agron. 24. Farm Engines.** 0-3-0  
A study of the construction and operation of the farm gas engine, with emphasis on care, adjustment, and repair. Mr. Weaver.
- Agron. 25. Farm Buildings and Drawing.** 0-3-0  
The home, barn, hog and poultry houses, and other farm structures, are discussed with reference to materials of construction and design. The laboratory work will consist largely of drawing plans and working out bills of materials of farm structures. Mr. Weaver.
- Agron. 26. Rural Sanitation.** 0-0-3  
Methods of bringing about increased sanitation on the farm through a study of the sources of water. Water supply systems, heating, ventilation, and the disposal of farm sewage are discussed. Mr. Weaver.
- Agron. 31. Annual Legumes and Grasses.** 0-3-0  
Cultural practices from soil preparation to harvest; inoculation; varieties, their adaptation and improvement; uses for seed and forage. Special prominence is given to the place of these crops in the rotation and their relation to permanent soil fertility. Mr. Darst.
- Agron. 33. Farm Shop.** 0-0-3  
This course is designed to increase the student's ability to use common farm repair tools and his knowledge of repair methods. The making of farm devices and appliances and repairs in wood, metal, rope, and leather is taught. Tool sharpening and saw filing are included. Mr. Weaver.
- Agron. 34. Seed Judging.** 0-0-3  
Lectures and practice in the seed selection and judging of farm crops seeds. The latest International score cards will be used. Special attention will be given to seed corn, wheat, oats, and rye, soybeans, cowpeas, clovers, and grass seed. Mr. Darst.
- Agron. 35. Market Grading Farm Crops.** 0-0-3  
A study of the Federal grain and hay standards for market grades. Practice in grading corn, wheat, oats, rye, and market hay. Mr. Darst.

- Agron. 36. Perennial and Biennial Legumes and Grasses.** 0-0-3  
Lectures on the production, adaptation, and use of perennial and biennial legumes and grasses. Discussion of pasture and meadow management and the crops best suited for soil improvement. Practice in the identification of forage plants and their seeds. Purity tests of seed and study of quality and feeding value of hay. **Mr. Darst.**
- Agron. 37. Cotton Classing.** 0-3-0  
A study of the Universal Standards of American Upland cotton for grade and staple. Factors that determine grades and how to improve them. **Mr. Cotner.**
- Agron. 38. Crop Improvement.** 3-0-0  
Summary of modern methods of improving farm crops. **Mr. Cotner.**
- Agron. 40. Agronomy Problems.** 3-3-0  
Vital and timely problems relating to soils, soil fertility, fertilizers, forage crops, fiber crops, crop improvement, crop grading and classing, farm implements and machinery, terracing and drainage. **Agronomy Staff.**

#### Courses for Undergraduates

- Agron. 101. General Field Crops.** 0-0-5  
Required of freshmen in Agriculture.  
A standard introductory course in field crops, outlined and recommended by the American Society of Agronomy. A study of the adaptation, culture, improvement, harvesting, and uses of the more important field crops. Laboratory consists of seed studies, commercial grading of grain, hay, cotton and tobacco. The identification, adaptation, and use of important legumes and grasses. **Mr. Darst and Mr. Cotner.**
- Agron. 105. Cotton.** 3-0-0  
Required of sophomores in Textile Manufacturing, Chemistry and Dyeing, and Designing. Alternative for sophomores in Agriculture.  
Lectures and recitations on history, botany, and physiology of the cotton plant; comparative study of varieties; microscopic studies of the fiber and a study of the physical properties of the fiber as it affects milling quality. **Mr. Cotner.**
- Agron. 110. Soil Geology.** 4-0-0  
Required of sophomores in Agriculture and Vocational Education.  
Lectures, laboratory and field work in physical geology with special reference to the origin of soils and mineral fertilizers. **Mr. Cobb.**
- Agron. 115. Soil Management.** 0-0-4  
Required of sophomores in Agriculture and Vocational Education.  
A study of the properties of soils and their relation to soil management. **Mr. Cobb.**

**Agron. 130. Farm Equipment. 3-0-0**

Required of sophomores in Agriculture.

A study of the mechanical equipment of the farm, modern tillage, seeding, cultivating, and harvesting tools, as regards comparison of types, adaptation to various farming enterprises, and selection, care, and adjustment.

Mr. Weaver.

**Agron. 135. Terracing and Drainage. 0-0-3**

Required of juniors in General Agriculture.

This course is a study of the different methods of disposing of surplus water and the prevention of erosion. The use of the improved terracing level is taught, also how to make surveys of small wet areas for agricultural purposes. The laboratory work includes laying out terraces and making surveys for tile drains; also surveys of small farms.

Mr. Weaver.

**Agron. 145. Farm Buildings. 0-0-3**

Required of seniors in General Agriculture.

Elective for all juniors and seniors.

A study of building materials suitable for Farm Building use and the design and construction methods used. Laboratory work consists of making forms for and pouring concrete, drawing plans, making models, and inspection trips to neighboring farms to study such equipment.

Mr. Weaver.

**Agron. 147. Farm Conveniences. 0-0-3**

Required of seniors in General Agriculture.

Elective for juniors and seniors.

A study of farm water supply system, electric lighting plans, heating and sewage disposal systems as regards installation, adjustment, and repair. The laboratory work will consist of the operation of various types of these systems and inspection trips to farms which have such installations.

Mr. Weaver.

**Agron. 155. Farm Engines. 0-3-0**

Elective for juniors and seniors.

A course designed to meet the needs of students who expect to engage in farming or the teaching of Agriculture. The principle of gas engine operation, its application to single and multiple cylinder engines, and the repair and adjustment tests of engines are taught.

Mr. Weaver.

#### Courses for Advanced Undergraduates

**Agron. 201. Cereal Crops. 0-4-0**

Required of juniors in Agronomy.

Lectures and recitations in history, production, cultivation, improvement, harvesting, storage, and marketing. Laboratory consists of structural studies, seed judging, variety identification, and commercial grading. Special problems in cereal production.

Mr. Darst and Mr. Cotner.

**Agron. 205. Legumes and Grasses.**

0-0-4

Required of juniors in Agronomy.

Lectures and recitations in history, production, adaptation, use, cultivation, harvesting, and marketing. Laboratory consists of the identification of forage plants and their seeds, purity tests, commercial grading of hays, special problems in pasture and meadow management, also crops for soil improvement. Mr. Darst and Mr. Cotner.

**Agron. s206. Seed Judging and Crop Identification.**

1 credit.

A course consisting of lectures, discussions, and practice in the judging of field crop seeds according to the most recent and approved methods. Considerable attention will be given to the identification and adaptation of important crops and their varieties. An intensive course for vocational teachers of agriculture. Mr. Darst.

**Agron. s207. Fertilizers.**

1 credit.

This course deals with the characteristics of the important fertilizing materials and their use. Special attention is given to figuring out fertilizer formulas and home mixing. Fertilizer formulas for different crops on North Carolina soils are considered. Mr. Cobb.

**Agron. s208. North Carolina Soil Types.**

1 credit

The origin, characteristics, crop adaption, and plant-food needs of the more important North Carolina soil types are studied. One or more field trips are made for the purpose of identifying soil types in the field. The purpose of this course is to enable the teacher of vocational agriculture to become familiar with the soils in the neighborhood of his school and to know their crop adaptation and plant-food needs. Mr. Cobb.

**Agron. 210. Cotton Production.**

0-3-0

This course, or Agron. 215, required of juniors in General Agriculture.

Lectures and recitations on history, production, adaptation, type and varieties, cultivation, harvesting, grading, and marketing. Laboratory consists of variety studies and the classing of cotton lint. Mr. Cotner.

**Agron. 215. Tobacco Production.**

0-3-0

This course, or Agron. 210, required of juniors in General Agriculture.

Lectures and recitations on history, production, adaptation, type and varieties, cultivation, harvesting, grading, and marketing. Laboratory consists of variety studies and the grading of tobacco. Mr. Cotner.

**Agron. 220. Cotton Classing I.**

0-3-0

Elective for juniors or seniors.

A study of the universal standards of American Upland cotton for grade and staple. Factors that determine grade and how to improve them. Practice will consist of classing three to five thousand samples of North Carolina cotton. Mr. Cotner.

- Agron. 225. Cotton Classing II.** 0-3-0  
 Required of sophomores in Textile Manufacturing, Chemistry and Dyeing, and Designing.  
 A study of the universal standards of American Upland cotton for grade and staple. Factors that determine grade and their relative value. Practice will consist of classing and stapling three to five thousand samples of cotton. Mr. Cotner.
- Agron. 250. Farm Machinery and Tractors.** 0-3-0  
 Prerequisite: Agron. 155.  
 Elective for juniors and seniors.  
 In this course the student is given an opportunity to study the design, construction, and operation of modern labor-saving machinery, also the adaptation to various locations and conditions, and adjustments necessary to make this adaptation possible. The machines are studied in the laboratory and in the field whenever possible. Mr. Weaver.
- Agron. 260. The Soils of North Carolina.** 3-0-0 or 0-0-3  
 A study of the origin, characteristics, agricultural adaptation, and fertilizer needs of North Carolina soil types. Trips to both the Piedmont and Coastal Plain provinces of the state are made for the purpose of identifying and studying soils in the field. Mr. Cobb.
- Agron. 265. Soil Fertility and Fertilizers.** 0-5-0  
 Required of Juniors in Vocational Education and Seniors in General Agriculture. A course dealing with the chemical and biological properties of soils as related to soil fertility, and with the characteristics and uses of fertilizing materials. A study is made of absorption, exchange of bases, soil acidity and liming, nitrification and nitrogen fixation, calculations for fertilizer formulas, and home mixing. Mr. Cobb.
- Agron. 270. Soil Survey.** 0-0-3  
 This course consists of the making of a detailed soil map and the writing of a report describing the soils and agriculture of the area mapped. Studies are made of different methods of mapping soils and of characteristics soil maps from the different soil regions of the United States. Mr. Cobb.
- Agron. s291. Field Course in the Soils of North Carolina.** 3 or 9 credits.  
 Elective for juniors and seniors in Agriculture.  
 A summer field course covering the important soil and agricultural areas of North Carolina. A field examination of the important soil types of the State is made, and their geological origin, classification, characteristics, crop adaptation, and fertilizer requirements are studied. Mr. Cobb.



## Courses for Graduates and Advanced Undergraduates.

- Agron. 302. Advanced Cotton Classing.** 3-3 or 3-0  
 Prerequisite: Cotton Classing 225 or 220.  
 For men who expect to become specialists in cotton classing.  
 This course will also prepare men to take the U. S. Civil Service examination for cotton classing. Mr. Cotner.
- Agron. 303. Advanced Cotton Production.** 3-3-0 or 3-0-3  
 Prerequisite: Cotton Production 210.  
 Advanced study of cotton production problems. Mr. Cotner.
- Agron. 305. Crop Breeding.** 3-3-3  
 A study of special problems in inheritance and methods of investigation. A student may select a problem in any of the following lines of plant breeding, namely, cotton breeding, cereal breeding, forage crop breeding, and tobacco breeding. Students doing research problems will be expected to utilize the college library, laboratories, fields, and greenhouse facilities for the successful completion of a research problem.  
 Mr. Cotner, Mr. Winters.
- Agron. 319. Fertilizer Production and Experimentation.** 0-0-3  
 A course dealing with the sources, mining, and manufacture of fertilizer materials, and methods of determining the fertilizer needs of soils. The class will assist members of the Experiment Station force in putting out one or more soil type fertilizer tests, and records of other tests conducted by the North Carolina and other experiment Stations will be available for study.  
 Mr. Cobb, Mr. Williams.
- Agron. 320. Pedology.** 0-3-0  
 This course deals with the genesis, morphology, and classification of the great soil groups of the world with special emphasis on the soils of the United States. A student preparing to enter the U. S. Soil Survey should take this course.  
 Mr. Cobb.
- Agron. 321. Soil Technology I.** 2-2-2  
 A laboratory, field, and greenhouse course in the physical, chemical, and biochemical properties of soils.  
 Mr. Cobb, Mr. Willis.
- Agron. 322. Soil Problems.** 3-3-3  
 A course in advanced soil problems for seniors specializing in soils and graduate students. Each student will select, with the advice of the instructor, a special problem in some phase of soil science, and will make a study of the literature dealing with this problem, submitting a detailed written report at the end of the term. Weekly reports of progress will be made.  
 Mr. Cobb, Mr. Willis.

- Agron. 323. Soil Technology II.** 2-2-2  
 Prerequisite: 9 credits in soils and quantitative analysis in chemistry. A laboratory study of technical methods used in the investigation of the physical, chemical, and biochemical properties of soils.  
 Mr. Cobb, Mr. Willis.
- Agron. 330. Seed Judging.** 3-0-0  
 Elective for juniors and seniors.  
 Prerequisite: Agron. 101.  
 Lectures and practice in planning, arranging, and judging field crop exhibits. A course planned to develop experts in the judging of field crop seeds. This course is especially adapted for agricultural extension workers and vocational teachers.  
 Mr. Darst and Mr. Cotner.
- Agron. 332. Market Grading of Field Crops.** 3-0-0  
 Elective for juniors and seniors.  
 Prerequisite: Agron. 101.  
 Advance study of the Federal Standards for market grades as applied to field crops. A course planned to develop a high degree of efficiency in the grading of cereal grain, market hays, cotton, soy beans, sorghums and rice. This course is especially adapted for Agricultural Teachers and Extension Workers.  
 Mr. Darst.
- Agron. 334. Taxonomy of Field Crops.** 3 0-0  
 Elective for juniors and seniors.  
 Prerequisite: Agron. 101.  
 A study of the origin, botanical classification, identification and adaptation of the commercially important crops and their varieties grown in America.  
 Mr. Darst.
- Agron. 335. Problems in Agricultural Engineering.** 3-3 3  
 This course is designed to meet the needs of students who desire advanced work in one of the following branches of Agricultural Engineering; Gas Engines, Tractors, Lighting Plants, Farm Machinery, and Drainage. The particular use to which the student expects to apply the information obtained will determine to a large extent the manner in which the work will be conducted. The reading of recent publications pertaining to the subject selected will be required.  
 Mr. Weaver.
- Agron. 340. Experimental Methods.** 0-3-0  
 Elective for seniors.  
 Lectures on the history and development of agricultural experimental work. A study of experimental technique as developed to date by soil fertility and crop breeding studies and tests. Practice in planning soil fertility and crop breeding tests. Recording and filing data; assembling and summarizing results and drawing accurate conclusions.  
 Mr. Darst.

- Agron. 345. Plant Breeding.** 4-0-0  
 Elective for seniors.  
 Prerequisite: Genetics 201.  
 Lectures, field and laboratory exercises, including methods and principles of farm crop seed improvement. Mr. Cotner.
- Agron. 350. Agronomy Problems.** 1-1-1  
 Elective for seniors.  
 Members will be assigned special problems the results of which are to be presented to the class. Scientific articles of interest to agronomists will be assigned, reviewed, and discussed. The class will meet one hour per week by special arrangement. Agronomy Staff.
- Agron. 351. Crop Research.** 9 credits.  
 Elective for graduates and advanced undergraduates.  
 A field study of the research work and demonstration work in crops. This course will be based directly upon experimental work in progress. The crop or crops for study will be agreed by the class. Mr. Darst, Mr. Cotner.
- Agron. 360. Agricultural Drainage.** 0-0-3  
 Elective for seniors.  
 Soil erosion prevention is one of the greatest problems facing the Southern farmer, and the purpose of this course is to go into the causes, effects and methods of conserving our greatest national resource, our fertile soil. The many types of terracing and soil-saving dams, developed through centuries of toil, are all discarded for the modern terrace, about which so little is generally known. Models to illustrate this work and numerous inspection trips to terraced farms are made.  
 The planning, laying out, and making of terraces on as large an area as can be obtained will be done, and the cost per acre and effect on fields will be brought out. Mr. Weaver.
- Agron. 365. Farm Structures.** 0-3-0 or 0-0-3  
 Elective for seniors.  
 A study of modern building methods as applied to farm structures. The study is made with the idea of forcibly impressing the student with the greater efficiency of modern methods in keeping the cost of production as low as possible. The use of labor-saving barn equipment and methods of reducing labor to minimum is stressed.  
 The placing of the farm group in relation to topography and farm activities, from the standpoint of economy, appearance, and utility, is an important phase of the course.

#### Courses for Graduates Only

- Agron. 401. Crop Research.** 3-3-3  
 A study of special problems and methods of investigation, as related to growth, harvesting, or grading of field crops and their products. A student

may select a problem in any of the following lines of crop production; corn, small grains, pasture or meadow management, cotton, tobacco, legumes or grasses. Students in research will be expected to utilize the College library, laboratories, fields, and greenhouse equipment for the successful completion of research problems.

Mr. Darst and Mr. Cotner.

**Agron. 404. Advanced Tobacco Production.** 3-3-0 or 3-0-3

Prerequisite: Tobacco Production 215.

Advanced study of tobacco production problems.

Mr. Cotner.

**Agron. 410. Seminar.** 1-1-1

Members of the seminar will be assigned scientific articles of interest to agronomists, which will be reviewed and discussed by individual members of the seminar. Papers prepared by students and research problems will be presented and discussed by the class. The class will meet one hour per week by special arrangement.

Agronomy Staff.

**Agron. 415. Plant Breeding Research.** 3 or 3 or 3

For graduate students who wish to study certain phases of inheritance or the association of economic qualities in cotton, corn, tobacco, small grain, soybeans, and peanuts. Available during any season of the year, though the work must be done during the seasons appropriate to the study of the particular crop.

Offered only as a major problem in plant breeding.

Mr. Winters, Mr. Cotner.

**Agron. 430. Soil Research.** 3-3-3

A detailed classroom study of the methods and results of research in the various branches of soil science.

Mr. Willis.

## ANIMAL HUSBANDRY

### Term Courses

**A. H. 11. Feeds and Feeding.** 0-0-3

Classification, digestibility, and functions of feed nutrients; classification, source, and values of feeding stuffs; feed requirements and calculation of rations for farm animals.

Mr. Haig.

**A. H. 12. Breeding of Farm Animals.** 3-0-0

This course embraces a study of the modes of heredity as applied to live-stock; the various methods of breeding; the results of such methods as illustrated in the development of the different breeds of pure-bred stock; the rules of registration and the registration books of some of the different breeds. Practice in the preparation and tracing of pedigrees. This course is planned especially for the student who expects to manage a pure-bred herd.

Mr. Ruffner.

- A. H. 21. Dairy Cattle.** 0-3-0  
 A general course treating of the breeds and judging of dairy cattle; the principles and practices involved in modern milk production.  
 Mr. Ruffner.
- A. H. 22. Work Stock.** 0-3-3  
 This course includes a study of economic methods of handling, feeding, and housing work animals. The laboratory work includes practice in feeding, handling, and housing horses and mules.  
 Mr. Haig.
- A. H. 23. Farm Butchering I.** 0-3-0  
 This is a course in killing and dressing, cutting and curing meats.  
 Mr. Hostetler.
- A. H. 24. Farm Butchering II.** 0-3-0  
 This course is a continuation of Farm Butchering I. Advanced work will be given in the preparation of meat and meat products and in tanning.  
 Mr. Hostetler.
- A. H. 31. Sheep and Beef Cattle.** 0-0-3  
 A study of economic methods of growing, fitting, and finishing sheep and beef cattle, both for breeding purposes and for market, with probable work in the practice of feeding, management, and housing of these animals.  
 Mr. Haig.
- A. H. 32. Pork Production.** 0-0-3  
 This course comprises methods of growing, fitting, and finishing swine, both for breeding purposes and for market, with practice in feeding, management, and housing of swine.
- A. H. 33. Cheese Making.** 0-0-5  
 Study of milk as applied to cheese-making; manufacture of hard and soft cheeses; principles involved in the setting, cutting, cooking, dipping, milling, salting, pressing, curing, and marketing of cheese.  
 Mr. Clevenger.
- A. H. 34. Farm Dairying.** 0-3-0  
 This course consists of a study of the fundamental principles of dairying, the testing of milk and cream for butterfat, the care of milk and cream, the operation and care of the cream separator. The laboratory work consists of making butter, and the care of milk and its products on the farm.  
 Mr. Haig.
- A. H. 35. Livestock Breeds and Judging.** 3-0-0  
 This course deals with the breed characteristics of our domesticated farm animals. The student studies the origin of the breeds of livestock, with special emphasis as to their adaptation to North Carolina conditions. Much time is spent in practice judging so that the student may learn the fundamental principles of livestock judging.  
 Mr. Haig.

**A. H. 36. Livestock Judging.** 3-0-0

A subject devoted entirely to the selection of the breeds of livestock for market, breeding, and exhibition requirements. This course aims to give the student a thorough knowledge of animal form to function. Laboratory work includes intensive practice judging of livestock. Mr. Haig.

**A. H. 37. Livestock Problems.** 3-3-3

A subject devoted to the discussion of current livestock problems, together with special assignments to students with regard to the special kinds of livestock which are most important in their counties. Mr. Ruffner.

**A. H. 38. Livestock Management.** 0-0-3

A subject devoted to the study of successful methods of operating farms devoted to livestock production. Special reference is made to the development of the farm flocks and herds and fitting them for the show ring and sale. Mr. Ruffner.

**A. H. 39. Animal Diseases.** 3-3-3

This course is a study of the common diseases of farm animals, with special emphasis as to their prevention and control. Mr. Koonce.

**Courses for Undergraduates****A. H. 101. Animal Husbandry.** 0-3-3

Required of freshman in Agriculture.

A study of the fundamental principles of livestock judging; the relation of form to function necessary to the development of animals for various purposes, such as milk, meat, wool, work, and speed production. A survey of the development of the livestock industry and the market requirements of livestock. This course is designed to give the student a general knowledge of our domesticated animals. Mr. Haig.

**A. H. 102. Animal Nutrition I.** 0-0-5

Required of sophomore in Agriculture.

A study of the principles of animal nutrition, including the physiology of the digestion of feeds, the uses of nutrients in the body and feeding standards. Practical work is given in the working out of economical and satisfactory rations for the different classes of farm animals. Mr. Ruffner.

**A. H. 103. Dairying.** 0-3-0

Required of sophomores in Agriculture.

This is a general course in dairying, dealing with the secretion, composition, and properties of milk, with the factors influencing the quality and quantity of milk, and with care of milk and cream on the farm. It includes a study of the different methods of creaming, the construction and operation of farm separators, the principles and application of the Babcock tests, the use of the lactometer, and buttermaking on the farm. Lectures supplemented by text. Mr. Haig.

## Courses for Advanced Undergraduates

- A. H. 201. Swine Production.** 3-0-0  
 Required of juniors in general Agriculture.  
 A study of types, breed characteristics, and adaptability of swine. Emphasis is given to breeding, housing, and marketing of swine. Practical work is given in the laboratory in feeding, management, and judging.  
 Mr. Hostetler.
- A. H. 202. Animal Breeding.** 4-0-0  
 Elective for seniors in Agriculture.  
 A subject in which detailed attention is given to the causes that have brought about the improvement in our domestic animals. As far as possible, a first-hand study is made of different successful breeding establishments and their problems by the instructor and students.  
 Mr. Ruffner.
- A. H. 203. Advanced Stock Judging.** 0-0-3  
 Elective for juniors and seniors.  
 Consideration is given to animal conformation, quality, and condition, with reference to market and show-yard requirements; to the selection of horses and mules, beef cattle, dairy cattle, sheep, and swine for the feed lot, the market, and exhibition, and to judging at livestock shows. A textbook is used, supplemented by lectures, laboratory, and field work. The course is designed to give the student a more thorough knowledge and greater appreciation of good livestock.  
 Mr. Haig.
- A. H. 204. Dairy Cattle and Milk Production.** 3-0-0  
 Elective for seniors in Agriculture.  
 A subject devoted to a study of the dairy cow as a milk producer. By the use of the textbook, supplemented by lectures, the dairy breeds are studied as to their characteristics, adaptation, selection, management, feeding, calf-raising. Field work consists in studying dairy types, selection by practice judging, and balancing dairy rations.  
 Mr. Haig.
- A. H. 205. Beef Cattle and Sheep Production.** 0-3-0  
 Elective for juniors in Agriculture.  
 A study of modern methods of feeding, care, and management of the beef herd. Special attention is given to feed-lot operations. The second half of the term is devoted to a study of the care and management of the farm flock. The laboratory period is devoted to the selection and grading of sheep, production of early lambs, and the grading of wool.  
 Mr. Foster.
- A. H. 206. Farm Meats I.** 3-0-0 or 0-3-0  
 Elective for juniors and seniors.  
 A general course in farm butchering, with lectures devoted to a study of the composition and value of meats, to meat curing and to tanning. In the laboratory, practical work is given in the killing, dressing, and cutting of pork, beef, and mutton, and the curing of pork.  
 Mr. Hostetler, Mr. Nance.

- A. H. 207. Farm Meats II.** 3-0-0 or 0-3-0  
 Elective for juniors and seniors.  
 Special study and practice in the selection, killing, and cutting of block animals and in meat curing. Advanced work will be given in the preparation of meat and meat products and in tanning. Mr. Hostetler, Mr. Nance.
- A. H. 209. Horse and Mule Production.** 3-0-0  
 Elective for seniors.  
 A detailed study of the most practical methods used in the production and management of farm work stock under southern conditions, special attention being given to the use of home-grown feeds for horses and mules at work or idle. Laboratory periods are devoted to the management of the stallion or jack, brood mare and foal, and also to modern practices in fitting, showing, harnessing, and stabling horses and mules. Mr. Haig.
- A. H. 210. History of Breeds.** 0-0-3  
 Elective for juniors.  
 A study is made of the early history and development of pure-bred domestic animals also a sufficient study of herd-books and pedigrees to acquaint students with the leading strains and families of the different breeds of horses and cattle, sheep and swine. Mr. Ruffner.
- A. H. 211. Animal Nutrition II.** 0-3-0  
 Elective for seniors.  
 A study of recent scientific publications on the chemistry and physiology of the nutrition of animals, and the chemical and physical changes and processes involved in the activities of animal life. Animals are used to demonstrate the effects of the various nutrients and rations. Mr. Ruffner.
- A. H. 212. Creamery Buttermaking.** 4-0-0  
 Elective for seniors.  
 History of buttermaking; care of cream on the farm; use of cream separators; construction and organization of creameries; propagation and use of starters, and making artificial buttermilk. Pasteurization of cream; manufacture of butter. The practical work enables the student to become familiar with all the operations in a creamery. Mr. Clevenger.
- A. H. 213. Testing of Milk Products.** 0-4-0  
 Elective for juniors.  
 Testing acidity of milk and cream; moisture, salt, curd, and fat content of butter; fat and solid content of ice cream, evaporated milk and cheese; detection of adulteration, preservatives, and added color of milk; detection of oleomargarine and renovated butter; sediment test. A complete course on the testing of milk and its products which are ordinarily used in a dairy plant. Mr. Clevenger.



- A. H. 214. Cheese Making.** 0-0-3  
 Elective for seniors.  
 Lectures will take up the methods of manufacturing of soft cheeses, cottage, neufchatel, buttermilk, cream and pimento cheese, and hard cheeses, cheddar, Swiss, brick, limburger, and others. The method of paying for milk at cooperative cheese factories, and the scoring of the various standard cheeses. The organization of cheese factories and the construction of building and equipment. The laboratory work will consist of making the various soft and hard cheese suitable to local conditions.  
 Mr. Clevenger.
- A. H. 215. Dairy Manufacture Practice.** 0-3-0  
 Elective.  
 Creamery ice cream, milk plant and cheese factory management, judging and scoring of dairy products; defects, causes, and remedies. Dairy mechanics, including mechanical refrigeration and bookkeeping methods used.  
 Mr. Clevenger.
- A. H. 216. City Milk Supply.** 0-0-4  
 Electives for seniors.  
 Lectures and assigned readings will be given on the handling and distribution of milk for city trade, including cooling, clarifying, standardization, pasteurization, and bottling milk and cream, and methods of determining the bacterial and leucocyte count in milk, in order to comply with the regulations laid down by the various city ordinances. Laboratory will consist of practical work in handling and processing milk and the operation of a milk plant. Training will be given in milk inspection from the standpoint of the Board of Health, city milk plant, and dairy farm requirements for the production of good milk.  
 Mr. Clevenger.
- A. H. 217. Ice Cream Making.** 4-0-0  
 Elective for seniors.  
 Standardizing of mixing and freezing of ice cream, sherbets, and other frozen products, and the physical principles involved; types of freezers, flavoring materials, fillers and binders; ice cream standards; the theory and practice of artificial refrigeration and its use in the ice cream plant.  
 Mr. Clevenger.
- A. H. 218. Hygiene and Sanitation of Farm Animals.** 3-0-0  
 Elective for seniors.  
 A study of conditions on the farm which cause diseases of the several systems, changes to be made in caring and feeding, also nursing and remedies to be used.  
 Mr. Koonce.
- A. H. 219. Communicable and Parasitic Diseases of Farm Animals.** 0-0-3  
 Elective for seniors.  
 This course naturally follows the previous course. It takes up those diseases of our domestic animals that are communicated from one to another, principally to bacteria. It includes a discussion of external and internal parasites to acquaint the student with the best known means of combating them.  
 Mr. Koonce.

**A. H. 220. Animal Husbandry Problems. 1-1-1**

Required of seniors in Animal Husbandry.

A discussion of livestock problems by Extension and Research Workers, together with special assignments to students with regard to various phases of the industry. Animal Husbandry Staff.

**A. H. s220. Stock Judging. 1 credit.**

This course aims to train the student to become proficient in livestock judging. The first part of the work consists of a study of the breed characteristics of farm animals, and the proper types within each breed. The major portion of the work is done by the method of comparative judging, using rings of from three to five animals. Some time is devoted to the methods of conducting livestock contests. Mr. Ruffner.

**A. H. s221. Farm Animals in Health and Disease. 1 credit.**

In this course the common diseases of domestic animals are discussed and particular attention is given to first aid treatment, preventive measures against the spread of contagious and infectious diseases, methods of taking temperatures, the modes of administering the more commonly used medicines; the prevention of hog cholera, the importance of tuberculin testing, and the care of animals and premises for the prevention of disease. This is a course for county agents, teachers, and students preparing to teach

**A. H. 222. Dairy Machinery. 0-1-0**  
Vocational Agriculture. Mr. Ruffner.

Elective for juniors and seniors.

The principles with practical demonstrations on the installation, care and handling of dairy plant boilers, refrigerating machinery and all kinds of dairy machinery, also soldering, pipe fitting, belt lacing and other things one needs to know to operate a dairy manufacturing plant. A laboratory course. Mr. Clevenger.

**A. H. 223. Dairy Products Judging. 0-0-1**

Elective for juniors and seniors.

A course designed specifically to train students in the art of scoring butter, cheese, ice cream and market milk according to official standards and commercial grades. A laboratory course. Mr. Clevenger.

**Courses for Graduates and Advanced Undergraduates****A. H. 301. Dairy Manufacturers. 3-3-3**

Special problems dealing with the manufacture and marketing of dairy products. Mr. Clevenger.

**A. H. 303. Advanced Judging of Swine. 0-0-3**

Considering the individuality of the animal, not only from the show-yard standpoint, but also taking into consideration the pedigree and performance. This course would naturally be impossible without the preceding course,

and in addition to the actual study of a large number of animals, reference work will be required in order to study the pedigree and performance of prize-winning animals.  
Mr. Hostetler.

**A. H. 304. Herd Improvement.** 0-0-3

Prerequisite A. H. 101, 102, 103.  
Elective for juniors and seniors.

This course is designed for training students as Supervisors of Cow-Testing Associations in North Carolina. Rules and requirements for Advanced Registry Testing are studied in detail. Lectures are supplemented with laboratory work and the student is required to do practical work in keeping feed costs, milk weights, butterfat tests necessary in the efficient management of Dairy Associations.  
Mr. Haig.

**A. H. 306. Comparative Physiology.** 3-0-0, 0-3-0, or 0-0-3

This course treats of the physiology of domestic animals, beginning with the study of the blood, heart, blood vessels, and continuing with the ductless glands and internal secretions, respirations, digestion, and absorption.  
Mr. Koonce.

**A. H. 307. Problems in Advanced Animal Breeding.** 3-0-0, 0-3-0, or 0-0-3

A study of the physiology of reproduction. Methods and problems of breeders; influence of pedigrees, herd-books, and Mendelism in animal breeding.  
Mr. Ruffner.

**A. H. 308. Stock Farm Management.** 0-0-3

Elective for seniors.

A subject devoted to the study of successful methods of operating farms devoted chiefly to livestock production. Special reference is made to best systems applied to North Carolina conditions.  
Mr. Ruffner.

**Courses for Graduates Only**

**A. H. 402. Research Studies in the Breeds of Swine.**

3-0-0, 0-3-0, or 0-0-3

In this course an intensive study will be made of the histories of the popular breeds in the United States and a general study of breeds not common in this country.  
Mr. Hostetler.

**A. H. 404. Advanced Nutrition.** 3-0-0, 0-3-0, or 0-0-3

This course consists of a survey of experimental feeding of horses, cattle, sheep, and hogs, together with a study of the fundamental and practical feeding problems of the various sections of the country. Emphasis is laid upon the results obtained in experimental investigation of these problems. A study is made of the effects of various feeds on growth and development. Animals are used in demonstrating the effects to these various nutrients and rations.  
Mr. Ruffner.

**A. H. 405. Special Problems in Parasitology and Immunology.**

3-0-0, 0-3-0, or 0-0-3

The great economic importance of both external and internal parasites of our domestic animals will be studied, both from an etiological and preventive standpoint, on a project basis. The principles and practices of immunology in their relation to communicable diseases will constitute some of the problems in detecting and preventing such diseases.

Mr. Koonce.

**A. H. 408. Special Problems in Dairy Manufacturing Practice.**

3-0-0, 0-3-0, or 0-0-3

This course is designed for any graduate student interested in a special dairy manufacturing problem in soft or hard cheese, ice cream, creamery buttermaking or city milk distribution work. The problem is to be outlined specifically and under the supervision of the instructor or instructors in charge, and with the approval of the head of the department.

Mr. Clevenger.

**A. H. 409. Seminar.**

1-1-1

Members of the seminar will be assigned subjects of interest to students of Animal Husbandry, which will be reviewed and discussed. Review of literature, Experiment Station bulletins, and scientific reports. Oral and written reports.

Mr. Ruffner, Mr. Hostetler, Mr. Haig.

**ARCHITECTURAL ENGINEERING****Courses for Undergraduates****A. E. 101. Appreciation of Fine Art.**

3-3-3, or 3 0-0, 0-3-0, 0-0-3

Elective, open to all students who obtain permission of the instructor. Course may be begun at the beginning of any term.

Principles of art, together with the historic development of architecture, painting, and sculpture. An effort will be made to instill into the student a feeling for the qualities which constitute great art. Illustrated lectures and required use of prints and notebooks. The work of each term will be complete in itself. First term: Architecture. Second term: Painting. Third term: Sculpture and minor arts.

Mr. Paulson.

**A. E. 102. Elements of Design I.**

2-2-2

Required of sophomores in Architectural Engineering.

Prerequisite; Freshman Drawing.

Architectural lettering and conventions. The study of the Classic Orders of Architecture and their applications by the Analytique Method.

Mr. Shumaker, Mr. Paulson.

**A. E. 103. Elements of Design II.**

1-1-1

Required of sophomores in Civil and Highway Engineering.

Prerequisite; Freshman Drawing.

Architectural lettering and conventions. The Classic Orders of Architecture.

Mr. Paulson.

- A. E. 104. Masonry Construction.** 0-0-2  
 Required of sophomores in Architectural Engineering.  
 Study of building materials and their quality, manufacture and cost, and the methods of construction. Mr. Shumaker.
- A. E. 105. Architectural Drawing I.** 1-1-1  
 Required of juniors in Architectural and Construction Engineering.  
 Freehand drawing from cast and still-life; medium of pencil, charcoal, and water color. Mr. Paulson.
- A. E. 106. Shades and Shadows.** 2-0-0  
 Required of sophomores in Architectural Engineering concurrent with Elements of Design I. A. E. 102.  
 Prerequisite: Freshman Drawing and Descriptive Geometry.  
 The determination of conventional shades and shadows as they occur on rendered drawings. Mr. Shumaker.
- A. E. 107. Building Sanitation.** 2-0-0  
 Required of seniors in Architectural Engineering.  
 A study of water supply, soil, waste, and vent-pipe systems. Plumbing fixtures, traps, water heaters, and their installation. Lay outs in various types of buildings. Mr. Shumaker.

#### Courses for Advanced Undergraduates

- A. E. 201. Architectural Drawing II.** 1-1-1  
 Required of seniors in Architectural Engineering.  
 Prerequisite: Architectural Drawing I, A. E. 105.  
 Freehand drawing from cast, still-life, and objects of nature. Pen and ink drawing. Outdoor sketching. Freehand perspective. Mr. Paulson.
- A. E. 202. Architectural Design I.** 3-3-3  
 Required of juniors in Architectural Engineering.  
 Prerequisite: Elements of Design I, A. E. 102.  
 Class B. Analytique and Esquisse-Esquisse. Problems for the study of the application of the Orders of Architecture and their details at a large scale. Final drawings made in ink, with all shadows accurately cast and rendered. Perspective drawing. Students are required to register in Architecture in the Beaux-Arts Institute of Design. Fee \$7.50.  
 Mr. Shumaker and Mr. Paulson.
- A. E. 203. Working Drawings.** 2-0-0  
 Required of juniors in Architectural Engineering.  
 Prerequisite: Elements of Design, A. E. 102.  
 The preparation of working and detail drawings to scale.  
 Mr. Shumaker.

- A. E. 204. Architectural Design II.** 3-3-3  
 Required of seniors in Architectural Engineering.  
 Prerequisite; Architectural Design I, A. E. 202.  
 Class B. Project. Problems for the study of good composition in plan as well as elevation, wherein the structural features are carefully studied and circulation arranged in a practical manner. Shadows accurately cast and rendered. Students are required to register in Architecture in the Beaux-Arts Institute of Design. Fee \$7.50.  
 Mr. Shumaker, Mr. Paulson.
- A. E. 205. Professional Practice.** 2-2-2  
 Required of seniors in Architectural Engineering.  
 Prerequisite: Architectural Design, A. E. 202.  
 Professional ethics. The relation of architect to owner and contractor. Supervision of building construction. Estimates, specifications, and architectural composition. Theory of design, scale, and proportion.  
 Mr. Shumaker and Mr. Paulson.
- A. E. 206. History of Architecture** 2-2-2  
 Required of juniors in Architectural Engineering.  
 Prerequisite: Elements of Design I, A. E. 102.  
 An historical study of architecture from antiquity to modern times. Illustrated lectures. Library research with sketching. Mr. Paulson.
- A. E. 207. Structural Drawing.** 1-2-2  
 Required of seniors in Architectural Engineering.  
 Prerequisite: Elements of Design I, A. E. 102.  
 Special problems pertaining to the design of structures. Preparation of complete working and detail drawings. Mr. Shumaker.
- A. E. 208. History of Ornament.** 0-3-0  
 Required of seniors in Architectural Engineering.  
 Prerequisite: Architectural History, A. E. 206.  
 Lectures to familiarize the students in Architecture with the various historic periods. The development of the styles, the common motives and patterns of both architectural ornament and the decorative arts. Periodic drawing. Mr. Paulson.

#### Courses for Graduates and Advanced Undergraduates

- A. E. 301. Architectural Design III.** 3-3-3  
 Prerequisite: Architectural Design II, A. E. 204.  
 Class A. Projects requiring an advanced knowledge of planning and the principles of decoration. Archaeology projects are given to familiarize students with the recognized styles of Architecture in the different epochs of design. Measured drawings are required of the students, to demonstrate that they are qualified to prepare such drawings of subjects of archaeological interest to architects. Registration in Architecture in the Beaux Arts Institute of Design is required. Fee \$7.50. Mr. Shumaker.

## Courses for Graduates

**A. E. 401. Historic Research.** 3-3-3

Prerequisite: History of Architecture, A. E. 201, and History of Ornament, A. E. 208.

Studies on assigned subjects relating to ancient Egyptian, Persian, Greek, Roman, Early Christian, Byzantine, Romanesque, Gothic, and Renaissance Architecture and Art, as well as that of modern times. Mr. Paulson.

## BOTANY

## Term Courses

**Botany 23. Fruit and Vegetable Diseases.** 0-3-0

This course will deal with those diseases which are economically most important to the producer and shipper of fruits and vegetables. Emphasis will be placed mainly upon diagnosis and methods of control applicable to conditions obtaining in the orchard or garden, in transit, and in storage. Minor attention will be given to life history of the casual organisms.

Mr. Lehman, Mr. Poole.

**Botany 31. Distases of Field Crops.** 0-0-3

This course will be devoted to a consideration of the common diseases of cotton, tobacco, cereals, and legumes. Characters useful in the recognition of these disorders will be studied, and special stress will be placed upon seed treatment and other control measures of practical application. Attention will be given to the casual organisms only in so far as their life cycles are related to the measures found effective in control of these diseases.

Mr. Lehman, Mr. Poole.

## Courses for Undergraduates

**Botany 101. General Botany I—Nature of Higher (Crop) Plants.** 4-0-0

Required of freshmen or sophomores in Agriculture. This course or Zoology 101 required in the School of Science and Business.

This course and the following one are intended for two classes of students: (1) those who are going into agriculture, and (2) those students in the School of Science and Business who desire an introduction to the field of Botany. This course presents the major structural and functional facts pertaining to the higher or seed-bearing plants. Crop plants furnish most of the illustrative material.

Mr. Wells, Mr. Shunk, Mr. Anderson, Mr. Whitford.

**Botany 102. General Botany: The Lower Plants.** 0-4-0

Required of freshmen or sophomores in Agriculture. This course or Zoology 101 is required in the School of Science and Business.

In this course a survey of the lower plants is made, with the emphasis upon those (bacteria and fungi) which produce disease in plants, animals, and men. In addition, the student's attention is directed to some fundamental biological situations such as heredity, evolution, and relation of organism to environment.

Mr. Wells, Mr. Shunk, Mr. Anderson, Mr. Whitford.

- Botany 103. Plant Physiology.** 3-3-0  
 Elective for sophomores in Agriculture.  
 Prerequisite: Bot. 101, 102.  
 In this course greater opportunity is offered the student to acquaint himself with crop plant activities than was possible in the General Botany courses. In addition to the demonstration experiments presented by the instructor, the student will enjoy the opportunity of performing many significant experiments himself. This course is basic for all practical plant production work.  
 Mr. Anderson.

#### Courses for Advanced Undergraduates

- Botany 201. Diseases of Field Crops.** 0-3-0  
 Elective for juniors and seniors.  
 Prerequisite: Bot. 101, 102, 103.  
 This course is devoted to a study of the more important diseases of the field crops, such as cotton, tobacco, corn, cereals, legumes, and grasses. Attention is not only given to symptoms exhibited by the host plant, but studies are made of the causal organisms with particular reference to their reproduction, with which function the spread of most diseases is associated. Control measures are also given a prominent place in the course.  
 Mr. Lehman.
- Botany 202. Diseases of Fruit and Vegetable Crops.** 0-0-3  
 Elective for juniors and seniors.  
 Prerequisite: Bot. 101, 102, 103.  
 In this course a study of the more destructive diseases of fruits and vegetables is made. Signs and symptoms useful in identification are pointed out, and the causal organisms are studied as a means of acquiring a better understanding of the spread of these diseases. Various measures of control are outlined, and their merits discussed.  
 Mr. Poole.
- Botany 203. General Bacteriology.** 0-4-0 or 0-3-0  
 Prerequisite: Bot. 101, 102, or Zool. 101.  
 This course, which is basic for all other work in the subject, gives an introduction to the principles of bacteriology. All of the various fundamental phases of bacteriology are taken up. Through laboratory work the student learns modern cultural methods of handling and studying bacteria. Toward the latter part of the term opportunity will be offered students to do special laboratory work on water, milk, and disease producing bacteria, if they so desire.  
 Mr. Shunk.
- Botany 204. Systematic Botany.** 0-0-3 or 5  
 Elective in Agriculture and Science.  
 Prerequisite: Bot. 101, 102.  
 A course designed primarily to acquaint the student with the plants of the State, both cultivated and wild; and, secondarily, to give him some definite notions in regard to plant groups and their relationships. A broad knowledge of plant types is a genuine desideratum as a basis of most plant production work, especially in such fields of activity as Agronomy, Horticulture, and Forestry.  
 Mr. Wells, Mr. Whitford.



**Botany 205. Plant Microtechnique.** 0-0-3 or 5

Elective in Agriculture and Science.

Prerequisite: Bot. 101, 102.

In this course the student is taught all of the principal processes used in preparing plant material for microscopic investigation. In addition, the student is introduced to a number of important microchemical tests.

Mr. Wells.

**Botany 206. Rural Sanitation.** 0-3-0

Required of seniors in General Agriculture.

Elective for others.

A combination course given by four departments in which the following topics are included: relation of bacteria to rural public health; relation of insects to the transfer of disease-producing organisms; personal hygiene; meat, milk, other food, and water inspection; sanitary plumbing for the home.

Mr. Shunk, Mr. Metcalf, Mr. Koonce, Mr. Weaver.

**Botany 207. Dendrology.** 3-0-0

Elective.

Prerequisite: Bot. 101, 102.

This course aims to familiarize the student with trees of North Carolina. Leaf, twig, and trunk characters serve as the chief means of identification; flower and fruit characters are used as supplementary aids. Each tree identified is studied briefly from the standpoint of economic importance and distribution. A limited amount of time will be devoted to wood technology, and in this phase of the course the Forestry Department will cooperate.

Mr. Wells, Mr. Whitford.

#### Courses for Graduates and Advanced Undergraduates

**Botany 301. Advanced Plant Pathology.** 5 or 5 or 5

Elective.

Prerequisite: Bot. 101, 102, 201, or 202.

A course designed for the training of specialists in plant pathology. Special emphasis will be laid upon investigational methods dealing with isolation, infection, cultivation in artificial media, morbid anatomy, and other phases of laboratory technic.

Mr. Lehman, Mr. Poole.

**Botany 302. Advanced Bacteriology.** 0-3-0

Prerequisite: Bot. 101, 102, 103, 203.

This course is intended for students who desire a more comprehensive knowledge of bacteriology. It may be elected also by students who desire to fit themselves for extension or investigational work in any of the special fields of bacteriology.

Mr. Shunk.

- Botany 303. Plant Morphology: The Lower Plants** 3 or 5-0-0  
 Elective in Agriculture and Science.  
 Prerequisite: Bot. 101, 102.  
 In this course a survey is made of the simpler or lower plants known as bacteria, algae, and fungi. The modern schemes of classifying these diverse groups are taken up after the student has made an intensive study of the numerous types furnished. This and the following course should be taken by all students specializing in biology. Mr. Wells, Mr. Whitford.
- Botany 304. Plant Morphology: The Green Land Plants.** 0-3 or 5-0  
 Elective in Agriculture and Science.  
 Prerequisite: Bot. 101, 102.  
 A course dealing with the evolution of the land plants. An original diagrammatic method is used in helping the student master the intricacies involved in the comparative study of these alternation-of-generation forms. The course closes with an introduction to the anatomy of the higher plants. Mr. Wells, Mr. Whitford.
- Botany 305. Mycology.** 0-3-3  
 Elective.  
 Prerequisite: Bot. 101, 102, 103, 201 or 202.  
 A course dealing with the identification and classification of fungi, with special emphasis upon those forms which are parasitic upon crop plants. Such a course is fundamental to a working knowledge of Plant Pathology. Mr. Lehman, Mr. Poole.
- Botany 306. Advanced Plant Physiology.** 5 or 5 or 5  
 Elective.  
 Prerequisite: Bot. 101, 102, 103.  
 In this course the student performs a series of advanced experiments, taking note throughout of quantitative as well as qualitative data. All students who expect to deal with crop production problems in a technical way should include this course in their curricula. Mr. Anderson.
- Botany 307. Plant Ecology.** 3 or 5-0-0  
 Elective in Agriculture and Science.  
 Prerequisite: Bot. 101, 102, 103.  
 A lecture and field course presenting the basic facts concerning the influence of environment in controlling plant distribution. After a brief survey of the main vegetational areas of the world, emphasizing the United States, an intensive study of North Carolina conditions is made. Some attention is given to those structural adaptations in plants which are found associated with particular environments. The course closes with an investigation into the contribution that ecology makes to the solution of certain crop problems, especially those that arise out of soil and climatic situations. Mr. Wells.

## Courses for Graduates Only

**Botany 401. Pathology of Special Crops. 3-3-3**

Prerequisite: Bot. 201 or 203, 301.

Emphasis in this course will be placed on the diseases of special groups of crop plants, viz.: truck crops, fruit trees, field crops. The diseases of forest and ornamental trees may be studied in connection with this course.

Mr. Lehman, Mr. Poole.

**Botany 402. Bacteriology: Special Studies. 3 or 3 or 3**

Prerequisite: Bot. 203, 302.

Opportunity will be given to pursue special work on restricted groups of bacteria, such as nitrogen bacteria of the soil, milk organisms, and special groups in water supplies.

Mr. Shunk.

**Botany 403. Systematic Botany. 3-0-0 or 0-0-3**

Prerequisite: Bot. 204.

In this course the student is expected to make a special study of a restricted group of native plants, especially emphasizing the following: the organization of the species within the group, the distribution of the plants within the State, and the variations of individuals from the type condition.

Mr. Wells.

**Botany 404. Plant Physiology. 3-3-3**

Prerequisite: Bot. 306.

In this course the graduate student is given an opportunity to take up special problems in the field of plant physiology. The laboratory work consists chiefly of a series of original experiments covering the special phases which the student has chosen to investigate. In addition, a large amount of reference reading bearing upon the problems in hand is required. Frequent conferences with the instructor will be held.

Mr. Anderson.

**Botany 405. Plant Ecology. 3-0-0 or 0-0-3**

Prerequisite: Bot. 204, 307.

This course is designed to cover the activities of the student who is making a special study of some phase of the plant ecology of the Southeastern United States region. A large amount of field work is required. On the literature side, extensive readings bearing upon the fundamental situations underlying the special problems being investigated as assigned. Frequent consultations with the instructor will be held.

Mr. Wells.

**Botany 406. Research in Botany. 3-3-3**

Prerequisite: 30 hours 100-300 courses in botany.

In this course work on special problems which may not be logically included in the preceding graduate courses, may be pursued.

Botany Staff.

**Botany 407. Seminar. 1-1-1**

In addition to attendance upon the weekly seminar throughout the year the student will be required to present a paper in his major field of research. Other reports will deal with the results of the research of members of the staff.

Botany Staff.

## CERAMIC ENGINEERING

## Courses for Undergraduates

**Cer. E. 102. Silicate Analysis.** 3-3-0  
 Required of Sophomores in Ceramic Engineering.  
 Prerequisite: Chem. 101.  
 The application of chemistry to Ceramic Engineering. Mr. Shelton.

**Cer. E. 103. Ceramic Materials.** 0-3-0  
 Required of Sophomores in Ceramic Engineering.  
 Prerequisite: Geol. 120.  
 The origin and occurrence of ceramic raw materials, their chemical and physical properties and systems of measuring them. Mr. Shelton.

**Cer. E. 104. Ceramic Processes.** 0-0-3  
 Required of Sophomores in Ceramic Engineering.  
 The winning and preparation of ceramic materials and the equipment and processes used in manufacturing ceramic products.  
 Mr. Greaves-Walker.

## Courses for Advanced Undergraduates

**Cer. E. 207. Bodies, Glazes, and Colors.** 0-0-3  
 Required of juniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 102 and 103.  
 Lectures on the composition and production of ceramic bodies, glazes and colors. Mr. Shelton.

**Cer. E. 208. Dryers and Drying.** 3-0-0  
 Required of Juniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 104.  
 The theory and practice of drying ceramic products.  
 Mr. Greaves-Walker.

**Cer. E. 209. Ceramic Calculations.** 0-0-3  
 Required of juniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 102.  
 Solution of chemical and physical problems of the industry.  
 Mr. Shelton.

**Cer. E. 210. Cements, Enamels, and Glasses.** 0-3-0  
 Required of seniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 102 and 103.  
 Portland and hydraulic cements, enameling on metals and glasses.  
 Mr. Shelton.

**Cer. E. 211. Ceramic Designing.** 0-4-4  
 Required of seniors in Ceramic Engineering.  
 Prerequisite: M. E. 107, Cer. E. 208, 209, and 213.  
 Designing of clay plant structures and arrangement of mechanical equip-  
 ment; design of dryers and kilns. Mr. Greaves-Walker.

**Cer. E. 212. Ceramic Products.** 0-0-2  
 Required of juniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 104.  
 A study of the physical, chemical, and artistic properties necessary in  
 ceramic products. Messrs. Greaves-Walker and Shelton.

#### Courses for Advanced Undergraduates

**Cer. E. 213. Kilns and Burning.** 0-3-0  
 Required of Juniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 208.  
 The theory and practice of firing ceramic products.  
 Mr. Greaves-Walker.

**Cer. E. 214. Pyrometry.** 1-0-0  
 Required of Seniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 213.  
 The theory and use of temperature measuring instruments in industry.  
 Mr. Greaves-Walker.

**Cer. E. 215. Ceramic Laboratory.** 3-3-3  
 Required of seniors in Ceramic Engineering.  
 Prerequisite: Cer. E. 208, 209, and 213.  
 Practice in the operation of ceramic equipment and production of clay  
 products. Practice in drying and burning ceramic products and in testing  
 their physical properties. Messrs. Greaves-Walker and Shelton.

#### Courses for Graduates and Advanced Undergraduates

**Cer. E. 301. Refractories.** 0 0-3  
 Required of Seniors in Ceramic Engineering and Mining Engineering.  
 Prerequisite: Cer. E. 102 and 103.  
 Refractory materials and manufacture of refractory products.  
 Use of refractory products in industrial furnaces.  
 Mr. Greaves-Walker.

**Cer. E. 302. Glazes and Colors.** 3-3 3  
 Prerequisite: Cer. E. 207.  
 Laboratory practice in the production of glazes and colors.  
 Mr. Shelton.

- Cer. E. 303. Designing of Ceramic Equipment and Plants.** 3-3-3  
 Prerequisite: Cer. E. 211.  
 Advanced study and designing of ceramic machinery dryers, kilns, and plant structures. Mr. Greaves-Walker.

**Courses for Graduates Only**

- \*Cer. E. 401. Advanced Refractories and Furnaces.** 3-3-3  
 Prerequisite: Cer. E. 301.  
 Refractory materials and products and methods of testing them. Use of refractories in boilers, glass tanks, metallurgical and other furnaces. Mr. Greaves Walker.
- \*Cer. E. 402. Industrial Adaptability of Clays** 3-3-3  
 Prerequisite: Cer. E. 215.  
 Laboratory investigations to determine the industrial uses to which various North Carolina clays, shales, and kaolins can be put. Messrs. Greaves-Walker and Shelton.
- \*Only one of these courses will be given in any one year.

**CHEMICAL ENGINEERING**

**Courses for Advanced Undergraduates**

- Chem. E. 201. Industrial Chemistry.** 3-3-3  
 Required of juniors in Chemical Engineering, and of seniors in Textile Chemistry and Dyeing and Textile Design.  
 Prerequisite: Chem. 101.  
 Materials, processes, and reactions involved in chemical manufacture; water, fuels, and power; conversion of raw materials into common useful products, such as sugar, paper, gas, leather, fertilizers, glass; a commercial problem analyzed and a process worked out and presented in a technical report; waste materials and by products; visits to industrial plants. Mr. Randolph.
- Chem. E. 202. Principles of Chemical Engineering.** 3-3-3  
 Required of seniors in Chemical Engineering.  
 Prerequisite or concurrent: Chem. E. 201.  
 Survey of field of Chemical Engineering; basic laws of chemical control of industrial manufacture; equipment for, and principles involved in, such processes as crushing and grinding, separation, evaporation, distillation, filtration; industrial calculations; design and capacity of chemical machinery; efficiency; power; sources of loss; larger yields of purer output at minimum cost. Mr. Randolph.
- Chem. E. 204. Chemistry of Water Supplies I.** 3-0-0  
 Required of seniors in Chemical Engineering.  
 Supplies of water; filter plant machinery, equipment and practice; water purification, sterilization, and softening; types of filters; requirements of waters for municipal and manufacturing purposes; water analysis; research on water purification. Mr. Randolph.

**Chem. E. 205. Chemistry of Engineering Materials.** 0-3-0  
 Required of seniors in Chemical Engineering.  
 Technical study of structural materials, metals and alloys suitable for machinery and containers; building materials for manufacturing plants; physical and chemical nature of metals, heating and cooling effects; corrosion and chemical action; special materials for special purposes; paints and protective coatings; weatherings and discoloring properties of the structural materials; strength, toughness, and elasticity of metals and alloys and conditions governing these properties. Mr. Randolph.

**Chem. E. 207. Applications of Physical Chemistry II.** 0-0-3  
 Required of sophomores in Ceramic Engineering.  
 Prerequisite: Chem. 111 (A).  
 A practical course in Physical Chemistry for Ceramic Engineering students. Special study is made of such phases as H-ion concentration, thermo dynamics, colloids, and other physical chemical phenomena as applied to industry. Mr. Jones.

**Chem. E. 208. Chemistry of Water Supplies II.** 0-0-1  
 Special short laboratory course in Chemistry of Water Supplies for seniors in Civil Engineering, combined with C. E. 207. Mr. Randolph.

**Chem. E. 224. Sanitary Chemistry I.** 0-0-1  
 Special short laboratory course in the Chemistry of Sanitation for seniors in Civil Engineering, combined with C. E. 208. Mr. Jones.

#### Courses for Graduates and Advanced Undergraduates

**Chem. E. 301. Electrochemical Processes.** 0-0-3  
 Prerequisite or concurrent Chem. E. 201.  
 Applications of electrochemistry in Chemical Industries. Theory and practice of Electrolysis. The electric furnace. Electrothermal operations. Mr. Randolph.

**Chem. E. 302. Vegetable Oils and Their Products.** 3-0-0  
 Elective.  
 Prerequisite: Chem. 101.  
 Commercial practice in the manufacture, refining, and conversion of vegetable oils and their by-products; applied chemistry of cotton fiber, cottonseed products and the products of other vegetable oils; analyses, tests, and methods of preparation for foods and feeds; drying, semi-drying, and essential oils. Mr. Randolph.

**Chem. E. 303. Gas Manufacture and Distribution.** 0-0-3  
 A course dealing with the manufacture of industrial fuel gases and their distribution; a study of the history of gas manufacture and a consideration of the advances made in the industry; survey of the apparatus and equipment necessary, together with a study of the general practice in gas plants; application and use of gas and the by-products of its manufacture.  
 Mr. Jones.

- Chem. E. 304. Sanitary Chemistry II.** 0-0-3  
 Technical study of the methods of sanitation in industrial plants; equipment and practice in the disposal and treatment of waste materials and sewage; discussion of measures necessary in eliminating occupational disease hazards. Mr. Hazards.
- Chem. E. 305. Applied Physical Chemistry.** 0-3-3  
 Special phases of physical chemistry are studied technically, with reference to the practical application of these principles in the industries and in the arts. Mr. Randolph.

#### Courses for Graduates

- Chem. E. 401. Chemical Technology.** 3-3-3  
 An advanced course in problems relating to reactions, processes, and methods of chemical manufacture and production; special problems which present themselves to local manufacturing plants become subjects of investigation to be worked out under plant conditions; physico-chemical relations which govern the speed of reaction, equilibrium, and optimum production conditions; special study in applied inorganic, applied organic chemistry, and research in applied chemistry. Mr. Randolph.
- Chem. E. 402. Industrial Chemical Research.** 3-0 0  
 Prerequisite or concurrent: Chem. E. 201.  
 Chemical research on some industrial problem relating to North Carolina resources, such as the vegetable oil industry, wood products industry, water supplies and waste disposal; practice in industrial plants, control analyses, estimate of losses, costs, data sheets, technical report. Mr. Randolph.
- Chem. E. 403. Chemical Engineering Research.** 0-3-0  
 Prerequisite or concurrent: Chem. E. 201 and 202.  
 Some plant problem is studied exhaustively by making investigations at the chemical plant, and by supplementary experiments and research in the laboratory; measurements, tabulation, graphs, and calculation of some actual plant problem. Mr. Randolph.

## CHEMISTRY

### Courses for Undergraduates

- Chem. 101 or Chem. 101-A. General Inorganic Chemistry.** 4-4-4 or 4-4-0  
 Open to all students.  
 Chemistry 101 required of all freshmen specializing in Chemistry, in Textiles, and in Engineering.  
 Chemistry 101-A required of all freshmen in Agriculture.  
 Lectures, demonstrations, recitations, and laboratory work comprising a systematic treatment of fundamental theories and laws as well as the history, occurrence, preparation, properties, and uses of the more important elements and their compounds. Especial attention directed to the significance of formulae, valence, equations, and calculations.  
 Messrs. Caveness, Cummings, Jones, Jordan, Satterfield, Wilson and Williams.



- Chem. 109. Chemical Calculations.** 0-2 0 or 0-0-2  
 Elective.  
 Prerequisite: Chem. 101.  
 A course in the solving of mathematical problems arising in the various courses of Chemistry and especially in analytical work. Lectures are given as needed explaining the principles, theories, laws, etc., upon which the problems are based. Students are required to solve assigned problems which are subsequently discussed in class. Type problems from the individual student's work are also treated.  
 Mr. Caveness.
- Chem. 111. Qualitative Analysis.** 4-0-0  
 Required of sophomores in Chemical Engineering and those majoring in Chemistry and of juniors in Textile Chemistry and Dyeing.  
 Prerequisite: Chem 101.  
 The principles and practice of chemical analysis. The identification and separation of the more common ions and the complete analysis of mixtures of salts and of commercial products.  
 Mr. Wilson.
- Chem. 112. Quantitative Analysis.** 0-4-0  
 Required of sophomores in Chemistry, Chemical Engineering, and Textile Chemistry and Dyeing.  
 Prerequisite: Chem 111.  
 Gravimetric and volumetric methods of analysis, including alkalimetry, acidimetry, oxidation, and reduction methods. Pure salts or mixtures of pure salts are given at first to teach proficiency in methods. Substances of more difficult nature are then analyzed.  
 Mr. Wilson.
- Chem. 113. Quantitative Analysis.** 0-0-4  
 Required of sophomores in Chemical Engineering and those majoring in Chemistry, and of juniors in Textile Chemistry and Dyeing.  
 Prerequisite: Chem 112.  
 A continuation of Chem. 112. Substances of more difficult nature are analyzed. Minerals, steel, alloys, limestone, Paris green, etc.  
 Mr. Wilson.
- Chem. 113-B. Quantitative Analysis.** 0-0-4  
 Prerequisite: Chem. 112.  
 Elective for Agricultural students.  
 This course allows the student to choose the field of analysis, such as soil analysis, fertilizers, feedstuffs, insecticides, and fungicides.  
 Mr. Wilson.
- Chem. 141. Practical Organic and Biological Chemistry.** 0-0-3  
 Required of freshmen in Agriculture. Elective for others.  
 Prerequisite: Chem. 101-A.  
 A systematic study of hydrocarbons, alcohols, aldehydes, ketones, acids, ethers, esters, amino acids, and benzene derivatives, with entire emphasis on the substances in these groups which are related to plant and animal life processes. Special attention to carbohydrates, fats, proteins, and related compounds. Brief treatment of vitamins, alkaloids, plant colors, flavors, and other miscellaneous substances.  
 Mr. Satterfield.

## Courses for Advanced Undergraduates

- Chem. 221. Organic Chemistry.** 4-4-4  
 Required of juniors in Chemical Engineering, Chemistry and Textile Chemistry and Dyeing. Elective for others.

Prerequisite: Chem. 101.

The first part of the course will be devoted to the aliphatic and the latter part to the aromatic compounds. Throughout the course special emphasis will be laid on the practical applications of the subject.

The laboratory work is intended to familiarize students with methods of preparation and purification of compounds, and methods of arriving at their structures.  
 Mr. Williams.

- Chem. 231. Physical Chemistry.** 4-4-4

Required of seniors in Chemical Engineering, and elective to others.

Prerequisite: Chem. 113.

Fundamental principles of Physical Chemistry; careful consideration of the laws and theories, with reference to various branches of chemistry and their application to industrial processes; electro-chemistry.

Mr. Randolph.

- Chem. 240. Industrial Foods** 3-0-0 or 0-3-0

Designed for students in all schools.

Prerequisite: Chem. 101 or 101 A and 141.

A study of the production and manufacture of food products. Food principles, cereals, starches, sugars, fats, milk and milk products, the packing house, food preservation, beverages, spices and condiments will be treated. Food legislation.  
 Mr. Satterfield.

- Chem. 245. Agricultural Chemistry.** 3-0-0

Designed for students in Agriculture; open to others.

Prerequisite: Chem. 101 or 101-A and 141.

Feeding the plant with minerals; protecting the plant with insecticides and fungicides; transforming the plant into human food and animal food. Composition of plants; relation between composition and uses. Chemistry of bacterial processes in so far as they are related to animal life.  
 Mr. Satterfield.

## Courses for Graduates and Advanced Undergraduates

- Chem. 301. Advanced Inorganic Chemistry and Inorganic Preparations.** 0-2-2 or 0-3-3

This course consists of lectures and discussions of various phases of Inorganic Chemistry; also a study of a number of typical inorganic compounds involving chemical reactions, conditions, properties and principles as they apply to their preparation.  
 This course will be given 1928.

Mr. Jordan.

- Chem. 303. Theoretical and Historical Chemistry.** 2-2-2  
Prerequisite: Chem. 101.  
The structure of atoms and molecules, chemical reactions and the conditions influencing them, electronic conception of valence, radio activity, etc.  
A study of the leaders in the development of Chemistry.  
Mr. Williams.
- Chem. 308. Chemical Literature.** 2-0-0  
This course is intended to familiarize students with the information, and types of information to be found in such sources as chemical, technical, and engineering periodicals, indexes, handbooks, dictionaries, monographs, government bulletins, and journals, in order to facilitate their advanced work in Chemistry. Specific problems in Chemistry will be assigned. The student will be expected to report upon the original literature bearing upon these problems.  
\*This course will be given in 1928. Mr. Jordan.
- Chem. 309. Methods of Teaching Chemistry.** 2-2-2  
Particularly intended for students specializing in Chemistry; open to others.  
Prerequisite: Chem. 113.  
Lectures and recitations, with emphasis being placed upon laboratory instruction. Preparation and execution of lecture-table demonstrations. Supervised observation in laboratory instruction. Critical study of the many Chemistry textbooks. Assignments; consultations.  
Mr. Satterfield.
- Chem. 310. Laboratory Administration.** 0-0-2  
This course deals with the purchase of apparatus and chemicals; equipping students' desks; laboratory re-agents; obtaining supplies from stock room; management of stock room; a study of supply houses; methods of buying; types and quality of apparatus and chemicals; examination of supplies before purchase.  
\*This course will be given 1929. Mr. Jordan.
- Chem. 311. Advanced Qualitative Analysis.** 4-0-0  
Elective, first, second, or third term.  
Prerequisite: Chemistry 215 or its equivalent.  
This course is intended to acquaint the students with the theory and reactions involved in the analysis of the more complicated compounds.  
Mr. Wilson.
- Chem. 315. Advanced Quantitative Methods.** 0-3-0 or 0-0-3  
The aim of this course is to acquaint the student with the methods and apparatus used in advanced quantitative analysis, such work as heat of combustion, colorimetry, measuring hydrogen ion concentration, electric combustion of steel, etc.  
Mr. Wilson.

**Chem. 335. Chemistry of Colloids. 0-3-0**

Prerequisite: Chem. 141 or 221.

Fundamentals of colloidal behavior, osmotic pressures, dialysis, sols and gels, membranes and membrane equilibria, proteins, and Donnan equilibrium. For medical, agricultural, and advanced chemistry students.

For graduate credit, Chem. 231 required as additional prerequisite; additional assigned reading on special topics; also work with current literature.

Mr. Cummings.

**Chem. 336. Catalysis. 0-0-3**

Prerequisite: Chemistry 221 and 231 or parallel Chemistry 231.

This course is an up-to-date treatment of a subject of great importance to both pure and applied Science. Some of the topics discussed are the Measurements and Methods; Oxidation Processes; Sabatier's work, with special emphasis on industrial Hydrogen, and processes for hydrogenation; Hydrolysis; Dehydration; Enzymes and their action; "Chain Reactions"; Electrochemical Catalysis; Radiant energy as catalyst; Negative catalysis and catalyst "poisons"

Mr. Cummings.

**Chem. 341. Chemistry of Life. 3-0-0**

Designed for students specializing in Chemistry.

Prerequisite: Chem. 221.

Introduction to the chemistry of plant and animal life processes; feeding the plant through soil and air; its growth and metabolism; its protection through chemical insecticides and fungicides. Preparation of plant products for use as food for man and animals. The requirements of man and animals for vitamins, minerals, amino acids, proteins, calories. Digestion, metabolism, secretion, and excretion.

Mr. Satterfield.

**Chem. 342. Plant and Animal Substance. 3-0-0**

Prerequisite: Chem. 221.

A study of the chemical composition and physical properties of carbohydrates, fats and proteins, and related compounds; pigments, flavors, alkaloids, tannins. Behavior of enzymes, hormones, vitamins, and toxins. The colloidal condition and its relation to living tissue.

Mr. Satterfield.

**Chem. 343. Chemistry of Plant Life. 0-3-0**

Prerequisite: Chem. 342.

Photosynthesis, formation of various compounds and their uses in the plant. Feeding the plant through the soil; relation of soil conditions to plant growth. Protection of the plant through insecticides and fungicides. Composition and manufacture of insecticides and fungicides. Transformation of plant materials into food for man and beast. Chemical bacteriology.

Mr. Satterfield.

- Chem. 344. Food, Nutrition, and Diet.** 0-3-0  
 Designed for students in any school who desire a practical knowledge of the subject.  
 Prerequisite: Chem. 101 or Chem. 101 A, and Chem. 141 or Chem. 221.  
 While human feeding is emphasized, principles here discussed are applicable to the feeding of animals as well.  
 The importance in food of vitamins, minerals, proteins, amino acids, carbohydrates, fat, fiber, flavor, colors, enzymes, etc. Composition of plant products used as food. Manufacture of special foods. Digestion and metabolism. The pure food laws. Mr. Satterfield.

- Chem. 381. Contemporary American Chemists.** 1-1-1  
 Particularly intended for students specializing in Chemistry; open to others.  
 Prerequisite: Chem. 113.  
 Lectures and assignments to the current literature dealing with the outstanding men and their achievements in the several branches of Chemistry.  
 For graduate credit, Chem. 221 required as additional prerequisite, and additional assignments made to the current literature as well as reports on special topics. Mr. Satterfield.

#### Courses for Graduates

- Chem. 401. Atomic Structure.** 0-0-2  
 A course of special lectures, discussions and collateral readings dealing with the modern theories of the structure of atoms. The chemical journals will be greatly used as a basis of study.  
 \*This will be given 1929. Mr. Jordan.
- Chem. 417. Microchemical Analysis.** 0-0-2  
 Elective.  
 Prerequisite: Chem 113.  
 The object of this course is to develop skill in the technique of Microchemical methods.  
 A system of micro qualitative analysis is first given, followed by a study of fibres, starches, etc. Mr. Wilson.
- Chem. 421. Organic Chemistry, Advanced.** 3-3-3  
 Elective.  
 Prerequisite: Chem. 221.  
 This course will review the principles of Organic Chemistry with special attention to the current literature, and the laboratory work will be designed to give students practice in the more difficult organic preparations, and also preparation in quantity. Mr. Williams.

#### Courses for Graduates Only

- Chem. 422. Organic Qualitative Analysis.** 3-0-0  
 Prerequisite: Chem. 221.  
 The students are instructed in the methods of detecting the elements in compounds, and for recognizing radicals and group characteristics of the different classes and types of organic compounds. Mr. Williams.

- Chem. 423. Organic Quantitative Analysis.** 0-3-0  
 Prerequisite: Chem. 112, 221.  
 This course will involve the analysis of various types of organic compounds for carbon, hydrogen, nitrogen, the halogens, sulfur, etc.  
 Mr. Williams.
- Chem. 424. Organic Micro-Analysis.** 0-0-3  
 Prerequisite: Chem. 221.  
 This course is intended to acquaint the student with some of the tests for compounds, and also for the presence of impurities in quantities too small to be detected by ordinary methods of procedure. Mr. Williams.
- Chem. 491. Seminar.** 1-1-1  
 Required of graduate students specializing in Chemistry.  
 Preparation and presentation of abstracts of current publications in the field of chemistry.

## CIVIL ENGINEERING

### Courses for Undergraduates

- C. E. 102. Theoretical Surveying I.** 0-3-2  
 Required of sophomores in Civil, Highway, Mining, and Construction Engineering, and in Forestry and Landscape Gardening.  
 Prerequisite: Math. 103.  
 Elementary surveying, the use and care of surveying instruments and methods of plane surveying, as: land surveying, traverse lines, leveling, city surveying, topographical surveying, theory of stadia measurements.  
 Mr. Jamison.
- C. E. 103. Field Surveying I.** 0-0-1  
 Required of sophomores in Civil, Highway, Mining, and Construction Engineering, and in Forestry and Landscape Gardening.  
 Prerequisite: Math. 103.  
 Elementary problems in plane surveying, compass and transit surveys of small circuits, adjustments of surveying instruments, differential and profile leveling, application of stadia measurements. Mr. Jamison.
- C. E. 104. Materials of Construction.** 3-0-0  
 Required of sophomores in Civil, Highway, and Construction Engineering.  
 The study of materials used in buildings and other engineering structures; their manufacture, quality, use and cost.  
 Mr. Tucker, Mr. Jamison.
- C. E. 105. Mechanics.** 3-3-3  
 Required of juniors in Architectural, Ceramic, Chemical, Civil, Construction, Electrical, Highway, Mining, and Mechanical Engineering.  
 Prerequisite: Math. 103 and 104.  
 Statics, including concurrent forces, parallel forces, noncurrent forces; friction, centroids, moment of inertia, rectilinear motion, curvilinear motion, and rotation.  
 Mr. Mann, Mr. Foster, Mr. Wooten.

- C. E. 106. Office Methods.** 2-2-0  
 Required of juniors in Construction Engineering.  
 Prerequisite: Elements of Design, A. E. 102.  
 Office practice of Contractors and the preparation of working and detailed drawings to scale. Mr. Geile.
- C. E. 111. Plane Surveying.** 2-0-0 or 0-2-0  
 Required of sophomores in Architectural and Electrical Engineering and of juniors in Ceramic and Mechanical Engineering.  
 Prerequisite: Math. 103.  
 Elementary surveying, the use and care of instruments and methods of plane surveying as: traverse lines, leveling, building lines, city surveying, simple curves, and elementary topographical surveying. Instruction is also given in methods of computing and platting. Mr. Jamison.

#### Courses for Advanced Undergraduates

- C. E. 201. Engineering Field Problems.** 1-0-0  
 Required of seniors in Civil Engineering.  
 Prerequisite: C. E. 206, 207.  
 Special problems in Civil Engineering practice; railroad and highway spinals; use of rating of current meters; use of three-arm protractor; sextant problems; measuring flow and determining power of small streams by current meter and by weirs. Problems using plane table. Mr. Wooten.
- C. E. 203. Strength of Materials and Reinforced Concrete.** 3-3-3  
 Required of seniors in Architectural, Civil, Construction, Highway Engineering.  
 Prerequisite: Math. 201, 202, and C. E. 105.  
 Working stresses of materials, stresses in beams, columns, and shafts. Shear, flexure, and deflection formulas. Derivation of formulas used in reinforced concrete designs, and use of diagrams and curves. Mr. Mann, Mr. Geile.
- C. E. 204. Roofs and Bridges.** 3-3-3  
 Required of seniors in Civil, Construction, Highway Engineering.  
 Prerequisite: Math. 201, 202, and C. E. 105.  
 Calculation by analytical method of stresses on framed structures, due to dead and live loads uniformly distributed and concentrated. Stresses due to moving loads on highway bridges; stresses due to trainloads on railway bridges. Complete solution of roof-truss and bridge problems. Complete designs and drawings for a roof-truss and a highway or railroad bridge. Mr. Mann.

- C. E. 205. Hydraulics.** 3-0-0 and 0-3-0 and 0-0-3  
 Required of seniors in Civil, Construction, Highway, Electrical, and Mechanical Engineering.  
 Prerequisite: Phys. 104, and Math. 201, 202.  
 Principles of hydraulics; Pressure, laws governing flow in pipe and conduits, flow through orifices and nozzles and over weirs, losses from friction and other sources. Methods of measuring the flow of streams; determination of water-power in streams; hydraulic motors and pumps.  
 Mr. Riddick.
- C. E. 206. Theoretical Surveying II.** 3-3-0  
 Required of juniors in Civil, Construction, and Highway Engineering.  
 Prerequisite: C. E. 102.  
 Problems in higher surveying, such as triangulation, precise and trigonometric leveling, map projections, simple, compound, and reverse curves, and frogs, turn-outs, and switches.  
 Mr. Wooten.
- C. E. 207. Field Surveying II.** 1-1-1  
 Required of juniors in Civil, Highway, and Mining Engineering.  
 Prerequisite: C. E. 103.  
 Topographical survey of an area; railroad curves, simple, compound, and reverse.  
 Mr. Wooten, Mr. Jamison.
- C. E. 207a. Field Surveying II.** 1-1-0  
 Required of juniors in Construction Engineering.  
 Prerequisite: C. E. 103.  
 Topographical survey of an area; railroad curves, simple, compound, and reverse.  
 Mr. Wooten, Mr. Jamison.
- C. E. 208. Topographical Drawing** 0-1-0  
 Required of juniors in Civil, Construction, Highway, and Mining Engineering.  
 Prerequisite: C. E. 207.  
 Conventional signs, lettering, and complete topographical map of problem covered in Field Surveying, first term.  
 Mr. Wooten.
- C. E. 209. Graphic Statics.** 1-0-0  
 Required of juniors in Architectural, Civil, Construction and Highway Engineering.  
 Prerequisite: C. E. 105.  
 A solution of problems by graphical methods; use of the funicular polygon. Bending moments and shears. Resultant pressure on retaining walls. Determination of stresses in framed structures with fixed and free ends, caused by dead load, snow load, and wind load.  
 Mr. Mann.



- C. E. 210. Engineering Office Practice.** 0-0-1  
 Required of juniors in Civil, Construction, Highway Engineering.  
 Prerequisite: C. E. 206, 207.  
 The preparation of plans for railway or highway construction; the plat-  
 ting of plan, profile, and cross-sections; calculation of yardage, and bal-  
 ancing of quantities. Mr. Tucker.
- C. E. 211. Construction Engineering I.** 0-0-3  
 Required of juniors in Construction Engineering.  
 Prerequisite:  
 Standards of design, types and choice of Construction.  
 Mr. Geile.
- C. E. 212. Roof Stresses.** 3-0-0  
 Required of seniors in Architectural and Mining Engineering.  
 Prerequisite: Math. 201, 202, C. E. 105.  
 Calculations by analytical method of stresses on framed structure, due to  
 dead and live loads uniformly distributed and concentrated. Complete solu-  
 tion of a roof-truss problem. This course is the same as the first term of  
 C. E. 204. Mr. Mann.

#### Courses for Graduates and Advanced Undergraduates

- C. E. 301. Applied Astronomy.** 0-0-3  
 Required of seniors in Civil and Highway Engineering.  
 Prerequisite: C. E. 106, 107.  
 The application of astronomy in determining latitude, azimuth, longitude  
 and time; astronomical observations with transit and sextant; reduction of  
 observations. Mr. Tucker.
- C. E. 302. Construction Engineering II.** 3-3-3  
 Required of seniors in Construction Engineering.  
 Prerequisite:  
 Detailed studies of construction in all fields. Estimation, cost analyses,  
 organization and management of construction plants, field methods, labor-  
 saving machinery, general contracts. Mr. Geile.
- C. E. 305. Water Supply.** 0-3-0  
 Required of seniors in Civil Engineering.  
 Prerequisite: C. E. 205.  
 Requisites for determining a water supply system; importance of treat-  
 ment; methods of treatment; collection data for design of system; study of  
 the design and construction of filtration and pumping plants. Chemical  
 laboratory analysis, Chem. E. 204. Inspection and study of water supply  
 system of the City of Raleigh.

- C. E. 306. Railroad Engineering.** 0-0-3  
 Required of seniors in Civil Engineering.  
 Prerequisite: C. E. 206.  
 A study of railroad curves and earthwork. The student is required to solve problems intended to familiarize him with the methods of staking out curves and earthwork and the computations involved; the theory of the transition curve is included; railroad construction, machinery, and methods, with particular reference to cost; railroad structures. Mr. Mann.
- C. E. 307. Drainage.** 0-3-0  
 Prerequisite: C. E. 205.  
 Surveys and systems for the reclamation of lands: location and construction of large open ditches; forming of drainage districts; allocation of cost of construction and maintenance to property served. Mr. Mann.
- C. E. 308. Sanitary Engineering.** 0 3-0  
 Required of seniors in Civil and Construction Engineering.  
 Prerequisite: C. E. 205.  
 Various kinds of sewerage systems, calculation of the amounts of sewage; flow in sewers. Disposal systems; methods of treatment. Surveys and forms; forms of field notes, and manner of calculating data for the design and construction of a sewerage system. Building sanitation. Chemical Laboratory Analysis, Chem. E. 204. Mr. Mann.
- C. E. 309. Specifications.** 0-0-1  
 Required of seniors in Construction Engineering.  
 Prerequisite:  
 Preparation of specifications and legal documents for building operations. Mr. Geile.

## Courses for Graduates Only

- C. E. 401. Sewage Disposal Research.** 3-3-0  
 Prerequisite: Sanitary Engineering, C. E. 208, Hydraulics, C. E. 205.  
 Investigations in the field of sanitation and of sanitary engineering. Mr. Mann.
- C. E. 402. Public Water Supply Research.** 0 3 3  
 Prerequisite: Water Supply C. E. 207, Hydraulics, C. E. 203.  
 Investigations in the field of water supply Engineering. Treatment of Public Waters. Mr. Mann.

## ECONOMICS

## Courses for Undergraduates

**Econ. 102. Introduction to Economics.** 3-0-0, or 0-3-0, or 0-0-3

Required of students in the Schools of Engineering and Textiles. Not open to students in Business Administration.

This is an elementary course in Economics. It treats of the business aspects and economic organization of society. It includes a study of the great fundamental economic laws which apply to all professions and occupations; a study of the production, distribution, and value of economic goods, and a study of the institutions, agencies, and ideas which dominate operate, and control the manner, means, and methods of making a living.

Messrs. Goehring and Green.

**Econ. 103. General Economics.** 3-3-3

Required of sophomores in Business Administration, Agricultural Administration, and Industrial Management.

An introduction to the general field of Economics. A study of economic institutions and the general principles governing the production and distribution of wealth under the existing economic organization.

Messrs. Wood, Forster, and Brown.

**Econ. 112. Accounting for Engineers.** 3-0-0, or 0-3-0, or 0-0-3

Required of students in the School of Engineering. Not open to students in Business Administration.

A survey of accounting and financial statements and records. Devices, statements, and cost records; their construction, their use and interpretation.

Mr. Goehring.

## Courses for Advanced Undergraduates

**Econ. 201. Accounting I.** 3-3-3

Required of all sophomores in Business Administration and Industrial Management.

A course in the theory and practice of accounting, covering the essential principles of accounting as applied to the several types of business organizations, giving interpretations of the structure, form, and uses of formal business statements such as Balance Sheets, Statements of Profit and Loss, etc.

Mr. Shulenberg.

**Econ. 210. Business Organization.** 0-3-0

Required of seniors in Chemical and Highway Engineering.

Prerequisite: Econ. 102 or 103.

Forms of business enterprises, single enterprises, partnership, joint-stock company, corporation, and principles of business management.

Mr. Green.

- Econ. 211. Business Law.** 3-0-0 or 0-0-3  
 Required of seniors in Business Administration, and in Ceramic, Chemical, Civil, Architectural, Electrical, and Mechanical Engineering.  
 Prerequisite: Econ. 102 or 103.  
 Sources of law, fields of law, contracts, agency, sales, negotiable documents, and the law as it controls business transactions. Mr. Green.
- Econ. 212. Statistical Method.** 3-3-0  
 Required of seniors in Business Administration (two terms), and juniors in Agricultural Administration (one term).  
 Prerequisite: Econ. 102 or 103.  
 A study of the elements of statistical methods, statistical types, collection and analysis of statistical data. Lectures first term, lectures and laboratory second term. Mr. Forster.
- Econ. 214. Business Statistics.** 0-0-3  
 Required of seniors in Business Administration.  
 Prerequisite: Econ. 212.  
 Application of statistical methods and data to the solution of the problems of the business executive. Consideration will also be given to price levels, the business cycle, and business barometers used in forecasting business conditions. Mr. Wood.
- Econ. 215. Marketing Methods.** 3-3-3  
 Required of seniors in Business Administration.  
 Prerequisite: Econ. 102 or 103.  
 Marketing functions, agencies, systems, retailing, market analysis, sales promotion, markets. Mr. Stretcher.
- Econ. 217. Advertising.** 3-0-0  
 Required of seniors in Business Administration, Marketing Group.  
 Prerequisite: Econ. 215.  
 Principles and practice of Advertising and its relation to distribution and the sales program. Mr. Stretcher.
- Econ. 218. Sales Management.** 0-3-3  
 Required of seniors in Business Administration, Marketing Group.  
 Prerequisite: Econ. 215.  
 The principles of personal salesmanship, followed by a study of administrative policy and organization. Sales methods, planning and research. Management and training of the sales force. Sales control—accounts, statistics, records, reports. Financing of sales, terms, delivery of goods and collections. Mr. Stretcher.
- Econ. 221. Money, Credit, and Banking.** 3-3-0  
 Required of juniors in Business Administration.  
 Prerequisite: Econ. 103.  
 Credit institutions, price changes, monetary and banking developments, trade cycles. The Federal Reserve System and the money market. Mr. Wood.

- Econ. 223. Business Finance.** 0-0-3  
 Required of juniors in Business Administration and in Ceramic Engineering.  
 Prerequisite: Econ. 103.  
 The raising and spending of funds, and standards of control.  
 Mr. Moen.
- Econ. 225. Public Finance I.** 0-3-0  
 Required of seniors in Business Administration, Finance and Banking Groups.  
 Prerequisite: Econ. 103.  
 Classes of income and expenditure, and the incidence of the different classes of taxes.  
 Mr. Moen.
- ✓ **Econ. 226. Investments.** 3-0-0  
 Required of seniors in Business Administration, Finance and Banking Groups.  
 Prerequisite: Econ. 103.  
 Different types of investment securities and methods of judging them.  
 Mr. Moen.
- Econ. 227. Public Finance II.** 0-0-3  
 Elective.  
 Prerequisite: Econ. 225.  
 A continuation course to be taken by students in Public Administration after the completion of Public Finance, Econ. 225.  
 Mr. Moen.
- Econ. 229. Purchasing and Storeskeeping.** 0-3-0  
 Required of seniors in Industrial Management.  
 Prerequisite; Econ. 102 or 103.  
 Standards and specifications, requisitions, purchase orders, follow-up orders, receiving shipments, purchasing on contract, inspection and tests, invoices; layout of storage spaces, marking, instruction for marking storage spaces, storage of stores, general instruction for handling and protecting stores and storage equipment, inventory control and its relation to cost will be emphasized.  
 Mr. Brower.
- Econ. 230. Industrial Management.** 3-3-3  
 Required of juniors in Industrial Management and Business Administration.  
 Prerequisite: Econ. 103.  
 Administration, organization, system, and internal working relations of industrial enterprises, principles and methods of industrial problems. Second term emphasis placed on administrative control through budget making, production and planning methods. Inventory control by proper purchasing and storeskeeping, importance of plant maintenance. Graphic methods of production and sales. In the third term, industrial problems.  
 Mr. Henninger.

- Econ. 230-A. Industrial Management.** 3-3-0  
 Required of seniors in Textile Engineering.  
 Prerequisite: Econ. 102.  
 A more intensified course than Econ. 230. Industry in general will be touched, but the emphasis and application will be confined strictly to the Textile Industry. Mr. Henninger.
- Econ. 233. Office Management.** 0-0-3  
 Elective.  
 Prerequisite: Econ. 102 or 103.  
 Principles of management, office arrangements, filing methods, office personnel, business documents, reports, dictation and correspondence. Mr. Green.
- Econ. 238. Industrial Psychology.** 3-0-0  
 Required of seniors in Industrial Management; elective for others.  
 Prerequisite; Ed. 101.  
 Applied psychology to industrial and business problems. Present applications and the tendencies toward future psychological developments in industry. Offered in 1928 and alternate years thereafter. Mr. Henninger.
- Econ. 239. Labor Problems.** 3-0-0  
 Required of seniors in Industrial Management; elective for others.  
 Prerequisite; Econ. 102 or 103.  
 A study of the history, organization, activities, and policies of organized labor. Recent developments, labor turnover, child labor, woman labor, labor legislation, unemployment, etc. Mr. Henninger.
- Econ. 240. Personnel Management.** 0-0-3  
 Required of Textile seniors. Elective for Engineering students.  
 Prerequisite: Econ. 102 and Soc. 103.  
 This course will follow as closely as possible Economics 340. Subject-matter being presented so that students may first build up a proper background upon which successful Personnel Management rests. Less time will be devoted to the detailed workings of personnel methods than in Economics 340. Mr. Henninger.
- Econ. 241. Traffic Management.** 3-0-0  
 Required of seniors in Industrial Management.  
 Prerequisite: Econ. 103.  
 The scope and functions of industrial and commercial traffic departments, management of shipping, receiving freight, plant transportation management, quoting rates, routing shipments, tracing and expediting freight, etc. The organization and administration of traffic departments with reference to cooperation with sales, purchasing and production departments, regulatory commissions, and commercial traffic associations. Offered in 1929 and alternate years thereafter. Mr. Henninger.

- Econ. 242. Time Study.** 0-0-3  
 Elective. Required of seniors in Industrial Management.  
 Prerequisite: Econ. 102, 103.  
 A study of factory equipment and labor. Analysis of shop operation in elements, and the determination of the time for each element. Emphasizing factors that will aid in writing job specification for employment service.  
 General practices of rate setting. Mr. Henninger.
- Econ. 247. Engineering Economics.** 3-0-0 or 0-0-3  
 Required of seniors in Electrical Engineering and juniors in Construction Engineering; elective to others.  
 Prerequisite: Econ. 102 or 103.  
 Choice of investment. Value and costs and their application to engineering practices. Mr. Shaw.
- Econ. 248. Central Station Economics.** 0-3-0  
 Required of seniors in Electrical Engineering.  
 Prerequisite: Econ. 103 or 247.  
 The organization, operation, practices, and management of central electric stations. Demands, diversity, services, and costs. Steam-electric and hydroelectric production, transmission, distribution, interconnection, and superpower. Mr. Shaw.
- Econ. 249. Public Utilities.** 3-3-3  
 Elective.  
 Prerequisite: Econ. 103.  
 The business of gas, electric, street railway, and water supply utilities, their operation, management, and control. The regulation of public utilities as to services, rates, charges, value, depreciation and return. The engineering technique essential to thorough understanding of the subject matter is supplied in the discussions. Mr. Shaw.
- Econ. 260. Agricultural Economics.** 0-3-0  
 Required of sophomores in Agricultural Administration.  
 Prerequisite: Econ. 102 or 103.  
 This is essentially a study of the economics of agricultural production. It includes a consideration of the nature and characteristics of the factors of production; the laws relating to the combination of the factors; the factors affecting the choice of farm enterprises. Mr. Forster.
- Econ. 261. Farm Management I.** 0-0-3  
 Required of juniors in Agricultural Administration, Agriculture and Vocational Educational.  
 Prerequisite: Econ. 102 or 103.  
 A study of principles involved in the successful operation of the farm. Farm planning, management of labor, work programs, efficient use of machinery, and farm administration are stressed.  
 Messrs. Forster and Saville.

- Econ. 262. Farm Management II.** 0-3-0  
 Required of students in Agricultural Administration.  
 Prerequisite: Econ. 261.  
 This course is a continuation of Course 1. Special attention is given to the application of farm management principles to the management and organization of farms in typical regions of the State. For this purpose, actual daily records on typical farms will be employed. Mr. Saville.
- Econ 263. Farm Cost Accounting.** 0-0-3  
 Required of juniors in Agricultural Administration.  
 Prerequisite: Econ. 102 or 103, and 201.  
 The principles of accounting applied to farm transactions. This course deals with the inventory of farm property, the preparation of financial statements, the methods of keeping farm records, the complete analysis of an individual farm record, and the interpretation of cost accounting results. Mr. Saville.
- Econ. 264. Land Economics.** 0-0-3  
 Elective.  
 Prerequisite: Econ. 103 or 103.  
 A study of the economic problems connected with the ownership and acquisition of land, tenancy and land ownership, the functions of the landlord and the tenant and factors involved in land valuation and land speculation. (Offered in 1929 30). Mr. Forster.
- Econ. 265. Farm Marketing.** 3-0-0  
 Required of seniors in Agricultural Administration, Agriculture, and Vocational Education.  
 Prerequisite: Econ 102 or 103.  
 A study of the economic principles underlying successful marketing of farm products, market organization and control, price making forces, and critical examination of the present system of marketing farm products. Mr. Forster.
- Econ. 266. Agricultural Co-operation.** 3-0-0  
 Required of seniors in Agricultural Administration.  
 Prerequisite: Econ. 102 or 103.  
 A study of all types of farmers' coöperative enterprises. Specific consideration is given to local community coöperation, both economic and social, farmers' buying, selling, and service organizations. A comparative study of all foreign and American farmers' coöperatives is made. Mr. Taylor.



- Econ. 267. Farm Finance.** 0-3-0  
 Required of seniors in Agricultural Administration.  
 Prerequisite: Econ. 102.  
 An examination of the principles involved in financing the production and marketing of agricultural products. Consideration will be given farm mortgage credits, personal and intermediate credit, and agricultural taxation. An examination will be made of the existing financial and credit institutions supplying farmers credit for the purpose of determining to what extent these institutions have effectively supplied the credit needs of the farmer.  
 Mr. Forster.
- Econ. 268. Grades, Standards, and Inspection.** 0-3-0  
 Required of seniors in Agricultural Administration.  
 Prerequisite: Econ. 102 or 103.  
 A course in the history of the grades and standards of the important agricultural products, together with the technic of inspection. The course is designed to give a thorough training in this important branch of agricultural economics. Students intending to specialize in marketing are urged to take this course.  
 Mr. Sheffield.
- Econ. 270. Rural Law.** 0-0-3  
 Elective.  
 Prerequisite: Econ. 102 or 103.  
 Contracts agency, sales, land transfers, mortgages, and other instruments, legal aspects of the business of farming. Mr. ....

#### Courses for Graduates and Advanced Undergraduates

- Econ. 301. Accounting II.** 3-3-3  
 Prerequisite: Accounting I, Econ. 201.  
 Required of juniors in Business Administration, Accounting and Finance Groups.  
 A course primarily devoted to accounting problems of corporations but applicable also to other types of business organization. It takes up fully such problems as depreciation, replacements, fire losses, amortization and like problems of asset valuations, etc., from an accounting viewpoint.  
 Mr. Shulenberger.
- Econ. 302. Modern Accounting Systems.** 3-3-3  
 Required of seniors in Business Administration, Accounting Group.  
 Prerequisite: Econ. 201.  
 Systems for building and loan associations, insurance companies, banks, stock brokerage, public utilities, railroads, municipalities. Mr. Moen.
- Econ. 303. Principles of Cost Accounting.** 3-3-3  
 Required of seniors in Business Administration, Accounting Group.  
 Prerequisite: Econ. 201.  
 Cost finding, material costs, labor costs, burden and overhead costs, and the cost accounting system for manufacturing and extractive industries.  
 Mr. Moen.

**Econ. 304. Auditing.** 3-3-3

Required of seniors in Business Administration, Accounting Group.

Prerequisite: Econ. 301 and Corequisite 302.

Cases, records, working papers. Verification, adjustment, composition, preparation, and rendition. Mr. Moen.

**Econ. 321. Principles of Money and Banking.** 3-3-3

This course is intended to afford training in analysis and research in the field of money and banking. This subject as a whole will be systematically reviewed. Selections from important writings dealing with monetary principles will be read and critically discussed. Open to graduates and to seniors who have done good work in Economics 221. Mr. Wood.

**Econ. 324. Foreign Exchange and Trade.** 0-0-3

Required of seniors in Business Administration, Finance and Marketing Groups.

Theory of foreign trade, commercial policies, and balance of international payments. Mr. Wood.

**Econ. 338. Conservation of Natural Resources.** 0-2-0

An examination of the material foundations of our national well being. The extent, uses, rates of consumption, and probable exhaustibility of our most important resources. Their utilization in relation to the welfare of the race. The course takes the long-time view of the problem.

Mr. Brown.

**Econ 340. Personnel Management.** 0-3-3

Required of seniors in Business Administration, Industrial Management.

Prerequisite: Econ. 103.

Students desiring to take this course are advised to take one or more of the following: Econ. 238, 239, and Soc. 201, as background preparation.

Systematic and experimental survey of principles of effective management of men, including selection, progressive adjustment, and motivation of personnel in industry. Mr. Henninger.

**Econ. 364. Land Ownership and Tenancy.** 3-0-0

The subject of land ownership and tenancy is one which is giving the student a comprehensive understanding of the nature and character of tenancy and ownership, both as a national and state problem. Current research and historical material will be reviewed.

Mesrs. Forster and Taylor.

**Econ. 366 Marketing Methods and Problems.** 3-0-0

A careful study of the problems and methods involved in the marketing of farm products. The marketing mechanism will be examined in detail. Its evolution and suggestions for its improvement will be stressed.

Mr. ....

**Econ. 369. Real Estate. 3-3-3**

Prerequisite: Econ. 103.

This course is planned for the benefit of owners and managers as well as for those who desire to enter the real-estate profession. Attention will be given to such problems as arise in buying, selling, building, and managing real property. A part of the course is devoted to the laws affecting property. The major problems affecting real estate as a profession will be studied.

Mr. Moen.

**Courses for Graduates Only****Econ. 401. Advanced Economic Theory. 3-3-0**

This course is a critical study of recent and current economic theory. Methods of approach used by the principal schools of economists. Theory of prices under the system of free enterprise.

Mr. Wood.

**Econ. 402. History of Economic Doctrines. 0-0-3**

History of economic doctrines from the Mercantilists to the period of Ricardo.

Mr. Wood.

**Econ. 403. Economics of Agricultural Production. 3-0-0**

A study of the economic theories relating to agricultural production. The course will deal with the nature and characteristics of the factors of production, the law of variable proportion, the law of diminishing return, and the theory of least cost. Current and historical material dealing with these topics will be reviewed.

Mr. Forster.

**Econ. 404. Farm Organization and Management. 0-3-0**

The factors and principles involved in making internal adjustments on the farm. The economic principles discussed in Course 360 will be reviewed and applied to the organization of the farm. The course will be largely a laboratory one with frequent conferences. Detailed information on more than 100 farms is now available for this work.

Messrs. Forster and Saville.

**Econ. 405. Agricultural Finance and Taxation. 0-0-3**

The problems arising in connection with financing of agricultural production and marketing, and methods of taxation as they affect agriculture. An examination of the results obtained in this and foreign countries will be made. Special emphasis will be given to recent legislation.

Mr. ....

**Econ. 406. Agricultural Marketing Methods and Practices. 0-0-3**

A critical study will be made of the methods involved and problems growing out of the present system of marketing farm products; the marketing mechanism, as it is now constituted, will be examined in detail; the evolution of the present marketing system will be studied and suggestions for improvement of the marketing system will be undertaken.

Mr. ....

**Econ. 415. The Economics of Distribution. 3-3-3**

An advanced study of the methods of marketing consumers' goods, an analysis of typical selling problems that are of frequent occurrence in a wide variety of industries and trades. The first term is devoted to a study of the methods of marketing goods for retail distribution. The second term is devoted to a study of the methods of marketing materials, equipment and supplies for wholesale consumption. The third term is given over to the analysis of typical problems on selling policy and specific assignments in the field of market research.

Mr. Stretcher.

**Econ. 424. Advanced Economic Statistics. 3-3-3**

This course deals with the application of statistical methods to the solution of agricultural and economic problems. The analysis of time series; relation of cyclical movements of prices to business conditions, and methods employed in forecasting will be given special attention.

Messrs. Forster and Saville.

**Econ. 430. Industrial Management—Advanced. 0-3-0**

An analytical and critical study of complex industrial problems and scientific systems now in use by leading concerns in industry. Detailed instruction covering the textile, metal, and furniture trades in plant organization, plant layout, standardization, stores control, planning and routing, records for control of costs, maintenance, etc. The student will be expected to analyze definite situations and work out methods of control.

Mr. Henninger.

**Econ. 439. Labor Problems—Advanced. 0-3-0**

A detailed and analytical study of problems confronting both organized and unorganized workers. It will deal with those problems having a wide general spread through all industries, and those occurring within the manufacturing plant that touch the worker's everyday life.

A graduate student will be expected to have a wide reading knowledge concerning both American and European developments, and to know the past history and problems of labor. Solutions covering definite and actual problems will be required.

Mr. Henninger.

**Econ. 440. Personnel Management—Advanced. 0-0-3**

A critical study and utilization of many different methods of Personnel Management, with emphasis placed on building the setting for developments. Adjusting and fitting the work so as to reflect the personality of the company. Characteristic differences between industries and between plants within the same industry will be treated and studied. Indications will be given of all business subjects, and the many different sciences the Personnel Manager should become familiar with in order to administer properly his position. Students will not be permitted to take this course without having first taken either the beginning or advanced courses in Industrial Management, Labor and Employment Problems, Personnel Management, or Industrial Sociology.

Mr. Henninger.

- Econ. 447. Engineering Economics—Advanced.** 3-3-3  
 Intensive and comprehensive study of the application of economics to the practice of engineering. This course alternates with Econ. 448. Both will not be given in the same year. Mr. Shaw.
- Econ. 448. Public Utilities—Advanced.** 3-3-3  
 Advanced study and research as to the operation and regulation of Public Utilities. Public-Service Commission laws and procedure. Leading cases and decisions of State and Federal courts. Intensive study of valuation, depreciation, and rates. This course alternates with Econ. 447. Both will not be given in the same year. Mr. Shaw.

## EDUCATION

### Courses for Undergraduates

- Ed. 101. Psychology.** 3-0-0 or 0-3-0 or 0-0-3  
 Elective.  
 The human receiving, connecting, and reacting nervous mechanisms; human behavior; instinctive tendencies, reflexes, instincts, and capacities; emotional behavior; habit and habit formation; the learning process; memory; thought; dreams; individual psychology. Mr. Garrison.
- Ed. 101-A. Psychology Laboratory.** 2-0-0 or 0-0-2 or 0-2-0  
 Elective.  
 Prerequisite: Ed. 101 should precede or accompany this course.  
 An introductory laboratory course in experimental human psychology. Mr. Garrison.
- Ed. 102. How to Study.** 3-0-0 or 0-3-0 or 0-0-3  
 Elective.  
 A course dealing with the analysis of the factors of efficient study. Students will be directed in diagnosing their own individual difficulties and in applying practical remedies. A laboratory period will give students opportunity to practice improved methods and devices under the supervision of the instructor, enabling them to make intelligent application of these techniques to different types of work and to form correct habits of study. Mr. Mayer.
- Ed. 103. Occupations.** 3-0-0 or 0-3-0 or 0-0-3  
 Elective.  
 The purpose of this course is to give students a comprehensive view of the field of occupations, and to supply many of the facts which young men are entitled to have before finally deciding upon their life work. Students will be guided in diagnosing their own abilities and aptitudes, and will have an opportunity of comparing their qualifications with those demanded by the various occupations, thus aiding students in making a more intelligent choice of a life career. The work will consist of readings, reports, discussions, and lectures by the instructors of the course and representatives of various occupations. Students will have opportunities of making studies of

occupations in which they are most interested. In studying an occupation, such information as the following will be included: Importance in society, kinds of work, advantages and disadvantages, how to prepare for it, qualifications essential and desirable, income, influence on the worker, and the general environment surrounding the work. Mr. Boshart.

#### Courses for Advanced Undergraduates

##### Ed. 201. Educational Psychology. 3-0-0

Required of students in Education; elective for others.

The human receiving, connecting, and reacting nervous mechanisms; the original equipment of man, reflexes, instincts, and capacities; emotional behavior; laws and nature of learning and of habit formation; economy in learning; transfer of training; work and fatigue; individual differences and intelligence. Mr. Garrison.

##### Ed. 205. Introduction to Education. 0-3-0

Required of students in Education.

This course is intended to introduce the college student to the problems of education. Some of the problems for consideration are: General and vocational education, the relation of the teacher, the school, and the community, materials and practices, the individuality in school children, educational systems at work, and measuring the outcome of teaching and learning. Required of students who are preparing to teach and who have not had the equivalent. Mr. Mayer.

##### Ed. 208. Visual Aids. 0-0-3

Required of students in Education.

Methods and technique of visual instruction; lettering; statistical illustrating; chart, graph, and poster making; photography; lantern-slide making; projector operation, care and use. Designed for teachers and extension workers. Mr. Armstrong.

##### Ed. 210. Principles of Teaching. 5-0-0

Required of students in Education.

Prerequisite: Ed. 201.

Nature of the learning process and its relation to teaching methods; nature of interest, how aroused and sustained; supervised study; discipline; lesson planning; use of questions; assignment of lessons; procedure in the classroom, laboratory, and field exercises; evaluating students' work. Mr. Cook.

##### Ed. 211. Methods of Teaching Agriculture. 0-5-0

Required of students in Agricultural Education.

Prerequisite: Ed. 210.

The selection and use of materials and devices in agricultural teaching; cataloguing bulletins; selection and organization of subject-matter; planning and supervising home projects and community activities; organizing and teaching farm shop work. Mr. Cook.

- Ed. 212. Observation and Supervised Teaching.** 0-5-0  
 Required of students in Education.  
 Prerequisite: Ed. 210, and a course in methods of teaching the subjects which the student is preparing to teach; or the methods course may be taken concurrently with the Observation and Supervised Teaching.  
 Students will have the opportunity of observing classes in the secondary schools and of teaching under the supervision of the Department of Agricultural Education. Special provision will be made for teachers to get experience in participating in and conducting all day classes, supervised practice and evening classes. Mr. Cook, Mr. Cline and Mr. Armstrong.
- Ed. 215. Methods of High School Teaching.** 0-5-0  
 Including Observation.  
 This course is designed for those teachers preparing to enter the field of secondary education. The class will be given instruction in the most approved methods of teaching in secondary schools during the early part of the course, to be supplemented in the latter part of the course with problems in special methods of teaching the various subjects they are interested in. Opportunities will be provided for observation. Mr. Mayer.
- Ed. 217. Teaching of Farm Shop Work.** 3-3-0  
 Required of Juniors in Agricultural Education.  
 This course is designed for men intending to teach Vocational Agriculture in the High Schools of this State. The methods of presenting the subject matter to their students as well as the manipulation of woodworking, forging, soldering, pipe fitting, and harness repairing tools is taught by the making and repairing of farm appliances. Every operation is carried out with a view of enabling the students to become a teacher of the subjects. Mr. Weaver.
- Ed. 220. Trade Analysis.** 3-0-0  
 Elective.  
 Considers several trades with a view to determining how they may be broken up into jobs and units for teaching purposes. A study of what the trade demands of the worker and the essential materials to be presented. Mr. Boshart.
- Ed. 221. Methods and Class Management.** 0-3-0  
 Elective.  
 A study of the methods used in conducting class exercises and the management of classroom details. Methods of teaching the lessons, recording the results, and testing the pupils will be considered. Mr. Boshart.
- Ed. 222. Lesson Planning and Practice Teaching.** 0-0-3  
 Elective.  
 A study of the essential parts of a lesson and the methods of presentation. Opportunity in practice teaching will be provided where the lessons planned may be tested under the direction of experimental teachers. Mr. Boshart.

- Ed. 223. Observation and Individual Criticism.** 0-0-3  
 Elective.  
 This course is arranged for the purpose of giving the individual the opportunity of observing the teaching of others and making criticisms to the instructor in charge of the course. From this the student will gain in his ability to analyze and measure results of classroom teaching.  
 Mr. Boshart.
- Ed. 224. Course Making.** 3-0-0  
 Elective.  
 Making of courses for the different subjects to be taught. It deals with outlines, job sheets, equipment, and materials.  
 Mr. Boshart.
- Ed. 225. Job Analysis.** 0-0-3  
 Elective.  
 A study of jobs found in the principal trades, with a view of determining the teaching elements and the procedure by which they should be appreciated.  
 Mr. Boshart.
- Ed. 230. Woodworking for Teachers.** 3-3-3  
 Prerequisite: M. E. 104, 105, 106, and 108 or equivalent.  
 Intended for teachers preparing to enter the field of industrial arts teaching. Instruction will be given in bench work, the use of woodworking machines and the construction of projects suitable for woodworking classes in the junior and senior high schools.
- Ed. 231. Mechanical Drawing for Teachers.** 2-2-2  
 Prerequisite: M. E. 102, 103, and 107 or its equivalent.  
 Intended for teachers preparing to enter the field of industrial arts teaching. Attention will be given to the types of drawing used in the secondary school and the organization of subject matter. Modern methods will be discussed with the effective presentation of materials.
- Ed. 232. Metal Working for Teachers.** 3-3-3  
 Prerequisite: M. E. 104, 105, 106 and 108 or the equivalent.  
 Intended for teachers preparing to enter the field of industrial arts teaching. Instruction will be given in those phases of metal work suited to the needs of junior and senior high school work. Projects will be worked out in iron, steel, and brass.
- Ed. 233. Practices in Industrial Arts Teaching.** 2-2-2  
 Prerequisite: Ed. 230, 231, 232.  
 Designed to meet the needs of teachers and principals of schools where shop work and drawing are taught. Much attention will be given to the working out of suitable problems and the types of equipment best adapted for the work.



**Courses for Graduates and Advanced Undergraduates**

**Ed. s303. Problems of the High School Teacher. 3 credits.**

This course will cover the State requirements with reference to supervision for a high school teacher. Topics and problems discussed will include: the aims of secondary education; the high school teacher and the high school pupil; discipline; classroom technique; training in habits of study; the curriculum; student rating; salaries; professional duties and responsibilities; school morale, and extra-curricular activities.

Mr. Mayer.

**Ed. s305. Methods of Study. 3 credits.**

A course for teachers in the methods of study and the technique of supervising study. Considers the factors of study, the chief difficulties, the general principles for improving study, and special devices. Teachers will have the opportunity of making special studies and reports on study procedures related to the subjects which they teach.

Mr. Cook.

**Ed. 311. Evening and Part Time Classes in Agriculture. 0-3-0**

Prerequisite: Ed. 210.

This course deals with methods of organizing the teacher's program so as to reach a maximum of individuals with efficient vocational instruction, through evening and part time classes. The various problems in organizing and teaching these classes will be studied. In connection with this course students will observe and teach evening classes at centers near the College.

Mr. Cook, Mr. Armstrong.

**Ed. 312. Materials for Agricultural Teaching. 0-3-0**

A course in the collection and preservation of specimen and materials, making of charts, graphs, posters, etc., and practice in the use of material in connection with practice teaching in vocational agriculture.

Mr. Armstrong.

**Ed. s315. Methods of Teaching Modern Languages. 3 credits.**

The purpose of this course is to present the problems connected with the teaching of Modern Languages in such manner as to be of the maximum benefit to all Modern Language teachers as well as to language students who are preparing to teach. It includes discussions of the various methods and theories of language teaching; the aims in Modern Language instruction; organization of material; the subject matter and apparatus of teaching, including such topics as textbooks, pronunciation, grammar, reading, literature, composition, vocabulary building, dictation, oral drill, examinations, tests, and extra-class activities.

Mr. ....

**Ed. s316. Methods of Teaching English. 3 credits.**

The purpose of this course is to give to those persons preparing to teach or already teaching English in high school a knowledge of the different methods and techniques used in the teaching of English to students of secondary grade. Special attention will be given to the subject-matter and materials outlined in the High School Course of Study. Mr. Owens.

**Ed. s317. Methods of Teaching History. 3 credits.**

A course in the method of teaching the social sciences, including the selection of subject-matter, together with the devices and techniques employed in presenting it to secondary school pupils. Mr. Lefler.

**Ed. 320. Vocational Guidance. 0-3-0 or 0-0-3**

Required of students in Industrial Arts.

Treats of the problems of directing pupils in the study of occupations for the purpose of selecting satisfactory life work. It includes studies of the history of occupational guidance and personnel administration, principles and practices in guidance and employment, compulsory school laws, child labor legislation, and forms and records essential for school use.

Mr. Boshart.

**Ed. 321. Vocational Education. 0-3-0**

Required of students in Industrial Arts.

Prerequisite: Ed. 210.

Place and need for vocational education in the public school system; present practice in organization of vocational work, including continuation schools, part-time and evening classes; need for vocational guidance, placement and follow-up work. For those who have had work in education or teaching and industrial shop experience.

Mr. Boshart.

**Ed. 322. Methods in Industrial Arts Teaching. 0-3-0**

Required of students in Industrial Arts.

Prerequisite: Ed. 210.

Class organization, records and reports, selection and arrangement of teaching material, problems and projects, lesson planning, conduct of class work, illustrative materials and job analysis. For those who have had school experience or shop practice in the engineering school or commercial shops.

Mr. Boshart.

**Ed. Ex. 325. Principles of Education. 3 credits.**

Prerequisite: Ten credits in Education.

A course in the fundamental principles of Education. The course will include: (1) the place of education in individual and social life; (2) how education is conditioned by original nature, habit, language, etc.; (3) how education should function in the family, economic, civic, recreational, and religious life; (4) the principles governing the conduct of the school.

Mr. Mayer.

- Ed. 326. School Organization and Administration.** 0-0-3  
 Required of students in Education.  
 Prerequisite: Ed. 201.  
 Nature and aims of education, present status of rural education, prominent characteristics and educational needs of rural and city life, present demands upon the school in regard to physical and mental traits of school children, the junior high school organization, curriculum building, leadership, social studies, duties of professional and lay members of the school organization, attendance, and consolidation. Mr. Mayer.
- Ed. 327. Educational Tests and Measurements.** 0-0-3  
 Required of students in Industrial Arts.  
 Prerequisite: Ed. 201 or equivalent.  
 Achievement tests; diagnostic tests; mentality tests; aptitude tests; teachers' marks; principles of testing; methods of content examining; use of tests by teachers, supervisors, and administrators. Mr. Mayer.
- Ed. 330. Visual Instruction.** 3-0-0 or 0-3-0 or 0-0-3  
 An advanced course in the psychology, methods and technique of visual instruction; its place and limits, evaluation and expense of various aids, aids available. Practice in the making and use of practical visual aids.  
 Mr. Armstrong.
- Ed. 331. Problems in Visual Instruction.** 3-0-0 0-3-0 0-0-3  
 Prerequisite: Ed. 208.  
 A thorough study of educational problems pertaining to teaching through the sense of sight; psychology of sight perception; comparison of various visual aids; a study of research reports. Each student will be required to complete a brief special problem in the field of visual instruction.  
 Mr. Armstrong.
- Ed. s335. Problems in School Administration.** 3 credits.  
 Problems common to any school system will be considered, such as the powers and duties of the board of education; the powers and duties of the superintendent; problems pertaining to the teacher and the pupil; problems of finance, salaries, and pensions; school building problems; library and textbook problems; problems of the course of study and program making; school, home, community problems.  
 Mr. Highsmith.
- Ed. s336. Problems in Secondary Education.** 3 credits.  
 The purpose of this course is to give as practical assistance as possible to those men and women who wish to become high school principals in North Carolina. Frequent reference will be made to conditions in the State. The following problems will be discussed:  
 Aims of secondary education; the curriculum (with special reference to the North Carolina course of study); standards for high schools; classification of pupils; control of pupils and discipline; regulation of attendance; guidance of pupils; classroom standards; examination; marking system; interpretation of intelligence scores; supervision of study; class schedule making; duties of the principal; supervision of instruction; selection of teachers; teaching load, salaries; professional ethics. Mr. Highsmith.

- Ed. 338. Methods of Science Teaching.** 0-3-0  
Required of students preparing to teach Science.  
Prerequisite: Ed. 301.  
A course for teachers of science in secondary schools; aims, functions, and values of the various courses; organization and sequence of science studies; methods of science teaching; means of measuring results. Mr. Mayer.
- Ed. 339. Materials in Science Teaching.** 3-0-0  
Required of students preparing to teach Science.  
A course in the materials needed for the teaching of general science, biology, physics, and chemistry in the high school. The time will be divided among several subject-matter specialists. Such problems will be considered as arrangement of laboratory; equipment; how and where to secure supplies; use of home-made apparatus; collection and preservation of biological materials; selections of content of courses to meet the needs of various localities in the State; laboratory technique.  
Messrs. Wells, Metcalf, Heck, and Williams.
- Ed. 341. Teaching of Physics.** 0-3-0  
Elective.  
Prerequisite: Phys. 101 and 103.  
A course in the best methods of teaching the principles of physics in classroom and laboratory, including an analysis of equipment for demonstrations and experimentation. Mr. Heck.
- Ed. 345. Rural Education.** 0-0-3  
Elective.  
Objectives and needs of rural education, problems in rural educational advancement, organization for efficient results, prevocational and vocational work. Mr. Mayer.
- Ed. 346. Methods and Class Management.** 0-3-0  
Elective.  
A study of the methods used in conducting class exercises and the management of classroom details. Methods of teaching the lessons, recording the results, and testing the pupils will be considered. Mr. Boshart.
- Ed. 347. Trade Analysis.** 3-0-0  
Elective.  
Considers several trades with a view to determining how they may be broken up into jobs and units for teaching purposes. A study of what the trade demands of the worker and the essential materials to be presented. Mr. Boshart.

- Ed. 348. Observation and Individual Criticism.** 0-0-3  
 Elective.  
 This course is arranged for the purpose of giving the individual the opportunity of observing the teaching of others and making criticisms to the instructor in charge of the course. From this the student will gain in his ability to analyze and measure results of classroom teaching.  
 Mr. Boshart.
- Ed. 349 Lesson Planning and Practice Teaching.** 0-0-3  
 Elective.  
 A study of the essential parts of a lesson and the methods of presentation. Opportunity in practice teaching will be provided where the lessons planned may be tested under the direction of experimental teachers.  
 Mr. Boshart.
- Ed. 350. Course Making.** 3-0-0  
 Elective.  
 Making of courses for the different subjects to be taught. It deals with outlines, job sheets, equipment, and materials.  
 Mr. Boshart.
- Ed. s351. Organization and Administration of Part-time  
 and Continuation Schools.** 3 credits.  
 A study of the part-time and continuation schools as to their place in an educational system; the selection and organization of teaching materials; the preparation of type lessons; the division of time allotments; the methods of teaching, and the procedure in organization of classes. Primarily for principals and teachers who are attempting or planning to attempt work of this character.  
 Mr. Coggin.
- Ed. s352. Industrial Arts for the Elementary School.** 3 credits.  
 A study of the value and place of Industrial Arts in the elementary school. The correlation of Industrial Arts with other school subjects; the methods of teaching and supervision, and the study of industries, with the view to selecting suitable projects for classroom use. Primarily for teachers and supervisors of the elementary schools. The above course to be given by correspondence and extension.  
 Mr. Boshart.
- Ed. s354. Practical Arts Problems.** 3 credits.  
 Treats of the selection and organization of suitable projects in Industrial Arts and the working out in detail of such as will meet the needs of the class. The meaning of Industrial Arts and the methods of making it a part of the regular work of the school will be discussed. For teachers in the elementary schools who have had teaching experience and who have not had special work in Industrial Arts.  
 Mr. Boshart.

**Ed. s360. Special Problems in Teaching Agriculture.** 3 credits.

This course is for graduates in Vocational Education. It will consist of special individual problems and preparation of plans for the next year's work, involving a survey of the school and community in which they are to work the coming year. From this information each student will prepare a program of agricultural education especially adapted to his school and community. It will include classroom arrangement and fixtures, library equipment, gathering specimens and illustrative materials, and the organization of courses of study.

Mr. Cook and Mr. Cline.

**Ed. 362. Psychology of Secondary School Education.** 0-3-0

Prerequisite: Education 201.

This course is intended for students interested in junior and senior high school work. The following topics are treated: The psychology of learning in the case of English, foreign languages, history, science, arithmetic, algebra, and geometry; developing motor skills; transfer of training; fatigue; methods of study; tests for special abilities; classification according to mental ability and physiological development; the psychological basis for the development of social ideals and helpful individual attitudes; abilities necessary for successful high school work. Part of the course will be devoted to laboratory and observational work.

Mr. Garrison.

**Ed. s364. History of Education.** 0-3-0

This course will include a brief study of European Education and its influence upon the American Public School, the early development of the elementary and high schools of America, and the present tendencies of our educational system. The period from 1890 to the present will be given special consideration.

Mr. Garrison.

**Ed. s366. Philosophy of Education.** 0-0-3

This course is based on the conceptions of modern biology and psychology and the changing needs of our civilization. It will include such topics as the place of Education in the Individual and Social Life, the psychological and sociological foundations of education, and what principles govern the conduct of the school.

Mr. Garrison.

**Ed. 370. Advanced Psychology.** 3-3-3

Elective. Not open to students below the Junior Year.

Prerequisite: Psychology 101 or equivalent.

The scope and methods of psychology, biological mechanisms controlling mental activity, original nature, elements of the learning process, individual differences, intelligence, psychological theories.

Mr. Garrison.

**E. 371. Child Psychology.** 0-3-0

This course will consider the results of scientific studies of mental and physical growth from infancy through adolescence. It will emphasize the bearing of instinctive tendencies and social environment on development, the emotional life of children and special problems of behavior, with their application to the training of children in the home as well as in school.

Mr. Garrison.

**Ed. 380. College Teaching.**

0-0-3

For College teachers.

This course is offered in three sections, each one independent of the other and carrying one unit of credit. A teacher may take one, two, or three units. Each section will run three hours a week for one-third of the term.

Section I. Motivation and Methods of Study for Teachers.

Section II. Tests, Measurements, Examination and Grading.

Section III. Principles and Methods of Visual Instruction.

Messrs. Cook, Boshart, Mayer, and Armstrong.

**Courses for Graduates Only****Ed. 3401. Advanced Methods in Science Teaching.**

3 credits

A course for advanced students in science teaching. It will consider some of the important problems of the science teacher and the results of recent investigations.

**Ed. 403. History of Education in the United States. 3-0-0 or 0 3-0 or 0-0-3**

Prerequisite: Satisfactory course in the History of Education.

This course presents the historic background of American education as it exists today. The development of the various types of schools transplanted from Europe, and the divergence of these types from the European types. The influence of such men as Mann, Barnard, Wiley and others will be considered. Special consideration will be given to the study of educational history in the South.

Mr. Garrison.

**Ed. 405. Education and Modern Psychology**

3-0-0 or

or

0-3-0 or

**Developments in Education and Psychology.**

0-0-3

Prerequisite: Twelve credits in Education including Educational Psychology.

This course will attempt to answer the question: How is education concerned with modern psychological conceptions of, for example original nature, emotional conditioning, transfer of training, individual differences, attention and the higher thought processes? The historical movements in psychology, beginning with the introduction of scientific methods, will be studied and considered as they relate to modern methods of work in educational research and practice.

Mr. Garrison.

**Ed. 406. Philosophy of Education.**

3-0-0 or 0 3-0 or 0-0-3

Prerequisite: Twelve credits in Education.

This course is intended to follow a thorough course in The History of Education. The aim of this course is to develop the principles upon which a broad philosophy of education can be based. Historical reviews of philosophies in their bearing on education, from the time of Plato and Aristotle through the scientific movement of Spencer and others, will be made. The influences of these philosophies on the present day systems of education, its aim, scope, and organization, will be considered as they relate to each other and to the scheme of life.

Mr. Garrison.

**Ed. 407. Problems in County and Rural School Administration. 0 0 3**

Prerequisite: Twelve credits in Education.

Leadership to secure permanent school progress, function of various school units, duties of professional and lay members of the school organization, financial support, attendance, consolidation. Mr. Mayer.

**Ed. 410. Administration of Vocational Education. 3-0-0**

A study of the administration problems of vocational work. It will consider the practices and policies of Federal and State offices with organization and administration of city and consolidated systems and individual school departments for vocational education in trades and industries, commerce, home-making, and agriculture. Illustrations will be taken from current practice. For graduate students who are majoring in Education.

Mr. Boshart.

**Ed. 411. The Supervision of Vocational Education. 0-3-0**

Prerequisite: Ed. 410.

Special attention will be given to work in supervision; individual problems of class members; the training of teachers in service; improvement of instruction; selection of subject matter, materials, and their sources. The purchase and distribution of supplies will be considered. Mr. Boshart.

**Ed. 412. Occupational Counseling. 0-0-3**

Prerequisite: Ed. 320.

Special attention is given to counseling as it may be applied in the junior and senior high schools, colleges, or placement offices and the method of conducting individual interviews and group conferences. Information covering occupational material will be organized, evaluated, and applied to specific case studies. For teachers of experience and those familiar with personnel work. Mr. Boshart.

**Ed. 415. Psychological Methods in Vocational Guidance. 0-0-3**

Elective.

Prerequisite: Ed. 101 or 201, 320 and 327.

Contribution of psychology to vocational guidance problems; tests and measurements of intelligence, aptitude and skill, and an interpretation of results as related to guidance. Mr. Cook.

**Ed. 416. Problems in Agricultural Teaching. 3-0-0 or 0-3-0 or 0-0-3**

Prerequisite: Fifteen credits in Education.

Investigations, reports, and a critical evaluation of present practices with constructive remedies. The content of the course will depend on the interests and needs of the individual members of the class.

Mr. Cook and Mr. Cline.



**Ed. 417. Principles of Agricultural Education.** 3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Permission to register.

The principles and practices of agricultural education in the light of the findings of educational psychology and recent investigations in education. Adapting rural and agricultural education to the changing conditions in farming and rural life. Mr. Cook and Mr. Cline.

**Ed. 418. Experimental Psychology.** 3-0-0 or 0-3-0 or 0-0-3

Prerequisite: Two courses in Psychology.

This course deals with the higher mental processes; determination of unconscious factors in kinaesthetic, auditory, and visual perception; comparison of the present views of perception with those of the earlier associationists; the perception of time and of temporal rhythm; the physiological basis of rhythm in music and verse; illusions and their conditions; mental association and the role of frequency, recency, vividness, etc.; learning by rote and by logical methods; methods of measuring retention and recognition; the making of measuring scales for judgments of merit, testing the accuracy of judgments, and ranking judges according to merit; reasoning. Applications to education, advertising, etc., are made throughout the course, and research methods are emphasized. Mr. Garrison.

**Ed. 419. Seminar in Education.** 1-1-1

This course offers graduate students an opportunity to work out problems and make investigations in Education. Mr. Garrison and Mr. Cook.

**Ed. 420. Agricultural Education Seminar.** 1 1-1

A critical review of current articles and books of interest to students of agricultural education. Mr. Cook, Mr. Armstrong and Mr. Cline.

**ELECTRICAL ENGINEERING****Courses for Undergraduates****E. E. 101. Electrical Practice.** 0-1-0

Required of sophomores in Electrical Engineering.

Care and operation of electrical apparatus. Elementary electrical tests.

Mr. Brown, Mr. Knight.

**E. E. 102. Elements of Electrical Engineering I.** 2-2-2

Required of seniors in Ceramic, Civil, Highway, and Mining Engineering, and of juniors in Chemical Engineering.

Prerequisite: Math. 201, Phys. 104.

Generation and use of electric power; electric currents, principles and operation of generators, motors, and transformers; transmission of power, applications. Mr. Arbuckle.

- E. E. 103. Elements of Electrical Engineering II.** 3-3-3  
 Required of seniors in Mechanical Engineering and of juniors in Industrial Management.  
 Prerequisite: Math. 201, Phys. 104.  
 Electric units, electric circuits, principles of direct-current machines, lamps, batteries, principles of alternating currents, alternating current circuits, alternators, transformers, motors, performances, appliances.  
 Mr. Arbuckle.
- E. E. 104. Electric Equipment of Mills.** 2-2-2  
 Required of seniors in Textile Manufacturing.  
 Prerequisite: Phys. 104.  
 Electric units, direct and alternating current systems, generators and motors, transformers, mill driving, operation of machines.  
 Mr. Arbuckle.
- E. E. 105. Fundamentals of Electrical Engineering.** 4 0 0  
 Required of juniors in Electrical Engineering.  
 Prerequisite: Phys. 104, Math. 202.  
 A course introductory to E. E. 108 and E. E. 202. Electric units and circuits, power and energy, Ohm's and Kirchkoff's laws, the magnetic circuit, electric conduction through liquids and gases. The modern electron theory, used freely as a basis of explanation, ties together widely divergent principles.  
 Mr. Browne, Mr. Ricker.
- E. E. 106. Direct Current Machinery.** 0-4-0  
 Required of juniors in Electrical Engineering.  
 Continuation of E. E. 105.  
 Principles of generators and motors, performance and characteristics, elementary design.  
 Mr. Browne, Mr. Ricker.
- E. E. 107. Elements of Alternating Currents.** 0-0-4  
 Required of juniors in Electrical Engineering.  
 Continuation of E. E. 106.  
 Theory of periodic currents, alternating current circuits and circuit constants, power; single and polyphase systems, elementary design.  
 Mr. Browne, Mr. Ricker.
- E. E. 108. Electrical Engineering Laboratory.** 4-4 4  
 Required of juniors in Electrical Engineering.  
 Concurrent with E. E. 105, 106, 107.  
 A laboratory course supplemented by recitation and problem work. This course deals with electrical measurements, measuring devices, and the theory and operation of electric apparatus. It is coordinated with all courses given by the Department of Electrical Engineering for juniors in Electrical Engineering.  
 Mr. Arbuckle, Mr. Pearsall, Mr. Keever, Mr. Brown, Mr. Knight.

## Courses for Advanced Undergraduates

- E. E. 201. Alternating Current Machinery.** 4-4-0  
 Required of seniors in Electrical Engineering.  
 Prerequisite: E. E. 107.  
 A continuation of course E. E. 202, employing higher forms of mathematical analysis. Problems involving complex circuits, both single and polyphase, are studied in detail. The theory and characteristics of alternating current machinery; problems in design.  
 Mr. Browne, Mr. Ricker.
- E. E. 202. Electric Transmission.** 0-0-4  
 Required of seniors in Electrical Engineering.  
 Continuation of E. E. 201.  
 Circuits having distributed resistance, inductance, and capacitance; transmission line calculations, voltage regulation, voltage and power factor control, efficiency, disturbances, switching, and protection.  
 Mr. Browne, Mr. Ricker.
- E. E. 203. Electrical Engineering Laboratory.** 3-3-2  
 Required of seniors in Electrical Engineering.  
 Concurrent with E. E. 201 and 202.  
 A course in alternating current machinery and electrical measurements, supplementing and coordinated with all courses given by the Department of Electrical Engineering to seniors in Electrical Engineering.  
 Mr. Arbuckle, Mr. Pearsall, Mr. Keever, Mr. Brown, Mr. Knight.
- E. E. 204. Electrical Distribution.** 2-0-0  
 Required of seniors in Electrical Engineering.  
 Prerequisite: E. E. 107.  
 Low-tension distribution systems, feeders and mains, voltage regulation and control, selection of motors, industrial motor control. Mr. Browne.

## Courses for Graduates and Advanced Undergraduates

- \*E. E. 301. Electric Lighting.** 0-3-0  
 Alternative for seniors in Electrical Engineering.  
 Prerequisite: E. E. 107.  
 Principles and units, photometry and standards, lamps, shades, and reflectors, principles of illumination, design, interior illumination, street lighting, apparatus, lighting codes.
- \*E. E. 302. Electric Traction.** 0-2-0  
 Alternative for seniors in Electrical Engineering.  
 Prerequisite: E. E. 202.  
 The application of electric power to traction and transportation. Train motion, motive power, energy, and costs. The electrification of railways and its relation to the sources of power.  
 Mr. Browne.

- \*E. E. 303. Electric Communication.** 0-2-0  
 Prerequisite: E. E. 107.  
 Alternative for seniors in Electrical Engineering.  
 Consideration of the fundamental principles of wire and radio telegraphy and telephony. Mr. Ricker.
- E. E. 305. Electric Power Plants.** 0-0-3  
 Required of Seniors in Electrical Engineering.  
 Prerequisite courses 201 and 304.  
 The course covers the principles underlying the selection, arrangement, installation, and operation of the electrical equipment for power plants and substations. Mr. Arbuckle.
- E. E. 306. Industrial Applications.** 3-3-3  
 A study of the principles involved in the selection of suitable motor equipment for steady, variable, and accelerated loads; motor starters, speed control, load balancers, automatic equipment, protection, lighting and illumination. Mr. Arbuckle.

#### Courses for Graduates Only

- \*E. E. 401. Fundamental Principles in Electrical Engineering.** 3-3-3  
 A theoretical study of the more difficult problems in electrical engineering, including both direct and alternating currents, emphasis being placed upon the fundamental principles. Mr. Browne, Mr. Ricker.
- \*E. E. 402. Electric Transmission—Advanced.** 3-3-3  
 Calculation of inductance, and capacitance of wires, low-voltage networks, mechanical principles of transmission lines, insulators, corona. Analysis of long transmission circuits and auxiliary equipment; interference and transients in lumped circuits and on long lines. Mr. Ricker.

\* Only one of these courses to be offered during any college year.

### ENGLISH

#### Courses for Undergraduates

- Eng. 101. Rhetoric and Composition.** 3-3-3  
 Required of freshmen in all Schools.  
 Principles of writing; illustrative readings; frequent short exercises in descriptive, narrative, expository, and argumentative writing; one longer paper each term; collateral reading. Conferences.  
 Messrs. Harrison, Cunningham, Clark, Robertson, Keeble, Ladu, Fountain, Marshall, and Ray.
- Eng. 102. Rhetoric and Composition.** 0-3-3  
 Elective.  
 The course repeats the work of English 101, beginning with the second term. Messrs. Cunningham and Marshall.

**Eng. 103. Review of Composition and Rhetoric.** 3-3-0

Prescribed in the sophomore year for certain students in Business Administration, Industrial Management, Social Science, and Agricultural Administration.

Prerequisite: Eng. 101.

An intermediate course between English 101 and 201. Continued intensive drill in the fundamentals of rhetoric and composition, with special reference to business writing. Selected readings. Conferences.

Mr. Marshall.

#### Courses for Advanced Undergraduates

**Eng. 201. Business English.** 3-0-0 or 0-3-0 or 0-0-3

Required of sophomores in Engineering.

Elective especially for students in Science and Business but open to students in all Schools.

Prerequisites: Eng. 101.

Review of principles applicable to business writing; types of letters; form, style, and tone of effective correspondence. Conferences.

Mr. Wilson.

**Eng. 203. Technical Writing.** 3 0-0 or 0-3-0 or 0-0-3

Prescribed for sophomores in Engineering and students majoring in Journalism. Elective for other students in Engineering and for all students in Textiles.

Prerequisite: Eng. 101.

The principles of composition applied to the writing of reports and other engineering papers; illustrative readings; practice in writing frequent short papers; a thesis as model of the paper to be presented for advanced degree, read before a scientific society, or published in a technical journal. Conferences.

Mr. Harrison.

**Eng. 208. The Essay.** 0-3-0

Elective for students in all Schools.

Prerequisite: Eng. 101.

Planned as a course in advanced composition and in appreciation of this important form of writing. Style and content of the literary, non-technical essay; various types of formal and informal essays to be read as models of structure, mechanics, and material; frequent brief practice papers and one longer essay. Conferences.

Mr. Harrison.

**Eng. 209. The Short Story.** 0-0-3

Elective for students in all Schools.

Prerequisite: Eng. 101.

The development, structure, types, and style of the short story; the present-day short story in collections and in current periodicals as models; the writing of narratives of fact and of fiction. Conferences.

Mr. Harrison.

- Eng. 220. Survey of English Literature.** 3-3-3  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of the masterpieces of English literature in their historical settings, and of the chief literary and historical influences which brought about the principal changes in the literature. Special assignments of parallel readings will be made as bases for reports and discussions.  
 Mr. Clark.
- Eng. 221. Survey of American Literature.** 3-3-0  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of the masterpieces and outstanding types of American literature in their historical settings, together with a critical examination of the development of American literary thought and the strong English influence on the literature. Parallel readings will be required as bases for reports and discussions.  
 Mr. Ladu.
- Eng. 233. Southern Writers.** 3-0-0  
 Elective.  
 Prerequisite: Eng. 101.  
 This course covers all important writers born in the Southern States, with intensive study of Poe, W. G. Simms, Ellen Glasgow, Sidney Lanier, Joel Chandler Harris, George W. Cable, O. Henry, James Branch Cabell. The object of the course is not to present a sectional type of literature, but rather to discover to the student the real extent and quality of Southern literary genius.  
 Mr. Ladu.
- Eng. 235. Victorian Poetry.** 0-3-0  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of the principal poets of the Victorian era. Emphasis will be placed on the works of Tennyson and Browning.  
 Mr. Ladu.
- Eng. 238. The Bible as Literature.** 0-0-3  
 Elective.  
 Prerequisite: Eng. 101.  
 This is a critical study of selected books of the Old and New Testaments as literary and historical documents. The text used is the King James Version.  
 Collateral readings from commentaries will be assigned for reports and class discussions.  
 Mr. Ladu.
- Eng. 250. History and Principles of Journalism.** 3-0-0  
 Required of students in Journalism; elective for others.  
 Prerequisite: Eng. 101 or equivalent.  
 A survey of American journalism from the first newspaper to the present day, with special attention to journalism as a profession, to its aims, ideals, and standards. The systematic analysis of the principles of journalism is supplemented by practice in writing the simplest types of news stories.  
 Mr. Robertson.

- Eng. 251. Newspaper Reporting.** 0-3-3  
 Required of students in Journalism; elective for others.  
 Prerequisite: Eng. 250.  
 The theory of the news story; gathering news, with special attention to interviewing; correspondence; types of news stories; practice in newspaper reporting. Mr. Robertson.
- Eng. 252. Feature and Editorial Writing.** 0-3-0  
 Required of students in Journalism; elective for others.  
 Prerequisite: Eng. 250.  
 Study of the methods of writing the feature story, feature articles, and editorials. This includes the selection of materials, the strategy of expression, and the various principles underlying effective writing of these journalistic types. Practice in writing these types. Mr. Robertson.
- Eng. 253. Advanced Journalism.** 0-0-3  
 Elective.  
 Prerequisite: Eng. 150 or its equivalent.  
 This course gives instruction and practice in the methods of journalism, and includes editing, proofreading, the writing of special feature articles, the writing of advertisements. Special attention is given to the preparation of press material of a more or less technical nature. Mr. Robertson.
- Eng. 254. Agricultural News Writing.** 3-0-0  
 This course or Eng. 255 required of students in Journalism; elective for others.  
 Prerequisite: Eng. 101.  
 Agricultural news gathering and news writing; farm journal analysis; lectures; practice assignments in preparing copy for the State press and the local farm papers. Mr. Robertson.
- Eng. 255. Industrial News Writing.** 3-0-0  
 This course or Eng. 254 required of students in Journalism; elective for others.  
 Prerequisite: Eng. 101.  
 Industrial news gathering and news writing; preparation of house organs; study of trade and technical publications; frequent practice in writing material of industrial nature. Mr. Robertson.
- Eng. 256. Advertising Copy.** 0-0-3  
 Required of students in Journalism; elective for others.  
 Prerequisite: Eng. 101.  
 Study of the preparation of advertising copy in the light of modern merchandising methods. Designing and writing effective advertisements with special consideration to such matters as layout, type, illustration, lettering. Mr. Robertson.

**Eng. 260. Public Speaking.**

3-0-0 or 0-3-0 or 0-0-3

Prescribed for sophomores in Engineering who do not elect Elements of Journalism, or Survey of English or American Literature. Elective for other students.

Prerequisite: Eng. 101 or equivalent; in third term, open to freshmen who have attained grades of B or better in first and second terms of Eng. 101.

A fundamental, practical course in oral expression. Study of the principles of speech composition and delivery; presentation of extempore speeches; exercises in voice technique. The fundamentals aimed at are: thought conception, power of analysis, orderly arrangement of ideas, self-control before an audience, and an effective extempore presentation. Opportunity is given for the preparation and delivery of speeches on topics within the field of the student's vocational major.

Messrs. Cunningham and Ray.

**Eng. Ex. 261. Extempore Speaking.**

3 credits.

A practical course in straightforward, conversational, persuasive extemporaneous public speaking. A study of speech composition, including selection and organization of materials, outlining, and the distinctive qualities of style in oral discourse. Practice in speech delivery, including gesture, voice, and the alternation between humanness and forcefulness in presentation manner.

Mr. Cunningham.

**Eng. 269. Parliamentary Practice.**

0 2-0 or 0-0-2

Elective. Not to be counted toward the fulfillment of any requirement in English.

Prerequisite: Eng. 101 or equivalent; in third term, open to freshmen who have attained grades of B or better in the first and second terms of Eng. 101.

An introductory course in the field of Parliamentary Law. Instruction in the rules and customs of deliberative assemblies, including organization, motions, amendments, committees, duties of officers, etc. Actual practice is had in participation in and conduct of formal meetings.

Mr. Cunningham.

### Courses for Graduates and Advanced Undergraduates

**Eng. 323. The English Novel.**

3-0-0

Elective.

Prerequisite: Eng. 101.

A study of the novel with regard to its English origin, its structural development, and its historic and social settings. The works of the greater novelists will be studied appreciatively as literature, and an attempt will be made to trace their essential characteristics, with a view to criticising the value and tendencies of the novel today. A brief study of the structural development and chief types of the short story will follow. Mr. Ladu.



- Eng. 326. Modern Drama.** 0-3-0  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of representative modern plays, beginning with those of Ibsen. Special attention will be given to contemporary English and American productions. The drama will be considered as a vehicle of interpretation of modern thought.  
 Mr. Ladu.
- Eng. 327. The Development of the Drama.** 0-0-3  
 Elective.  
 Prerequisite: Eng. 101.  
 In this study there will be a discussion of the origin, progress, and influence of the English and American drama, with particular attention to plot, characterization, and interpretation of certain readings which represent the various types of the drama.  
 Mr. Clark.
- Eng. 330. Shakespeare.** 3-0-0  
 Elective.  
 Prerequisite: Eng. 101.  
 An analysis, as regards technique and interpretation, of the following dramas: *Macbeth*, *Othello*, *The Winter's Tale*, *Twelfth Night*, and *King Henry the Fifth*. Reports on parallel readings will be discussed in open forum sessions.  
 Mr. Clark.
- Eng. 332. The Romantic Period.** 0-3-0  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of the representative poems of Gray, Blake, Burns, Wordsworth, Coleridge, Scott, Southey, Byron, Shelley, and Keats. These writers will be considered with the view of noting, as to content, their sympathy with nature and their interest in man and the affairs of human life; as to style, their departure from the conventional forms and devices of the Classical School.  
 Mr. Clark.
- Eng. 336. Victorian Prose.** 0-0-3  
 Elective.  
 Prerequisite: Eng. 101.  
 This course is designed primarily to meet the requirements and interests of business students. It will deal with the principal literary men of the nineteenth century who wrote on economic and social subjects. The writers for study are Carlyle, Ruskin, Disraeli, Eliot, Gaskell, Kingsley, Reade, Trollope, Ward, and others.  
 Mr. Clark.

- Eng. 337. Contemporary American Literature.** 0-0-3  
 Elective.  
 Prerequisite: Eng. 101.  
 A study of the leading American writers of the present century, and an attempt to interpret their works against the social background of the period. Those writers to be given chief attention are: in the realm of fiction, Dreiser, Lewis, Cabell, Anderson, Willa Cather; of poetry, Frost, Robinson, Masters, Sandburg, Amy Lowell, Edna St. Vincent Millay; of drama, Thomas, Moody, Mackaye; of the essay, Burroughs, Mencken, Howe.  
 Mr. Ladu.
- Eng. 350. Copy-Reading, Make-Up, and Editorial Practice.** 4 4 4  
 Required of seniors in Journalism.  
 Prerequisite: Eng. 251.  
 Study of newspaper methods, with special attention to the duties and problems of the desk man, including copy- and proof-reading; determining news values; the law of libel; selecting and handling news and press reports; headline writing and headline display; the assigning and directing of reporters; organization of the editorial departments; management of the mechanical details of the newspaper. Lectures and laboratory work designed to give the student a dependable introduction to newspaper routine and methods.  
 Mr. Robertson.
- Eng. 351. Newspaper Management.** 0-3 0  
 Required of seniors in Journalism.  
 Prerequisite: Eng. 251.  
 The business phases of newspaper publishing, including methods of promotion, editorial policy, and administration. Special consideration will be given to the application of the business principles of modern journalism to the publication of country weeklies and small city dailies.  
 Mr. Robertson.
- Eng. 361. Argumentation and Debate.** 3-3-0  
 Elective.  
 Prerequisite: Eng. 260 or equivalent.  
 Study of the principles of analysis, brief-drawing, and evidence, and of the methods of proof and refutation. Consideration of the fundamentals of conviction in the several fields of public speaking, and of the alternation between humanness and forcefulness in presentation manner. Practical application of principles in extempore speeches, debates, and discussions.  
 Mr. Cunningham.
- Eng. 362. Persuasion.** 0-3-0  
 Elective.  
 Prerequisite: Eng. 260 or equivalent.  
 Study of the principles underlying persuasive discourse; the psychological forces that move men to believe and to act; methods of conciliation, of securing and holding attention, and of winning response. Application of these principles in extempore speeches and discussions.  
 Mr. Cunningham.

**Eng. 363. Public Address.**

0-0-3

Elective.

Prerequisite: Eng. 260 or equivalent.

Preparation and delivery of public addresses for special occasions, including announcement, speech of introduction, speech of welcome, speech of response, speech of presentation, speech of acceptance, nominating speech, dedicatory speech, commemorative address, after-dinner speech, speech at professional convention, political speech, college oration, formal sales talk.

Mr. Ray.

**FORESTRY****Term Courses****Forestry II. Farm Forestry.**

3-0-0

This course is designed to give practical instruction in forestry for the farmer. Instruction will be given in timber estimating, marketing, thinning, planting, natural reproduction methods, and the control of the enemies of the forest, such as fire, insects, and grazing. Most of the time will be

Mr. ....

**Courses for Undergraduates****Forestry 101. General Forestry.**

2-2-2

This course is intended to give the student a general knowledge of Forestry. It will treat with the principles underlying the growth of forests, enemies of the forest, covering fire prevention and suppression, forest economics dealing with the products of the forest, and a brief survey of the

Mr. ....

**Courses for Advanced Undergraduates****Forestry 201. Farm Forestry.**

0-3-0

A more detailed study of the management and treatment of woodlands, embracing seeding and planting, improvement, and reproduction cuttings, thinnings, measurement of products and standing timber, with markets for different local species. As far as possible this course will be supplemented by field trips and adapted to the man who owns timbered land.

Mr. ....

**Forestry 202. Forest Protection.**

0-0-3

The protection of forests from fire and other enemies. Emphasis is placed on the principles underlying forest-fire prevention, detection, and control, especially as these are put in practice through the forest-fire plan.

Mr. ....

## GEOLOGY

## Courses for Undergraduates

- Geol. 101. Earth History.** 0-3-0 or 0-0-3  
 Elective for freshmen and sophomores in Science and Business. Not to be taken after Geol. 120 or 125. An introductory course in general geology dealing with the changes which have taken place in the earth, and the physical and life processes which have brought about these changes.  
 Mr. Stuckey.
- Geol. 120. Physical Geology.** 3-0-0  
 Required in Civil, Ceramic, Highway, and Mining Engineering.  
 An introductory course in dynamic and structural geology. The course treats of the forces which are acting in and on the earth, and the materials of the earth's crust.  
 Mr. Stuckey.
- Geol. 125. Historical Geology.** 0-3-0  
 Prerequisite: Geol. 101 or 120.  
 A study of the outlines of historical geology. The course is based on the sequence of events in the development of the geology of the North American Continent.  
 Mr. Stuckey.

## Courses for Advanced Undergraduates

- Geol. 205. Physiography.** 0-0-4  
 An account of the evolution of the physical features of the earth and the agencies which influence their development. The course is intended to give those interested in general science and those likely to teach a better appreciation of physical geography.  
 Mr. Stuckey.
- Geol. 230. Mineralogy.** 3-0-0 or 0-0-3  
 A study of crystallography, physical and chemical mineralogy and blow-pipe analysis. Repeated in the third term for Chemical Engineering students only.  
 Mr. Stuckey.
- Geol. 235. Advanced Mineralogy.** 0-3-0  
 Prerequisite: Geol. 230.  
 A continuation of Geol. 230. Special attention will be given to the chemical and physical properties of a larger group of important minerals. (Offered in 1929-30 and alternating years).  
 Mr. Stuckey.
- Geol. 280. Geology and Mineral Resources of North Carolina.** 3 0 0  
 Prerequisite: Geol. 120.  
 The course will include a study of the physical geography, general geology, common rocks and minerals, and mine and quarry products of the State. (Offered in 1929-30 and alternating years.)  
 Mr. Stuckey.

**Geol. 281. Petrology. 3-0-0**

Prerequisite: Geol. 120 or equivalent.

Materials of the earth's crust. The course includes a brief study of the chief rock-forming minerals, followed by work in the identification, origin, classification, and distribution of rocks. The value of the more important rocks for building and ornamental purposes will be discussed.

Mr. Stuckey.

**Geol. 285. Economic Geology. Non-Metals. 0-3-0**

Prerequisite: Geol. 120.

The mode of occurrence, association, origin, and uses of the nonmetallic minerals.

Mr. Stuckey.

**Geol. 286. Economic Geology. Metals. 0-0-3**

Prerequisite: Geol. 120.

The mode of occurrence, association, origin, and uses of the leading metal-bearing minerals.

Mr. Stuckey.

**Geol. 291s. Geology of North Carolina. Summer Term. 9 credits.**

Prerequisite: Geol. 120.

A summer field course dealing with the geology of North Carolina. Mines, quarries, mineral and clay deposits will be visited and studied as well as the geological formations in different parts of the State. Some time will be devoted to the making of geological maps.

Mr. Stuckey.

**Geol. 295. Petrography. 0-3-0**

Prerequisites: Geol. 230.

A study of optical mineralogy and theory of light as applied to the polarizing microscope. Practice will be had in determining minerals in rock sections and in grains.

(Offered in 1928-29 and alternating years.)

Mr. Stuckey.

#### Courses for Graduates and Advanced Undergraduates

**Geol. 305. Structural and Field Geology. 0-3-3**

Prerequisites: Geol. 120, 125, and 230.

The first term of the course will be devoted to a study of structural geology and geological mapping. In the second term the student will be required to make a detailed geologic map of an assigned area, and prepare a report discussing the geology of the area mapped. By permission the first half of the course may be taken without the second half.

(Offered in 1928-29 and alternating years.)

Mr. Stuckey.

**Geol. 320. Geological Research. 2-2-2**

Open only to seniors and graduate students specializing in geology or soils.

Lectures, reading, assignments, and reports. Special work in geology or petrography will be arranged to meet the needs of the students.

Mr. Stuckey.

**HIGHWAY ENGINEERING****Courses for Advanced Undergraduates****H. E. 201. Highway Engineering I. 0-3-3**

Required of juniors in Civil and Highway Engineering.

Prerequisite: C. E. 101 and 102.

History, economics and administration of highways; location, design, construction, and maintenance of highways; materials used in road building.

Mr. Tucker.

**H. E. 204. Materials Testing Laboratory. 1-1-0 and 0-1-1**

Required of seniors in Civil, Highway, Construction and Architectural Engineering.

The testing of materials used in engineering construction. For the students in Civil and Highway Engineering emphasis is placed on those materials used in road construction; for the students in Architectural and Construction Engineering, emphasis is placed on those materials used in the building industry.

Mr. Tucker.

**Courses for Graduates and Advanced Undergraduates****H. E. 301. Highway Engineering II. 3-3-3**

Required of seniors in Highway Engineering.

Prerequisite: H. E. 201.

Field and office practice; the economical design of highways, with particular reference to location, grading, and drainage; the high type pavements, their design and construction; current highway practice and progress.

Mr. Tucker.

**H. E. 302. Highway Office Practice. 1-0-0**

Required of seniors in Highway Engineering.

Prerequisite: H. E. 201.

The preparation of road plans and the calculation of yardage; the design of sections and small drainage structures.

Mr. Tucker.

**Courses for Graduates Only****H. E. 401. Highway Research. 3 3-3**

A study of the important research projects in the field of highway transport or that of highway engineering. The first term is usually given to the preparation of a bibliography of highway research projects; the second term is devoted to the preparation of papers on the results of specified research projects; while the third term is devoted to original research and investigation.

Mr. Tucker.

## HISTORY AND POLITICAL SCIENCE

## Courses for Undergraduates

- Hist. 101. American Economic History and Geography.** 3-3-3  
 Required of students in the School of Science and Business. Elective for others.  
 Physiographic factors, discovery, colonization, colonial agriculture, industry, and commerce; economic background of the Revolution, government foundations, sectionalism, slavery and the Civil war; public lands, agriculture, public finance, tariff, banking, railroads, labor and labor organizations, rise of big business, the World war. and economic reconstruction.  
 Mr. Lefler.
- Hist. 101-A. American Economic History and Geography.** 3-3-3  
 Elective for students in the School of Agriculture.  
 Similar to History 101, but with emphasis on the history of American Agriculture.  
 Mr. Armstrong.
- Hist. 104. World History.** 2-2-2  
 Required of all students who do not take Military Science.  
 A survey of human progress from the earliest times to the present, showing man's climb from savagery and barbarism to the present degree of civilization. In addition to the broad facts of history, the course gives the student an appreciation of the contributions to culture of other races, and the concept of development in human affairs. Mr. Barnhardt.

## Courses for Advanced Undergraduates

- Hist. 201. Social and Economic History of Modern Europe.** 3-3-3  
 Elective.  
 Prerequisite: History 101.  
 Rapid survey of early European history, renaissance and reformation, industrial and commercial revolution, dynastic and colonial rivalry, the French Revolution, reaction following 1815, spread of democracy and nationalism, agriculture, industry, commerce, labor, tariff, expansion of Europe, background of the World War, and post war Europe. Mr. Barnhardt.
- Hist. 209. Government.** 3-3-3  
 Elective.  
 Organization and activities of our local, State and National governments, party politics; economic, social, and legal factors in the functioning of government.  
 Mr. Lefler.
- Hist. 210. Political Theory.** 3-0-0  
 Prerequisite: History 209.  
 Theories of the nature of the State, the origin of the State, the State as a social control, the development of political theories concerning the State. Critical analysis of the conceptual tools of political thinking and the field of political science.  
 Mr. Lefler.

## Courses for Graduates and Advanced Undergraduates

- Hist. 300. Public Administration.** 3-3-3  
 Prerequisite: Senior standing.  
 A study of the principles and practices of public administration. The legal aspects of public administration, organization, financial and budgetary proposals and miscellaneous problems are studied. Attention is given to comparative studies in state and local administration.  
 Mr. \_\_\_\_\_.
- Hist. 301. United States History to 1860.** 3-0-0  
 Prerequisite: History 101.  
 A survey of the political, constitutional, economic, and social development of the United States from the Revolution to the Civil War, with emphasis upon the causes and effects of the American Revolution, the beginnings of American State and federal government, rise of political parties, westward expansion, Jacksonian democracy, political and economic sectionalism, and the causes of the Civil War.  
 Mr. Lefler.
- Hist. 302. United States History Since 1860.** 0-3-0  
 Prerequisite: History 101.  
 The political, constitutional, economic, and social life of the United States since the Civil War, with special emphasis upon reconstruction, territorial expansion, political movements, rise of big business and organized labor, and America's entry into world politics.  
 Mr. Lefler.
- Hist. 303. History of North Carolina.** 0-0-3  
 Prerequisite: History 101, 301, and 302.  
 A survey of the political, social, and economic history of North Carolina from the colonial beginnings to the present day.  
 Mr. Lefler.
- Hist. 307. Advanced United States and North Carolina History.** 3-3-3  
 Elective.  
 Prerequisite: History 101, 301, 302, and 303.  
 Research study of the historical development of the United States, with emphasis on the economic and social history of North Carolina and other Southern States.  
 Mr. Lefler.
- Hist. 318. Economic and Social History of Agriculture.** 0-0-3  
 Required of seniors in Agricultural Administration. Elective for others.  
 Influence of agriculture on national and world issues, relationship of the farmer to economic and social classes, economic and social status of the farmer throughout history.  
 Mr. Taylor.



## HORTICULTURE

## Term Courses

- Hort. 11. Farm Beautification.** 3-0-0  
The principles of the arts of design applied to the improvement of the farmstead, rural schools, churches, and community grounds. Practice in simple methods of surveying and mapping, designing, planting and care of plants. A study of ornamental trees, shrubs, vines, herbaceous plants, annuals, and grasses used in landscape gardening, with special reference to agement. Mr. Pillsbury.
- Hort. 22. Vegetable Growing.** 3-0-0  
The general principles of vegetable production are studied. Consideration is given to locations, sites, soils, crops, varieties, garden planning and planting. Practice in growing vegetable plants under glass. Mr. Randall.
- Hort. 23. Fruit Growing.** 0-3-0  
General principles of fruit growing. Consideration of locations, sites, soils, fruits and varieties, and other factors in the establishment of orchards. Seasonal pruning and spraying, and the practices involved in orchard management. Mr. Pillsbury.
- Hort. 24. Commercial Truck Growing.** 0-3-0  
This course deals with the consideration of factors involved in trucking and market gardening. Commercial methods and practices are considered. The study of large scale production of vegetables, including geography of vegetable handling and factors of success. North Carolina truck growing regions, development and practices. The use of irrigation, fertilizers, spraying equipment, and forcing in vegetable growing. Mr. Randall.
- Hort. 25. Commercial Fruit Growing.** 0-3-0  
The study of large scale production of fruit, including geography of fruit handling and factors of success. North Carolina fruit growing regions, development and practices. Establishment and management of commercial orchards. Mr. Pillsbury.
- Hort. 26. Marketing Vegetables.** 0-0-3  
Harvesting, grading, packing, storage, and distribution of vegetables. Mr. Randall.
- Hort. 27. Marketing Fruits.** 3-0-0  
Harvesting, grading, packing, storage, and distribution of fruits. Mr. Pillsbury.

## Courses for Undergraduates

- Hort. 101. General Horticulture—Introductory Course.** 0-0-3  
 Required of freshmen in Agriculture.  
 Introduction to Horticulture for the purpose of interesting the student in both home and commercial horticulture. Special emphasis is placed on the scope and importance of fruit and vegetable industries in the United States and in North Carolina, and also on the possibilities of fruit and truck growing as a commercial business and as a department of the general farm. Garden making, orcharding, and farmstead improvement are the major topics treated. Mr. Pillsbury.
- Hort. 102. Plant Propagation and Nursery Practice.** 3-0-0 or 0-0-3  
 Elective for juniors.  
 Multiplication of plants by seeds and vegetative parts. Practice in seedage, cuttage, separation and division, budding and grafting. Cultural principles and practices employed in growing nursery stock. Mr. Randall.
- Hort. 103. Vegetable Gardening I.** 0-0-3  
 Required of sophomores in General Agriculture.  
 General principles of vegetable production. Location, sites, soils, crops, varieties, garden planning and planting. Practice in growing vegetable plants under glass, transplanting and field planting. Mr. Randall.
- Hort. 104. Pomology I.** 0-3-0  
 Required of juniors in General Agriculture.  
 General principles of fruit growing. Consideration of locations, sites, soils, fruits and varieties, and other factors in the establishment of orchards. Seasonal pruning and spraying, and the practices involved in orchard management. Mr. Pillsbury.

## Courses for Advanced Undergraduates

- Hort. 201. Fruit and Vegetable Judging.** 3-0-0  
 Elective for juniors.  
 The course is designed to give the student a more thorough knowledge and greater appreciation of good fruit and vegetables. Lectures and practice in planning, arranging, and judging horticultural exhibits. Study of the Federal grades of fruits and vegetables. A course planned to develop experts in the judging and grading of fruits and vegetables. The fruit and vegetable judging teams of the College will be selected from students entered in this course. Mr. Matthews and Mr. Randall.
- Hort. 202. Horticulture—Marketing.** 3-0-3  
 Elective for juniors.  
 Harvesting, grading, packing, storage, and distribution of fruits and vegetables.  
 First term, chiefly fruits; third term, vegetables.  
 Mr. Matthews and Mr. Randall.

- Hort. 203. Plant Materials.** 0-2-0  
 Elective for juniors.  
 A study of forest trees and ornamental trees, shrubs, vines, herbaceous plants, animals, and grasses used in forestry and landscape gardening, with special reference to their characteristics and uses in these lines of work.  
 Mr. Pillsbury.
- Hort. 204. Landscape Gardening.** 0-0-3  
 Elective for seniors.  
 Prerequisite: Hort. 203.  
 The principles of the art of design applied to the improvement of the farmstead, rural schools, churches, and community grounds. Practice in simple methods of surveying and mapping, designing, planting, and care of ornamental plants.  
 Mr. Pillsbury.
- Hort. 205. Pomology II.** 0-0-3  
 Elective for juniors.  
 Prerequisite: Hort. 104.  
 A continuation of Pomology I. In addition, protection of fruit plants from frost injury, summer spraying program, and important seasonal operations.  
 Mr. Pillsbury.
- Hort. 206. Systematic Pomology.** 2-0-0  
 Elective for seniors.  
 Prerequisite: Hort. 104.  
 Fruit varieties: Their description, identification, nomenclature, and classification; their relationships and adaptations. Also judging methods and standards.  
 Mr. Pillsbury.
- Hort. 209. Vegetable Gardening II.** 0-0-3  
 Elective for juniors.  
 Prerequisite: Hort. 103.  
 A continuation of Vegetable Gardening I. General principles of vegetable production. Locations, sites, soils, crops, varieties, garden planning and planting. Practice in transplanting and field planting under general field conditions.  
 Mr. Randall.
- Hort. 210. Floriculture and Greenhouse Construction.** 3-0-0  
 Elective for seniors.  
 Types of glass houses, their construction and heating. General principles of management of crops under glass. The production of potted plants and cut flowers. A study in detail of the production of the principal florists' crops. Practice is had with models, full-size houses, and through actual planting and care of crops.  
 Mr. Randall.
- Hort. 211. Vegetable Forcing.** 0-3-0  
 Elective for seniors.  
 Prerequisite: Hort. 209, 210.  
 Management and production of vegetable crops under glass. Practice in growing vegetables in forcing houses.  
 Mr. Randall.

- Hort. 212. Systematic Olericulture.** 2-0-0  
 Elective for seniors.  
 Vegetable varieties; their description, identification, nomenclature, and classification; their relationships and adaptations. Mr. Randall.

**Courses for Advanced Undergraduates**

- \*Hort. 215. Arboriculture.** 1-1-2  
 Required of freshmen in Landscape Gardening.  
 A practice course in the culture of woody plants which includes planting, training, pruning, tree surgery, transplanting, fertilization, control of pests. Mr. Pillsbury.
- \*Hort. 216. Plant Materials: Woody Plants.** 2-2-2  
 Required of sophomores in Landscape Gardening.  
 A study of trees, shrubs and vines as to situations and habits of growth, size, color, texture, flowers and other characteristics which determine their use in planting design. Mr. Pillsbury.
- \*Hort. 217. Plant Materials: Annual and Herbaceous Plants.** 0-0-2  
 Elective for juniors.  
 A study of garden plants and flowers as to height, habits of growth, texture, season and color. Mr. Pillsbury.
- \*Hort. 218. Theory of Landscape Design.** 0-0-5  
 Required of sophomores in Landscape Gardening.  
 A course in the science of the beautiful in landscape art, designed to enable the student to form a correct conception of the art through an analysis of the beauties of landscapes, and a study of the relationships which exist among the various elements composing them. Mr. Pillsbury.
- \*\*Hort. 219. History of Landscape Gardening.** 0-0-3  
 A review of the development of gardens from earliest times to the present, including a critical study of notable examples of the more recent periods.
- \*Hort. 220. Landscape Design: Elements, Gardens and Estates.** 4-4-4  
 A progressive practice course in the design of small areas, followed by the solution of problems involving more ambitious arrangement of land, buildings, and masses.
- \*\*Hort. 221. Planting Design.** 3-3-3  
 A progressive course in the use and arrangement of plant materials in pictorial composition.  
 \*To be offered in 1928-29.

**\*\*Hort. 222. Landscape Design: Institutional Groups and Parks. 4-4-4**

A progressive practice course in the design of special group problems, and the development and design of parks and park systems.

**\*\*Hort. 223. City Planning. 4-0-0**

A course in civic art which includes an anatomical study of urban communities, and the design of traffic systems, districts, civic centers, and other focal points, which is designed to give a comprehensive view of the development of towns and cities, and serve as an introduction to this great branch of landscape architecture.

**\*\*Hort. 224. Land Subdivision. 0-4-0**

A course in the study and design of suburban areas in connection with both urban and rural development.

**\*\*Hort. 225. Landscape Construction. 2-2-0**

A practice and observation course in the methods of execution of landscape design, embracing the operations in grading, draining, purchase, collection, planting and transplanting of materials, and other matters which go to make up the finished example of the designers art.

**\*\*Hort. 226. Office Practice. 0-0-1**

A study of the equipment, facilities, and arrangement in landscape designers offices, and their efficient use in professional work, including forms, methods of procedure and professional ethics.

**Courses for Graduates and Advanced Undergraduates****Hort. 301. Experimental Pomology. 0-3-0**

Elective for seniors.

Prerequisite: Hort. 205.

A study in the fundamentals of fruit production as disclosed by experimentation. A course dealing with the water relations, nutrition, and temperature relations of horticultural plants. In addition, the course deals with fruit habits, fruit setting, and composition of fruits. Mr. Pillsbury.

**Hort. 302. Commercial Fruit Production. 3-0-0**

Elective for seniors.

Prerequisite: Hort. 205.

The study of large scale production of fruit, including geography of fruit handling and factors of success. North Carolina fruit growing regions, development and practices. Establishment and management of commercial orchards. Mr. Pillsbury.

\*\*To be offered in 1929 30.

- Hort. 303. Commercial Vegetable Production.** 3-0-0  
 Elective for seniors.  
 Prerequisite: Hort. 209.  
 This course deals with the consideration of factors involved in trucking and market gardening. The use of irrigation, fertilizers, spraying equipment, and forcing in vegetable growing. Commercial methods and practices. The study of large scale production of vegetables, including geography of vegetable handling and factors of success. North Carolina truck growing regions, development, and practices.  
 Mr. Randall.

- Hort. 304. Horticulture—Problems.** 1-1-1  
 Elective for seniors.  
 A course in the systematic investigation of some phase of Horticulture or related sciences. Each student chooses his own subject of study and pursues it independently, under direction of the instructor. Weekly conferences and reports. Thesis.  
 Mr. Matthews and Mr. Randall.

#### Courses for Graduates Only

- Hort. 403. Methods of Horticultural Research.** 3-3-3  
 A study of the practices and problems encountered in horticultural experimentation. A study of methods and procedure in work of investigation, outlining problems, assembling and analyzing data, and presenting results. Special attention is given to the preparation of outlines, bibliographies, reports, and to critical review of experiment station work.  
 Messrs. Matthews, Pillsbury, Schmidt, Radspinner, and Williams.

- Hort. 404. Seminar.** 1-1-1  
 Required of graduate students. Elective for seniors in Horticulture.  
 Work includes a study in critical discussions of recent horticultural publications and experimental and research projects now under study in this and other agricultural experiment stations. Members of the seminar will be assigned scientific articles of interest to horticulturists which will be reviewed and discussed by the individual members of the seminar. Papers prepared by students in research problems will be presented and discussed by the members.  
 Horticultural Staff.

### MATHEMATICS

#### Courses for Undergraduates

- Math. 100. Mathematical Analysis.** 3-3-3  
 Elective. Designed especially for students taking Business Administration and Agricultural Administration.  
 The course emphasizes graphical methods as affording a natural means of developing the function concept and of showing the applications of mathematical principles to practical problems in science and business. The course treats of algebra, trigonometry, analytic geometry, and the elements of calculus in such a way as to give the student a view of these subjects in proper relation to each other.  
 Messrs. Harrelson and Fisher.

- Math. 101. Algebra.** 5-0-0  
 Required of freshmen in the School of Engineering. Elective for other students.  
 This course includes the progressions, binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, the general theory of equations, and the solution of higher equations.  
 Messrs. Yates, Harrelson, Mock, Williams, Fisher, Lee, and Mumford.
- Math. 102. Solid Geometry.** 0-5-0  
 Required of freshmen in the School of Engineering. Elective for other students.  
 The three books of Solid Geometry, including numerous original exercises, are covered in this course.  
 Messrs. Yates, Harrelson, Mock, Williams, Fisher, Lee, and Mumford.
- Math. 103. Plane Trigonometry.** 0-0-5  
 Required of freshmen in the School of Engineering. Elective for other students.  
 Definitions of the trigonometric functions, derivation of formulae, solutions of plane triangles, and solutions of many practical problems.  
 Messrs. Yates, Harrelson, Mock, Williams, Fisher, Lee, and Mumford.

#### Courses for Advanced Undergraduates

- Math. 201. Analytical Geometry.** 5-0-0  
 Required of sophomores in Engineering. Elective for other students.  
 Prerequisite: Math. 101, 102, and 103.  
 Loci of equations, the straight line, circle, parabola, ellipse, hyperbola, and the general equation of the second degree.  
 Messrs. Yates, Harrelson, Mock, Fisher, and Lee.

#### Courses for Advanced Undergraduates and Graduates

- Math. 202. Differential Calculus.** 0-5-0  
 Required of all sophomores in Engineering.  
 Prerequisite: Math. 201.  
 An elementary course on the fundamental principles of the Calculus, including the development of the formulae for differentiation with their applications to problems in rates, and maxima and minima.  
 Messrs. Yates, Harrelson, Mock, Fisher, and Lee.
- Math. 203. Integral Calculus.** 0-0-5  
 Required of all sophomores in Engineering.  
 Prerequisite: Math. 202.  
 This course develops the formulae for integration, and includes their application to various examples, problems, and definite integrals.  
 Messrs. Yates, Harrelson, Mock, Fisher, and Lee.

## Courses for Graduates and Advanced Undergraduates

- Math. 301. Advanced Calculus.** 0-3-0  
 Elective.  
 Prerequisite: Math. 203.  
 This course treats of the more advanced topics not covered by the separate courses in the Differential and Integral Calculus. It is designed for advanced students in engineering, and treats of series, curve tracing, envelopes, lengths of curves, volumes of solids, moments of inertia, center of pressure and center of gravity. Mr. Harrelson.
- Math. 302. Theory of Equations.** 0-0-3  
 Elective.  
 Prerequisite: Math. 101.  
 A short course on the theory of equations, solution of higher equations, exponential equations, logarithmic equations, and determinants. Mr. Yates.
- Math. 303. Differential Equations.** 0-0-3  
 Elective.  
 Prerequisite: Math. 203.  
 A short course to include the solutions of the simpler equations which occur in scientific work and engineering practice. Mr. Harrelson.
- Math. 304. Advanced Analytical Geometry.** 3-0-0  
 Elective.  
 Prerequisite: Math. 201.  
 The general equation of the second degree, elements of higher plane curves, and the geometry of space. Mr. Mock.

## MECHANICAL ENGINEERING

## Courses for Undergraduates

- M. E. 101. Engineering Drawing.** 2-2-2  
 Required of Textile freshmen.  
 Drawing-board work, covering lettering, orthographic projection, auxiliary projection, isometric projection, cabinet projection, intersection, development, working drawings, and blue-printing. Messrs. Briggs, Martin, and Shands.
- M. E. 102. Engineering Drawing.** 3-3-0  
 Required of Engineering and Textile freshmen.  
 Drawing-board work, covering lettering, orthographic projection, auxiliary projection, isometric projection, cabinet projection, intersection, development, working drawings, and blue-printing. Messrs. Briggs, Kolb, Martin and Shands.



- M. E. 103. Descriptive Geometry.** 0-0-3  
 Required of Engineering freshmen.  
 This work covers the representation of geometrical magnitudes by means of points, lines, planes and solids, and the solution of problems.  
 Messrs. Briggs, Martin, and Shands.
- M. E. 104. Shopwork.** 1-1-1  
 Required of freshmen in Engineering and in Textiles.  
 Use of bench tools, reading blue-prints, making cabinet joints, operation and care of woodworking machinery. Correct methods of staining, varnishing, filling, and gluing various kinds of wood; the forging of iron and steel.  
 Instruction and practice in molding, and core making. Cupola practice.  
 Mr. Wheeler, Mr. Park, Mr. Rothgeb.
- M. E. 107. Mechanical Drawing.** 1-1-1  
 Required of sophomores in Ceramic, Mechanical and Mining Engineering.  
 Prerequisite: Engineering Drawing, M. E. 102.  
 Drawing-board work, covering machine fastenings, pipe fittings, elementary cams, technical sketching, and working drawings; tracing and blue-printing.  
 Mr. Briggs.
- M. E. 108. Metallurgy.** 3-3-3  
 Required of sophomores in Mechanical Engineering.  
 Prerequisite: Chem. 101.  
 A study of ferrous and nonferrous metals and their alloys; mining, smelting, and refining. Laboratory work in Pattern Making, Foundry and Forge.  
 Mr. Kolb.
- M. E. 110. Heat Engines V.** 2-2-2  
 Required of juniors in Textile Manufacturing.  
 Prerequisite: Phys. 104 and Math. 201.  
 Nature and measurement of heat, work, and power. Study of fuels and combustion, steam and steam boilers, and boiler-room auxiliaries. Elementary thermodynamics of the steam cycle. Mr. Vaughn, Mr. Dana.
- M. E. 113. Heat Engines II.** 3-3-0  
 Required of juniors in Ceramic and Mining Engineering and of seniors in Chemical Engineering.  
 Prerequisite: Phys. 104 and Math. 201.  
 Nature and measurement of heat, work, and power. Study of fuels and combustion, steam and steam boilers and boiler-room auxiliaries. Elementary thermodynamics of the steam cycle.  
 Mr. Kolb.
- M. E. 114. Mechanical Engineering Laboratory I.** 1-1-0  
 Required of seniors in Chemical and juniors in Mining Engineering.  
 Concurrent with M. E. 113.  
 Calibration of thermometers and gages, use of planimeters and indicators; coal and gas analyses; tests of lubricating oils. Steam engine tests.  
 Mr. Dana, Mr. Bridges.

- M. E. 115. Heat Engines III.** 3-0-0 or 0-0-3  
 Required of juniors in Civil, Highway, and Mining Engineering and in Industrial Management.  
 Nature and measurement of heat, work, and power. Study of fuels and combustion, steam and steam boilers, and boiler-room auxiliaries.  
 Mr. Dana, Mr. Bridges.
- M. E. 120. Heat Engines IV.** 3-3-3  
 Required of juniors in Electrical and Mechanical Engineering.  
 Prerequisite: Phys. 104 and Math. 201.  
 Nature and measurement of heat, work, and power. Study of fuels and combustion, steam and steam boilers, and boiler-room auxiliaries. Elementary thermodynamics of the steam and gas engine cycles.  
 Mr. Vaughn, Mr. Dana.
- M. E. 121. Mechanical Engineering Laboratory II.** 1-1-1  
 Required of juniors in Ceramic, Electrical, and Mechanical Engineering.  
 Concurrent with M. E. 120.  
 Calibration of thermometers and gages, use of planimeters and indicators; coal and gas analyses; tests of lubricating oils. Steam engine tests.  
 Mr. Dana, Mr. Bridges.
- M. E. s130. Metal Work.** 3 credits.  
 Instruction will be given in elementary phases of metal work, including filing, chipping, drilling, bending and forming, and problems on the drill press, lathe, and shaper. Intended for teachers of general shopwork where metal work will be a part of the course offered.  
 Mr. Wheeler.
- M. E. s132. Woodworking for Teachers.** 3 credits.  
 Instruction will be given in bench-work, the use of woodworking machines, and the construction and finishing of projects suitable for woodworking classes in the junior and senior high schools. Special attention will be given to the problems of selecting suitable equipment and its installation.  
 Mr. Wheeler.
- M. E. s134. Mechanical Drawing for Industrial Arts  
 and Vocational Teachers.** 4 credits.  
 Drawing-room practice twelve hours per week and recitation three hours per week. Lettering, instrument practice, orthographic projection, drawing from objects and intersections and developments will be studied. Working drawings of projects that may be used in shop work will be made.  
 Mr. Foster.
- M. E. s136. Sheet Metal Drawing.** 2 credits.  
 Orthographic projection, intersections, developments, and triangulation will be studied. Paper models will be made.  
 Mr. Foster.

## Courses for Advanced Undergraduates

- M. E. 203. Kinematics.** 3-3-3  
 Required of juniors in Mechanical Engineering.  
 Prerequisite: M. E. 103 and M. E. 107.  
 Drawing-board work, covering the form and motions of machines.  
 Mr. Foster.
- M. E. 205. Furniture Designs and Rod Making.** 3-3-3  
 Required of juniors in Mechanical Engineering.  
 Prerequisite: M. E. 107, 104, 105, 106.  
 Principles of elementary freehand design. Methods of dry kilning, finishing, filling and staining, and rod making.  
 Mr. Wheeler.
- M. E. 206. Machine Design.** 2-2-2  
 Required of seniors in Mechanical Engineering.  
 Prerequisite: M. E. 203.  
 Application of the principles of mechanics and of strength of materials in the design of machines.  
 Mr. Foster.
- M. E. 207. Mechanical Engineering Laboratory III.** 1-1-1  
 Required of seniors in Mechanical Engineering.  
 Prerequisite: M. E. 201 and 204.  
 Testing of materials; efficiency and economy runs on gasoline, oil, and steam engines, steam turbine and fans. Boiler and steam pump tests.  
 Mr. Dana, Mr. Bridges.
- M. E. 208. Strength of Materials.** 3-0-0  
 Required of seniors in Mechanical, Electrical, and Ceramic Engineering.  
 Prerequisite: C. E. 105.  
 A study of the effects of loads and forces in structures by use of the stress-strain diagram. Determination of ultimate stress and elastic limit of materials. Investigation for maximum and minimum bending moment and shear. Torsion and its application in shafting, with theories as to elastic limit and failure.  
 Mr. Riddick.
- M. E. 209. Gas Engines.** 0-3-0  
 Required of seniors in Mechanical Engineering.  
 Prerequisite: M. E. 201.  
 Thermodynamics of the internal combustion engine. Fuels, combustion, ignition, efficiency, and economy.  
 Mr. Dana.
- M. E. 210. Heating and Ventilating.** 0-3-0  
 Required of seniors in Mechanical Engineering and Industrial Management.  
 Prerequisite: M. E. 201.  
 Principles of heating and ventilation. Hot-air, steam, and hot-water heating systems; methods of ventilation.  
 Mr. Vaughn.

- M. E. 211. Refrigeration.** 0-0-3  
 Required of seniors in Mechanical Engineering.  
 Prerequisite: M. E. 201.  
 Theory of refrigeration; types of ice-making and refrigerating machinery.  
 Installation, management, and cost of operation. Mr. Vaughan.
- M. E. 212. Power Plants.** 3-3-3  
 Required of seniors in Mechanical Engineering.  
 Prerequisite: M. E. 201.  
 A critical study of fuels and combustion, heat balance, steam boilers, prime  
 movers, and auxiliaries. Mr. Vaughn.
- M. E. 213. Hydraulic Machinery.** 0 0 3  
 Required of seniors in Electrical Engineering.  
 Prerequisite: C. E. 205.  
 Design and tests of hydraulic motors and pumps, including study of their  
 theoretical and actual efficiencies. Naval Hydro Mechanics, Laboratory Ex-  
 periment. Mr. Riddick.
- M. E. 215. Furniture Design and Construction.** 2-4-5  
 Required of seniors in Mechanical Engineering.  
 Theory and practice in construction and finishing. Factory processes and  
 layout for quantity production. Mr. Wheeler.
- M. E. 218. Machine Shop I.** 0-1-1  
 Required of seniors in Chemical, and juniors in Ceramic and Mining  
 Engineering.  
 Prerequisite: M. E. 104 and 109.  
 Instruction in the use of hand and machine tools. Mr. Park.
- M. E. 219. Machine Shop II.** 1-1-1  
 Required of juniors in Mechanical Engineering and Textile Manufacturing.  
 Prerequisite: M. E. 104, 105, and 110.  
 Instruction in tool making, gear cutting, and the making of machine parts.  
 Erection of machines. Mr. Park.

#### Courses for Graduates Only

- \*M. E. 401. Power Plant Design.** 3-3-3  
 Course to consist of a study of existing plants in the vicinity of the Col-  
 lege from a standpoint of power requirements, location, and design. A  
 complete plant is to be designed to fulfill conditions which are to be ob-  
 tained by investigation and research, including complete specifications to  
 cover design and installation. Mr. Vaughn, Mr. Dana, Mr. Foster.
- \*M. E. 402. Design of Heating and Ventilating Systems.** 3-3-3  
 A study of various types of heating and ventilating systems and their  
 economic application. Design of a system to fulfill conditions obtained by  
 investigation, including complete specifications to cover design and installa-  
 tion. The test of various types of heating equipment. Mr. Vaughn.

\*Only one of these courses to be offered during any college year.

## MILITARY SCIENCE AND TACTICS

**Mil. 101. Military Science I. 2-2-2**

This is the first-year basic course required of all physically fit male freshmen who can be accepted for Military Training within the limit of Federal appropriations for the school year.

Infantry drill regulations, rifle marksmanship, physical training, military courtesy, individual equipment, signaling, command and leadership, national defense policy of the United States, military hygiene, sanitation, and first aid.

**Mil. 102. Military Science II. 2-2-2**

This is the second-year basic course, and is required of all physically fit sophomores who have completed Mil. 101.

Scouting and patrolling, interior guard duty, infantry weapons (automatic rifle, musketry, command and leadership, national defense policy of the United States.

**Mil. 103. Military Science III. 3-3-3**

This is the first year advanced course, and is elective for juniors.

Prerequisite: Mil. 102.

Military sketching, military field engineering, infantry weapons, machine gun, command and leadership, national defense policy of the United States.

**Mil. 104. Military Science IV. 3-3-3**

This is the second-year advanced course, and is required of all seniors who have completed the first-year advanced course.

Prerequisite: Mil. 103.

Infantry weapons (light mortar, 37 mm. gun), minor tactics, military history, administration, infantry company command and leadership, national defense policy of the United States, military law and rules of land warfare.

*NOTE.* All students pursuing the military courses will participate in such military ceremonies as the authorities may direct.

Full credit will be given for work at other institutions maintaining a *Senior* unit of the Reserve Officers' Training Corps as shown by the student's record, Form No. 713-AGO, kept by the Professor of Military Science and Tactics.

Graduates of *Junior* units of the Reserve Officers' Training Corps, either in essentially military schools or in preparatory schools, who have satisfactorily completed two or more years of the course, will be given partial credit (not exceeding one year) for the subject-matter covered by such students upon their entrance into the R. O. T. C. unit at this institution. In order to obtain credit, students must submit a detailed certificate as to the subjects covered, signed by the proper school official and the Professor of Military Science and Tactics.

## MINING ENGINEERING

## Courses for Undergraduates

## E. M. 104. Examination and Reports; Mine Methods and Operation.

2-2-2

Mine examinations, estimations of ore reserves, valuations, reports, determinations of costs. Development, location of opening, methods of mining and quarrying and supporting excavations. Drainage, haulage, hoisting, ventilation, mine gases, explosions and explosives, and operation of mines and quarries.

Mr. \_\_\_\_\_

## MODERN LANGUAGES

## Courses for Undergraduates

## M. L. 101. Elementary French.

3-3-3

Elective.

Reading and translations with elements of grammar. This course is intended for students who have had little or no previous knowledge of French. Practice in the pronunciation and understanding of French is given by means of reading, dictation, and oral practice.

Mr. Ballenger.

## M. L. 102. Elementary German.

3-3-3

Elective.

Reading and translations with elements of grammar. This course is intended for students who have had little or no previous knowledge of German. Practice in the pronunciation and understanding of German is given by means of reading, dictation, and oral practice.

Mr. Hinkle.

## M. L. 103. Elementary Spanish.

3-3-3

Elective.

Reading and translations with elements of grammar. This course is intended for those who have had little or no previous training in the language. Practice in the pronunciation and understanding of Spanish is given by means of reading, dictation, and oral practice.

Mr. Ballenger.

## M. L. 104. French Prose.

3-3-3

Elective.

Prerequisite: M. L. 101.

Grammar, composition, and translation continued. Rapid reading and sight translation stressed. A general survey of French literature is made. Selections from Malot, Hugo, Dumas, Daudet, and De Maupassant are studied in class. Parallel readings and reports.

Mr. Ballenger.

## M. L. 105. German Prose.

3-3-0

Elective.

Prerequisite: M. L. 102.

Grammar, composition, and translation continued. Rapid reading and sight translation stressed. General survey of German literature is made. Selections from modern German classics are studied in class.

Mr. Hinkle.

- M. L. 106. Spanish Prose.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 103.  
 Grammar, composition, and translation continued. Designed primarily to develop rapid reading and sight translation. A number of Spanish stories are read. Some attention is given to composition and letter-writing.  
 Mr. Ballenger.

- M. L. 107. Elementary Scientific German.** 0-0-3  
 Elective.  
 Prerequisite: M. L. 105.  
 This is a reading course in elementary scientific literature. A study of scientific construction is made, and attention is given to the acquisition of a scientific vocabulary.  
 Mr. Hinkle.

#### Courses for Advanced Undergraduates

- M. L. 202. Commercial French.** 3-3-0  
 Elective.  
 Prerequisite: M. L. 104.  
 In this course, practice is given in the translation and production of commercial correspondence. A large amount of commercial literature is read and analyzed in order to accustom the student to the peculiar terminology of French business correspondence. Orders, Forwarding, Discounts, Credits, Payments, Complaints, Soliciting, Offers, etc., are studied and practice given in these types of composition.  
 Mr. Ballenger.

- M. L. 205. Commercial German.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 105.  
 In this course, practice in writing business letters according to German terminology and custom is stressed. Orders, Forwarding, Discounts, Credits, Payments, Complaints, Soliciting, Offers, etc., are studied and practice given in these types of composition. Alternates with M. L. 212.  
 Mr. Hinkle.

- M. L. 206. Commercial and Industrial Spanish.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 106.  
 This is an extensive reading course on industrial and commercial subjects. A large amount of such literature is read in order to accustom the student to the peculiar terminology of technical Spanish. Orders, Forwarding, Discounts, Credits, Payments, Complaints, Soliciting, Offers, and other similar subjects are studied and practice given in these types of composition.  
 Mr. Ballenger.

**M. L. 208. Conversational French. 0-0-3**

Elective.

Prerequisite: M. L. 104.

This course is essentially a practice course in French pronunciation. Much attention is given to use of idiomatic construction and to training the ear to understand the spoken language. Its aim is to acquaint the student with the ordinary usages of the language.

Mr. Ballenger.

**M. L. 209. Conversational Spanish. 0-0-3**

Elective.

Prerequisite: M. L. 106.

This course is essentially a practice course in Spanish pronunciation. Much attention is given to the use of idiomatic construction and to training the ear to understand the spoken language. Its aim is to acquaint the student with the ordinary usages of the language.

Mr. Hinkle.

**Courses for Graduates and Advanced Undergraduates****M. L. 301. Industrial and Scientific French. 3-3-3**

Elective.

Prerequisite: M. L. 104.

This is an extensive reading course in industrial and scientific literature. A study of technical terminology is made, and attention is given to the acquisition of a scientific vocabulary.

Mr. Hinkle.

**M. L. 304. Advanced Scientific German. 3-3-3**

Elective.

Prerequisite: M. L. 107.

This is an extensive reading course in advanced scientific literature. It is designed and conducted primarily to meet the needs of students who are majoring in Science.

Mr. Hinkle.

**M. L. 310. French Civilization. 3-3-0**

Elective.

Prerequisite: M. L. 101.

This course is primarily a reading course on topics dealing with the development of French civilization and culture. The reading material in the texts used is supplemented by lectures on French manners and customs. The work is conducted in such a way as to increase facility in the use of narrative French and at the same time develop an accurate concept of present-day France.

Mr. Hinkle.



- M. L. 311. Spanish Civilization.** 3-3-0  
 Elective.  
 Prerequisite: M. L. 103.  
 This course is primarily a reading course on topics dealing with the development of Spanish civilization and culture. The reading material in the texts used is supplemented by lectures on Spanish manners and customs. The work is conducted in such a way as to increase facility in the use of narrative Spanish and at the same time develop an accurate concept of present-day Spain. Mr. Hinkle.
- M. L. 312. German Civilization.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 102.  
 This course is primarily a reading course on topics dealing with the development of German civilization and culture. The reading material in the texts used is supplemented by lectures on German manners and customs. The work is conducted in such a way as to increase facility in the use of narrative German and at the same time develop an accurate concept of present-day Germany. Alternates with M. L. 205. Mr. Hinkle.
- M. L. 313. French Prose Masterpieces.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 104.  
 A reading translation course developing facility in French for purposes of investigation. Conducted for graduate students needing additional work in this language to meet requirements for advanced degrees. Alternates with M. L. 214. Mr. Hinkle.
- M. L. 314. German Prose Masterpieces.** 3-3-3  
 Elective.  
 Prerequisite: M. L. 105.  
 A reading translation course developing facility in German for purposes of investigation. Conducted for graduate students needing additional work in this language to meet requirements for advanced degrees. (Alternates with M. L. 213). Mr. Hinkle.

## PHYSICAL EDUCATION

### Courses for Undergraduates

- P. E. 101. Required Physical Training.** 1-1-1  
 Required.  
 Prerequisite: None.  
 This course is required of all freshmen. It includes exercises for posture and coordinative movements. Games and gymnastics are combined so that the student not only masters the theory, but also acquires a fair degree of skill and proficiency. Mr. Miller and Staff.

- P. E. 102. Required Physical Training.** 1-1-1  
 Required.  
 Prerequisite: Physical Training 101.  
 This course is required of all sophomores. The work to a large extent will be a duplication of the work given the freshmen, but of a somewhat more advanced nature. These required courses are for the purposes of securing uniform development and at the same time encourage qualities of leadership and coöperation. Mr. Miller and Staff.
- P. E. 103. Advanced Physical Training.** 0-2-0  
 Elective.  
 Prerequisite: Physical Training 102.  
 This course is open to juniors and seniors. It will consist of advanced work being given to the students in gymnastics. The class will form the nucleus of a Leaders' Corps to assist in teaching the required classes during the winter. Mr. Miller.
- P. E. 110. History and Principles of Physical Education.** 2-0-0  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This course is one with which any student expecting to teach Physical Education should be familiar. It will trace the evolution of Physical Education from the earliest times down to the present, and what each period has contributed to the present-day methods. It will consider the relation of physical education to general education and to national ideals and life. Mr. Miller.
- P. E. 111. Theory of Gymnastic Teaching.** 0-2-0  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This will be a course especially fitted for those expecting to teach and conduct Physical Training Classes. It will consist of the progression and value of graded work in light and heavy apparatus, calisthenics, drills, and marching. Methods and practice of teaching the work will be stressed, and nomenclature, use of voice, and qualifications of the teacher will be covered. Mr. Drennen.
- P. E. 112. Theory Football Coaching.** 2-0-0  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This course will cover the rules, equipment, schedule making, individual position play, strategy, signal systems, and different offensive and defensive systems. Sufficient practice sessions will be held to demonstrate fully the teaching of all fundamentals. Mr. Tebell.
- P. E. 113. Theory Basketball Coaching.** 0-2-0  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This course will cover the theory and practice of basketball with the same thoroughness as the course on Football Coaching. Mr. Tebell.

- P. E. 114. Theory of Baseball Coaching.** 0-0-2  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This course will consist of lectures and demonstration of the technique of baseball. Offensive and defensive team play, individual position play, and all fundamentals of baseball will be covered. Mr. Doak.
- P. E. 115. Theory of Track and Field Coaching.** 0 0-2  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 The selection of men and best training methods of the various events will be covered in this course. Attention will also be given to the organization of track practice, to the administration of running off meets, and to the duties of officials. Mr. Sermon.
- P. E. 116. Athletic Training and Conditioning.** 0-2-0  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102, and 112, or 113, or 114, or 115.  
 This course consists of the principles of conditioning men for various sports. Types of men, diet, sleep, rest, baths, hygienic rules, study of weight sheet, symptoms and treatment of staleness, care of "charley-horse," sprains, bruises, bandaging, first aid, massage, and technique of ordinary physical examinations will be covered. Mr. Sermon.
- P. E. 117. Rural Physical Training and Recreation.** 0-0-3  
 Elective in Vocational Education.  
 Prerequisite: Physical Training 102.  
 This course is designed especially to aid those students expecting to teach in rural schools or communities to meet the demand that is and will be made of them. An organized system of physical training and recreation will be covered in every detail. Opportunity for practice conducting such a program will be made for those enrolling in this class. Mr. Miller.

## PHYSICS

### Courses for Undergraduates

- Phys. 101. General Physics.** 4-4-4  
 A course designed primarily for business students, giving a general survey of the laws and devices of modern physical science. The discoveries and useful machines that involve the action of electricity, heat, light, sound, and mechanical force are studied with the aim of making the student more efficient in handling and understanding these elements of life and industry today. Messrs. Heck and Rodgers.
- Phys. 103. Physics for Textile Students.** 5-5-5  
 Required of sophomores in the Textile School.  
 Prerequisite: Math. 102.  
 A general treatment of industrial Physics, with emphasis on practical applications to the textile industry. Mr. Rodgers.

- Phys. 104. Physics for Engineers.** 5-5-5  
 Required of sophomores in Engineering.  
 Prerequisite: Math. 103.  
 A thorough treatment of general physics, with emphasis on problems and engineering applications. Messrs. Derieux, Dixon, and Meares.
- Phys. 105. Physics for Agricultural Students.** 0-0-5  
 Required of sophomores in Agriculture.  
 A short treatment of the elements of machines, the physics of soils and weather, and applications of heat, light, and electricity on the farm. Messrs. Heck and Rodgers.
- Phys. 107. Descriptive Astronomy.** 0-0-4  
 Elective.  
 A descriptive course covering the most interesting elements in the study of the sun and planets, the stars and modern research in astronomy. Accompanied by observations with five-inch refracting telescope. Mr. Heck.
- Phys. 109. Elements of Radio.** 0 3-0  
 Elective.  
 Prerequisite: Phys. 101, 104, or 105.  
 A course in the applications of electricity to radio. Given in the form of laboratory work in the construction and testing of regenerative, radio-frequency, reflex, heterodyne, and the like types of receiving apparatus and class work in the study of electric waves and the elements involved in making and receiving them according to the most modern practices. Mr. Heck.

#### Courses for Advanced Undergraduates

- Phys. 201. Advanced Physics.** 5 5 5  
 Elective. Required of sophomores specializing in Physics.  
 Prerequisite: Phys. 101, Math. 103.  
 An advanced treatment of General Physics, designed especially for those who intend to teach Physics in a secondary school or continue their study as specialist in Physics. Messrs. Heck and Rodgers.
- Phys. 209. Meteorology.** 0-0-4  
 Elective.  
 Prerequisite: Phys. 101 or 104 or 105.  
 A general descriptive course in the causes of weather change, methods of forecasting, and peculiarities of the weather of North Carolina.

#### Courses for Graduates and Advanced Undergraduates

- Phys. 301. Mechanics.** 0-3-3  
 Elective.  
 Prerequisite: Phys. 104 or 201, and Calculus.  
 A thorough treatment of the most important principles of this fundamental subject.  
 Laboratory, if taken, gives 4 credits. Mr. Derieux.

- Phys. 302. Electricity and Magnetism.** 3-3-0 or 4-4-0  
 Elective.  
 Prerequisite: Phys. 104 or 201.  
 This deals with the fundamental principles of the subject in a more specialized, but intermediate, manner.  
 Laboratory, if taken, increases the course to 4 credits. Mr. Dixon.
- Phys. 303. Heat.** 3-0-0 or 4-0-0  
 Elective.  
 Prerequisite: Phys. 104 or 201.  
 A course embracing the following subjects in heat; atomic heats, change of state, liquefaction of gases, critical temperature, triple point, hygrometry, first law of thermodynamics, kinetic theory of gases, adiabatic transformations, Carnot's cycle and second law of thermodynamics, applications of these principles, internal work on expansion, electrical instruments for heat measurement, and radiation.  
 Laboratory, if taken, increases the course to 4 credits. Mr. Derieux.
- Phys. 304. Sound.** 0-0-3 or 0-0-4  
 Elective.  
 Prerequisite: Phys. 104, or 201.  
 A comprehensive course on the production, propagation, and reception of sound, with an analysis of the physical basis of music. Mr. Heck.
- Phys. 305. Light.** 0-3-3 or 0-4-4  
 Elective.  
 Prerequisite: Phys. 104 or 201.  
 An introductory course on the principles of geometrical and physical optics. Mr. Derieux.
- Phys. 306. Photography.** 3-0-0  
 Elective.  
 Prerequisite: Phys. 101.  
 Pin-holes, lenses, aberration; the camera, diaphragms, shutters, choice of a camera, making exposures, focusing, selecting stop and shutter, interior photography, flashlight, home portraiture; development of negative, chemistry and methods; printing, fixing, and washing prints; enlarging; lantern slides; micro-photographs; color filter, color photography. Mr. Rodgers.
- Phys. 307. History of Physics.** 0-3-0  
 Elective.  
 Prerequisite: Phys. 101.  
 A review of the development of Physics from the ancient to the present time. Mr. Heck.

**Phys. 308. Modern Physics.** 0-3-0  
 Elective.  
 Prerequisite: Phys. 103 or 104, and Math. 103.  
 Offered for students who are not specializing in Physics. It briefly touches upon the modern work in Physics on the Electron, Atomic Structures, Spectra, Crystal Structure, X-rays, Isotopes, Radio-Activity, Photo-Electricity, and Quanta.  
 Mr. Dixon.

**\*Phys. 309. Research.** 2-2-2  
 Elective.  
 Prerequisite: Phys. 103 or 104.  
 Research in a minor problem in the field of physics appealing most to the undergraduate student electing it.  
 Mr. Heck.

**\*Phys. 310. Physics Colloquium.**  
 A review of current research by members of the department and advanced students. Meets weekly at night throughout the year for discussion of current research in the department and in physics literature.  
 Mr. Heck.

#### Courses for Graduates Only

**\*Phys. 401. Theoretical Mechanics.** 3-3-3  
 Prerequisite: Phys. 103 or 104, and Math. 202.  
 A treatment of moment of inertia, gyroscopic motion, motion in spiral orbits, simple harmonic motion covering simple and compound pendulum and bifilar suspensions, oscillations of coupled systems, damped and forced oscillations, elasticity, surface tension, osmosis, motion of fluids, viscosity, and wave motion.  
 Mr. Derieux.

**\* Phys. 402. Geometrical Optics.** 3-0-0  
 Prerequisite: Phys. 102 or 103.  
 A course embracing the principles of photometry, intrinsic, luminosity, spherical, ellipsoidal and paraboloidal mirrors, refraction through a prism, refraction at a single curved surface, refraction through a thin lens, two or more lenses in contact, two lenses separated, thick lenses, the eye and its defects, spectacle lenses, spherical aberration, dispersion, chromatic aberration, resolving power, achromatic lenses, and optical instruments.  
 Mr. Derieux.

**\*Phys. 403. Physical Optics.** 0-3-3  
 Prerequisite: Phys. 205.  
 A study of the velocity of light, composition of S. H. M.'s wave motion, superposition of waves, velocity of wave transmission, wave theory of light, spectra of different kinds, Doppler effect absorption, anomalous dispersion, interference, interferometers, color photography, diffraction, and gratings, polarization, Nicol prism, and saccharimetry.  
 Mr. Derieux.

- \*Phys. 404. Kinetic Theory of Gases.** 3-0-0  
 Prerequisite: Phys. 203.  
 A course embracing Maxwell's velocity law, Dalton's law, Avagadro's law, first law of thermodynamics, adiabatics, entropy, second law of thermodynamics, mean free path, viscosity of gases, diffusion, Van der Waals' equation, critical point; triple point; solutions; vapor pressure, osmotic pressure, boiling point, freezing point, heat of dilution, dissociation.  
 Mr. Derieux.
- \*Phys. 405. Isotopes.** 0-3-0  
 Prerequisite: Phys. 103 or 104.  
 Atomic theories, discovery of isotopes, positive ray analysis, mass spectragraph methods of isotope analysis, electrical theory of matter, isotopes and atomic members, spectra of isotope, and separation of isotope.  
 Mr. Derieux.
- \*Phys. 406. Crystal Structure and X-Rays.** 0-0-3  
 Prerequisite: Phys. 102 or 103.  
 Diffraction of waves, X-ray spectrometer, properties of X-rays, crystal structure, X-ray spectra, analysis of crystal structure of rock-salt, sylvine, diamond, zincblends, etc., molecular solution, space lattices-cube, cube-centered, face-centered, oblique crystals, non-uniform spacing, arrangement of atoms, scattering of X-rays, intensity of X-ray reflectic, absorption of X-rays.  
 Mr. Derieux.
- \* Phys. 407. Mathematical Theory of Electricity and Magnetism.** 3-3-3  
 Prerequisite: Phys. 103 or 104, and Math. 202.  
 A treatment of the theorem of Gauss, energy in media, boundary conditions, condenser formulae, the quadrant electrometer, dielectric constants, electrolytic dissociation, migration of ions, thermodynamics of reversible cells, thermoelectricity, ballistic galvanometers, work due to hysteresis, magnetic circuits, growth and decay of currents, self-induction, oscillatory discharge, and alternating currents.  
 Mr. Dixon.
- \*Phys. 408. Thermodynamics.** 0-0-3  
 Prerequisite: Phys. 204 and Calculus.  
 The first law, properties of a perfect gas, isothermals and adiabatics, Carnot's cycle and second law, entropy, change of state, thermodynamic functions and relations, Rankine cycle, Maxwell's Clapeyron's and Clasius' equations. Osmotic and vapor pressure, gas mixtures, and dilute mixtures.  
 Mr. Dixon.
- Phys. 409. Discharge of Electricity in Gases.** 0-3-0  
 Prerequisite: Phys. 203.  
 Methods of producing ions in gases, motion of ions in gases, velocity of ions in an electric field, diffusion of ions, recombination of ions, formation of clouds and determination of atomic charge, ionizaiton by collision of ions with molecules, discharge between conductors of various shapes, discharge tubes, cathode rays, positive rays, and X-rays.  
 Mr. Dixon.

- Phys. 410. Experimental Optics.** 0-2-2  
 Prerequisite: Phys. 304.  
 Laboratory work with the spectrometer, gratings, Fresnel by-prism and mirrors, polarimeter, saccharimeter, and interferometer. Mr. Derieux.
- Phys. 411. Research.** 3-3-3  
 Open to all graduates. Every graduate student sufficiently prepared is expected to undertake a research in some particular field of Physics. At least six hours a week must be devoted to such a research.  
 Messrs. Heck, Derieux, and Dixon.

## POULTRY SCIENCE

### Term Courses

- Poul. 11. Farm Poultry.** 3-0-0  
 This course takes up the farm problems in establishing and maintaining a flock, size, how to start by buying and incubating eggs, baby chicks, or breeding stock. The farm problems in selecting the breeding and laying stock, care of chicks, combating insect pests, internal parasites, poultry diseases, feeding the flock, local marketing of eggs and table poultry, keeping farm records, and organization and cooperative farm poultry work.  
 Mr. Armstrong, Mr. Wilfong.
- Poul. 12. Mating and Breeding.** 3-0-0  
 A study of the purposes for which poultry is kept, dwelling on the three groups utility, egg production, and meat production. The history of these breeds, egg and meat production qualities. Judging hens for egg production and for standard qualities.  
 Mr. Armstrong.
- Poul. 21. Marketing Farm Poultry.** 0-3-0  
 Fattening broilers, dressing, grading, packing, storing, refrigeration, and shipping same to market. Marketing live poultry. Grading, handling, packing, storing, refrigerating, and shipping eggs. The production of market eggs. The production of broilers. Disposing of the cull birds of the flock.  
 Mr. Armstrong.
- Poul. 22. Hatching and Rearing.** 0-3-0  
 Construction of the incubators oil burning, electric, and mammoth and of the small and colony brooders. The student operates an incubator, hatching chicks; also operates a brooder and broods, feeds, and cares for the chicks till they are ready to go on range. Range handling and feeding observations. Construction of the brooder houses and drawing plans for their construction.  
 Mr. Armstrong.

\*In 1928-29 only two of the following alternate gamuts will be given: either 401 or 402 and 403, or 401, 405 and 406; and either 407 or 408 and 409.



**Poul. 31. Diseases of Poultry. 0-0-3**

Parasites and parasitic diseases and methods of control of same. Exercises in treating birds on plants for lice, mites, scaly legs, and internal parasites. Cleaning and disinfection and other plant practices. Study in the hospital and disease research laboratory of both noncontagious and contagious diseases, and their methods of control and eradication.

Mr. Wilfong.

**Poul. 32. Poultry Management. 0-0-3**

The laying out of a poultry plant and the construction of all necessary buildings. Feeding program for egg and broiler production. Handling birds under lights for winter eggs. The value and care of droppings as a fertilizer. Care and value of feathers. Hygiene and sanitation. Yardage and fencing of poultry.

Mr. Armstrong.

#### Courses for Undergraduates

**Poul. 101. General Poultry. 3-0-0**

Required of freshmen in Agriculture.

Introduction to poultry for the purpose of interesting the student in farm poultry problems. Special emphasis is placed on the scope of the poultry industry and its possibilities, first as a department of the farm, and second as a separate business.

Mr. Armstrong, Mr. Wilfong.

**Poul. 103. Incubation and Brooding. 3-0-0 or 0-0-3**

Elective.

Prerequisite: Phys. 106, Poul. 101.

A study of the construction and operation of the incubator and brooder. Each student operates an incubator, hatches chicks, operates the brooder and cares for same, and feeds and has charge of the rearing of the chicks. A study of the construction of the brooder house and the management of the brood and of the chicks after they have been placed on range.

Mr. Armstrong.

#### Courses for Advanced Undergraduates

**Poul. 201. Selection and Mating of Poultry. 0-0-3**

Elective for juniors in Agriculture.

This is a study of the origin and recognition of the various breeds and varieties of chickens, turkeys, ducks, geese, and pigeons. A study of their value from a standard and a utility point of view. The methods of recognition and selection for purposes of mating from both standard and utility standpoints.

Mr. Armstrong, Mr. Wilfong.

**Poul. 202. Poultry Production. 0-4-0**

Alternative for sophomores. Elective for others.

Prerequisite: Poul. 101.

Advanced studies of poultry course, considering poultry production work, including the utility problems, factors influencing egg, soft roaster, capon, and egg production, hygiene, sanitation, location of poultry plant, construction of poultry houses, range and fencing, poultry house equipment, its construction and use; caponizing.

Mr. Armstrong.

**Poul. 208. Special Poultry Marketing.** 0-3-0

Elective especially for seniors in Agriculture.

Prerequisite: Poul. 101 and 102.

Commercial fattening methods; the student fattens, picks, grades, and refrigerates table poultry. Grades, packs, ships, refrigerates dressed fowls. Construction and operation of the storage house. Care of eggs for market, candling, packing, storing, shipping, and refrigerating same. Methods of egg-breaking establishments, the candling and packing rooms. Storing problem as affects the quality of shell eggs, frozen eggs, and dried eggs. Storage holdings and prices of shell eggs, yolks, albumin and yolks, albumins, broilers and roasters.

Mr. Armstrong.

### Courses for Graduates and Advanced Undergraduates

**Poul. 302. Poultry Judging.** 3-0-0

Required of juniors in Poultry Production. Elective for others.

Prerequisite: Poul. 101.

Both class and practice work in the standard judging of fowls, laying special stress on Wyandottes, Rhode Island Reds, Leghorns, and Plymouth Rocks. Both class and practice work in the judging of fowls for egg production and meat qualities, using the utility breeds. Students judge at the county and community fairs. Preparing birds for the show-room and exhibiting same. The students wash and prepare birds, and exhibit them at the State Fair.

Mr. Armstrong.

**Poul. 303. Poultry Nutrition.** 0-3-0

Required of juniors in Poultry Production. Elective especially for juniors in Agriculture.

Prerequisite: Chem. 103, Zool. 101 and 102, Poul. 101 and 102.

This covers the field of poultry nutrition, including poultry physiology of digestion, absorption, metabolism, elimination of wastes, requirements of animal and vegetable proteins and of fats and carbohydrates; mineral requirements for the body function and body growth, vital elements, deficiency of feedstuffs, digestibility and nutritive ratio for different feeding purposes; a discussion of grains and mill by-products, animal feeds, green feeds, mineral supplements, feedstuffs that are injurious, spoiled, and diseased, rations and methods of feeding laying hens for growth, fattening, breeding stock, handling layers under artificial lights. Estimate possible production. Feeding turkeys, ducks, geese, and pigeons.

Mr. Kaupp.

**Poul. 304. Poultry Anatomy.** 3-3-0

Elective especially for juniors in Agriculture. Elective for others.

Prerequisite: Zool. 102.

Both recitation and laboratory work. A study of the normal structure of the domestic fowl, including osteology, arthrology, myology, splanchnology, angiology, neurology, and aesthesiology. The practical application of this knowledge in poultry work.

Mr. Kaupp, Mr. Wilfong.

- Poul. 305. Poultry Diseases.** 0-3-3  
 Elective.  
 Prerequisite: Zool. 102, Poul, 101, 204.  
 A study of infestation of poultry by external and internal parasites, their breeding habits, and methods of eradication. A study of poultry plant sanitation, hygiene, flock health, noncontagious diseases, and disease conditions which stop hens permanently or temporarily from laying. A study of contagious diseases, including cause, mode of spread, symptoms, post-mortem findings, and methods of control. Serotherapy, vaccination, agglutination tests as applied to *B. pullorum* chronic carriers, autopsies, and recognition of disease.  
 Mr. Kaupp, Mr. Wilfong.
- Poul. 306. Commercial Poultry Plant Management.** 3-0-0  
 Elective.  
 Prerequisite: Poul. 101 and 102.  
 Locating and laying out a commercial poultry plant, kind, number, and methods of construction of buildings. Managing the various parts of the operation, as storing, mixing, distributing feed, grading, storing, marketing eggs and table poultry. Culling and disposing of unprofitable birds. The water supply, green feed supply, care of the houses, nests, and general upkeep of the plant. A study from the standpoint of commercial egg, broiler, day-old chick, hatching egg production. Custom hatching enterprise, standard breed production, advertising and accountant work. The cost of putting pullets into laying, the cost of operation of the entire plant, including all overhead expenses.  
 Mr. Kaupp.
- Poul. 307. Poultry Problems.** 1-1-1  
 Elective.  
 Prerequisite: Poul. 101 and 102.  
 A study critical of recent poultry publications and experimental and research projects now under study at this and other agricultural colleges. Current state and national poultry problems. The work of the National Poultry Council and of the American Association of Instructors and Investigators in Poultry Husbandry, and of the International Association of Instructors and Investigators.  
 Mr. Armstrong.
- Poul. 301. Laboratory Diagnosis in Poultry Diseases.** 3-3-3  
 Prerequisite: Poul. 101, 204, and 205; Bacteriology and Physiology.  
 Autopsies studied in gross pathological changes produced by disease. Identification of laboratory studies of disease-producing organisms affecting the domestic fowl. Artificial infection for diagnostic practice, including clinical, hematological and respiratory studies. Parasitic diseases and the life cycle of intestinal and other parasites. Study of infection cycles of contagious diseases. Prophylactic principles as applied to prevention of contagious diseases in the domestic fowl.  
 Mr. Dearstyne, Mr. Wilfong.

- Poul. 302. Sero-Bacteriological Studies in Poultry Diseases.** 3-3-3  
 Prerequisite: Poul. 204 and 205; Bact., Chem., Zool.  
 Advanced studies in poultry bacteriology. The making of vaccines in the laboratory, and administration of them in the field under epidemiological conditions. A study of infection and immunity. D'Herelle phenomenon as advanced in the "Bacteriophage." Agglutination test as applied for carriers of bacillary white diarrhea, and actual application of this test, including the collection of blood specimens in the field and the testing of the serums in the laboratory. Mr. Dearstynne.

- Poul. 307. Poultry Survey Studies.** 3-3-3  
 Prerequisite: Poul. 101.  
 Field studies in disease consist of visiting and taking data of 100 flocks, noting breed kept, method of feeding, and care. Examination in each flock for external parasites, autopsies where possible on any bird that has died, examining for internal parasites and disease. A study of the general health of the flock and sanitation, noting most probable causes of deaths, and of contagious diseases that may have affected the flock in three years past. Poultry Staff.

#### Courses for Graduates Only

- Poul. 403. Poultry Physiology.** 3-0-0  
 Prerequisite: Poul. 101 and 204.  
 Advanced studies of poultry physiology, including blood, blood vessels, and heart and its functions, blood pressure, pulse tracings, using the kymograph. Lungs and air sacs and their functions, with laboratory studies by means of the kymograph of respiratory movements. Digestion, assimilation, and nutritive processes as applied to body heat and energy and as influences normal function in growth, repair, and power to do work. Movements of the bird, brain, cerebro-spinal, and sympathetic nerve systems. Uro genital system, senility, and death. Mr. Kaupp.
- Poul. 404. Poultry Histology.** 3 or 3 or 3  
 Prerequisite: Poul. 101, 204, 205, 302.  
 Preparation of tissues for sectioning and staining reactions as indicating the different cell tissue structure. Microscopic study of the normal structures of the fowl, including first, the various kinds of cells from which the tissues of the bird are made, followed by a classification and study of tissues from which organs are made, and finally, a study of the microscopic structure of the organs. Mr. Kaupp.
- Poul. 405. Poultry Pathology.** 3 or 3 or 3  
 Prerequisite: Poul. 101, 204, 205, 302, 306.  
 Both special and general poultry pathology includes preparation of sections of diseased tissues, staining, mounting, and microscopic examination and a study of same. Recognition of structural changes caused by disease processes. A microscopic study of the gross pathology. Mr. Kaupp.

**Poul. 406. Production Studies and Experiments. 3 or 3 or 3**

This work involves problems in nutrition, as relative values of animal and vegetable feeds, green feeds, and of mineral supplements. Carried on with brooder chicks for eight weeks periods, range chicks, and with laying hens. Value of fattening rations, and marketing studies. Inheritance in egg production and of the size of the egg. Other breeding experiments can be arranged for. Incubation experiments as to the value of times of turning the hatching eggs, sprinkling eggs, shrinkage experiments, and studies in pedigree work.

Mr. Kaupp.

**Poul. 408. Graduate Seminar. 3 or 3 or 3**

Mr. Kaupp, Mr. Dearnstyn.

**RELIGION****Courses for Undergraduates****Rel. 101. Introduction to Religion. 0-3 0**

Elective.

An inductive study of typical forms of religion in their origin, development, and function; consideration being given to their sociological, psychological, and philosophical groundings. The work will conclude with a brief survey of the outstanding religions that are vital in society today.

Mr. Hicks.

**Rel. 102. Life and Teachings of Jesus. 0-0-3**

Elective.

A review of the life, principles, and social ideals of Jesus as recorded in the Synoptic Gospels; the Sermon on the Mount receiving special emphasis. What Jesus taught about God, trust, prayer, wealth, peace and war will be considered in the effort to discover and appraise the individual and social implications of Jesus for our age.

Mr. Hicks.

**SANITARY ENGINEERING****Courses for Graduates Only****S. E. 401. Water Supplies. 3-3-3**

Prerequisite or concurrent: Water Supply, C. E. 207; Hydraulics, C. E. 205.

Comprehensive study of advanced problems of water supplies, and their treatment and purification. Details of the design, operation, maintenance, and control of filtration plants and other works and machinery for the treatment and supply of water for domestic and commercial uses.

Water-borne diseases and relations to public health.

This course is coördinated with research, both recent and in progress.

Mr. \_\_\_\_\_

**S. E. 402. Sewage Disposal. 3-3-3**

Prerequisite or concurrent; Sanitary Engineering, C. E. 208; Hydraulics, C. E. 205.

Intensive study of sanitation and sewage disposal in relation to public convenience and health. Modern methods and processes for the treatment and disposal of sewage. The design, construction, maintenance, control, and operation of treatment and disposal works. Stream pollution and garbage and waste disposal are considered. Thorough investigation of new and important processes.

This course is coördinated with research.

Mr. \_\_\_\_\_.

**SOCIOLOGY****Soc. 101. Human Relations. 2-2-2**

Required of all students in the School of Science and Business, and of all students in the Schools of Agriculture, Engineering, and Textiles who do not

take Military Science.

An elementary study of the fundamental human institutions, the home, the school, the church, government, and industry. It is the purpose of this course to give such an understanding and appreciation of the social structure and social problems of our time as to develop on the part of the student judgment and convictions on the great civic and moral questions of individual and social life.

Messrs. Brown, Anderson, and others.

**Soc. 102. Introductory Sociology. 3-0-0 or 0-3-0 or 0-0-3**

Required of students in the Schools of Engineering and Textiles. Not open to students in the School of Science and Business.

This is an introductory course in Sociology, treating the basic principles of social life and social organization. It analyzes the functions of the major social institutions, and stresses the sociological problems arising from our industrial organization.

Messrs. Anderson and Winston.

**Soc. 103. General Sociology. 3-3-0**

Required of sophomores in Business and Agricultural Administration and of juniors in Industrial Management. Elective for others in School of Science and Business.

A general survey of the field of Sociology. The course deals first with the basic principles of sociology, then analyzes general social organization.

Messrs. Anderson and Winston.

**Courses for Graduates and Advanced Undergraduates****Soc. 300. Criminology. 0-0-3**

This course will take up the causes and conditions leading to crime, and study the methods of handling criminals. It will discuss the psychological foundations leading to criminal behavior and investigate the influence of environment factors in producing crime.

Messrs. Anderson and Winston.

- Soc. 301. Social Pathology.** 0-0-3  
Prerequisite: Soc. 103.  
This course gives primary attention to the outstanding pathological problems of our social life laying special emphasis upon poverty, relief work and other social mal-adjustments. Messrs. Anderson and Winston.
- Soc. 302. Sociology of City Life.** 0-3-0  
Elective.  
Prerequisite: Sociology 103.  
The problems arising from the growth of modern town and city life. City planning in regard to social and industrial progress. Mr. Winston.
- Soc. 303. Community Organization.** 0-0-3  
Prerequisite: Rural Sociology.  
Required of seniors in Agricultural Administration. Elective for others.  
Program and plans of organization, community councils, leaderships.  
Mr. Anderson.
- Soc. 304. Farmers' Movements.** 3-0-0  
Required of seniors in Agricultural Administration. Elective for others.  
Study of national farmers' organizations from economic, social, and political viewpoints, such as Grange, Farmers' Alliance, Agricultural Wheel, Equity, Farmers' Union, Non-partisan League, Farm Bureau, and Commodity Marketing Associations.  
Mr. Taylor.
- Soc. 305. Social Psychology.** 3-0-0  
Elective.  
Prerequisite: Sociology 103.  
The social applications of psychology, social stimulation, social response, social attitudes.  
Mr. Taylor.
- Soc. Ex. 306. The Family Organization.** 3-0-0  
A study of family relationships, of the relationship between husband and wife, parents and children, with particular emphasis on the development of personality. The effect of present-day social changes upon the family and the changes in family life as a result will be studied. Discussion of various efforts to stabilize the family. The part habits play in successful and non-successful marriages will also be discussed.  
Mr. Winston.
- Soc. 307. Race Relations.** 3-0-0  
Elective.  
Prerequisite: 9 hours of General Sociology.  
The race problem in America and other countries. Social, economic, educational status of racial groups. Racial attitudes. A consideration of the importance of the race problem in our national life.  
Mr. Winston.

- Soc. 308. Methods of Social Research.** 0-0-3  
 Prerequisite: Soc. 103.  
 Principles, methods, purposes, content of schedules, and other factors involved in rural and industrial social research work. The types of research will be analyzed and practical problems involving the use of the methods will be assigned. Mr. Anderson.
- Soc. 309. Rural Social Psychology.** 0-0-3  
 Prerequisite: Advanced Social Psychology.  
 Psychological aspects of rural life; psychology of farmers' movements, farmers' part in influencing public opinion and social life, influence of farming on the individual and social life. Mr. Taylor.
- Soc. 310. Industrial Sociology.** 0-0-3  
 Prerequisite: Sociology 103.  
 The influence of industrial life in shaping our attitudes. Occupations as social and industrial factors; shifting from one occupation to another. Problems arising from our industrial era. Mr. Winston.
- Soc. 311. Rural Sociology.** 0-3-0  
 Required of juniors in Agricultural Administration. Elective for others.  
 Rise of rural problems, ideals for rural life, factors aiding or hindering social conditions, improvement. Mr. Anderson.

#### Courses for Graduates Only

- Soc. 401. Advanced Social Theory.** 3-0-0  
 Prerequisite: 9 hours of General Sociology.  
 Origin, development, and functions of forms of human associations, racial origins, evolution and distribution, customs, traditions, social institutions, social evolution, social change, social progress. Offered in alternate years with History of Social Thought. Mr. Anderson.
- Soc. 402. History of Social Thought.** 3-0-0  
 Prerequisite: 9 hours of General Sociology.  
 An historical account of the development of social theories. Offered in alternate years with Advanced Social Theory. Mr. Anderson.
- Soc. 403. General Anthropology.** 0-0-3  
 Prerequisite: 9 hours General Sociology.  
 A consideration of the physical differences in racial groups; the evolution of society. The study of prehistoric types, the dawn of civilization. Alternates with Cultural Anthropology. Mr. Winston.
- Soc. 404. Cultural Anthropology.** 0-0-3  
 Prerequisite: 9 hours General Sociology.  
 The evolution and accumulation of our cultural heritage. The conflict and fusion of cultures. The influence of cultural factors on group behavior and attitudes. Alternates with General Anthropology. Mr. Winston.



**Soc. 405. Advanced Social Psychology. 0-3-0**

Prerequisite: 9 hours of Sociology and 3 hours of Social Psychology.

This is a continuance of the general social psychology course, and deals with the more complicated psychological situations in group life.

Mr. Taylor.

**Soc. 406. Seminar in Social Theory. 1-1-1**

Opportunity for the investigation of research problems of interest to graduate students. Messrs. Taylor, Anderson, and Winston.

**TEXTILE MANUFACTURING, AND DYEING****Courses for Undergraduates****Textile 101. Textile Principles. 1-1-1**

Required of freshmen in Textile Manufacturing, Textile Design, and Textile Dyeing.

Principles of manufacture involved in the textile industry. Elementary calculations for yarns and fabrics; harness and reed calculations; loom production calculations; operation of machines.

Mr. Nelson, Mr. Hart, Mr. Hilton.

**Textile 102. Yarn Manufacture I. 2-0-2**

Required of sophomores in Textile Manufacturing, and Textile Dyeing.

Mixing of cotton. Openers, Pickers, Cards, Drawing Frames. Description and setting of different parts. Calculations for production, speeds, and drafts. Mechanical and electrical stop motions, and weighting of rolls.

Mr. Hilton.

**Textile 103. Power Weaving. 0-2-2**

Required of sophomores in Textile Manufacturing, and Textile Dyeing.

Operation of plain and gingham looms. Construction of auxiliary motions on plain looms. Cams and their construction. Automatic looms, construction and operation. Pattern chain building for gingham looms. Construction and value of pattern multipliers. Timing of drop-box motion, and other studies.

Mr. Nelson, Mr. Hart.

**Textile 104. Fabric Structure. 2-2-0**

Required of sophomores in Textile Manufacturing, and Textile Dyeing.

Calculations to obtain quantities of warp and filling in fabrics. To find number of ends per inch, using a given weight of warp; also number of picks, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Relation of fabric structure to design of fabric. Plain, twill, and sateen weaves. Ornamentation of plain weaves; wave designs; pointed twills; diamond effects; plain and fancy basket weaves; warp and filling rib weaves.

Mr. Shinn.

- Textile 105. Fabric Analysis I.** 0-0-2  
 Required of sophomores in Textile Manufacturing, and Textile Dyeing.  
 Analyzing plain, twill, sateen, and other fabrics made from simple weaves, ascertaining the number of ends and picks per inch in sample. Calculating weight of fabric from data obtained from sample. Mr. Shinn.
- Textile 106. Knitting I.** 2-2-0  
 Required of sophomores in Textile Manufacturing and Textile Dyeing.  
 A study of knitting yarns and the methods used in selecting and preparing yarns for knitting; plain and rib knitting; principles of construction and operation of hosiery machinery; layout for machinery; and plant organization. Mr. Shinn.
- Textile 107. Dyeing I.** 2-2-2  
 Required of juniors in Textile Manufacturing.  
 The direct cotton colors are first studied. Their composition and application on cotton. Function of assistants used, and the effect of temperature and volume of dye bath upon depth of shade. Methods of after-treatment to improve fastness. Methods of making tests for fastness to washing, light, perspiration, and cross-dyeing. The diazotizing and developing process. Sulphur, basic, acid, acid chrome, and mordant colors and methods of application. Mr. Grimshaw.
- Textile 108. Dyeing II.** 2-2-2  
 Required of seniors in Textile Manufacturing.  
 Prerequisite: Textile 107.  
 Method of dyeing vat colors. Application of indigo, aniline black, sulphur black, para red. Dyeing of mixed fabrics, such as cotton and wool, cotton and silk, wool and silk. Production of solid shades for multi-colored effects. Comparison of dyestuffs for relative strength and money value. Matching of shades and mixing of dyes to produce compound shades. Calico printing. Mr. Grimshaw.
- Textile 109. Principles of Textile Manufacturing I.** 3-0-0  
 A study of the processes and machines used in textile manufacture, planned as an overview course for those preparing to be teachers of industrial arts in Junior and Senior High Schools or in Vocational Schools. Mr. Nelson.
- Textile 110. Principles of Textile Manufacturing II.** 0-0-3  
 Prerequisite: Principles of Textile Manufacturing I, Textile 109.  
 A study of the operation and care of textile machines, planned for those who are preparing to be teachers in Vocational Schools. Mr. Nelson.
- Textile 111. Fabric Testing.** 1-0-0  
 Required of seniors in Textile Manufacturing, and Textile Dyeing.  
 Testing fabrics for strength. Effect of heat upon fabrics. Variation in strength in relation to weight of fabric. Elasticity of fabrics. Comparison of micrometer and calculated tests for fabric thickness. Mr. Hart.

**Textile 112. . Microscopy.** 0-1-1  
 Required of seniors in Textile Dyeing.  
 Instruction in the use of the microscope. Examination of fibers. Preparation of permanent slides. Mr. Grimshaw.

**Textile 113. Testing Textile Materials.** 2-2-2  
 Required of juniors in Textile Dyeing.  
 To distinguish and determine amount of various fibres in a fabric; amount and kind of materials used in sizing, softening and weighting. Study of mordents, scaps, oils, water and mineral matter as used in dyeing. Testing dyestuffs for money value, class, adulteration and reactions with other substances. Study of starches and sizing compounds. Testing of required amount and kind of heating materials and water required in scouring, bleaching and dyeing. Mr. Grimshaw.

#### Courses for Advanced Undergraduates

**Textile 201. Yarn Manufacture II.** 2-2-2  
 Required of juniors in Textile Manufacturing.  
 Construction of sliver lapper; ribbon lapper; comber; description and setting of different parts; care of machines; fly frames; builder and differential motions; roll setting; calculations for draft, twist, lay, tension, speed, and production. Mr. Hilton.

**Textile 202. Dobby Weaving.** 2-2-2  
 Required of juniors in Textile Manufacturing.  
 Prerequisite: Power Weaving, Textile 103.  
 Preparation of warps for weaving fancy patterns on doobby looms; drawing warps in harness; starting up warps in looms; construction and fixing single and double index doobby, also doobby for weaving border patterns; springs and spring boxes for harness; pattern chain building; calculations for heddles, weight of fabrics, loom production. Mr. Nelson, Mr. Hart.

**Textile 203. Fabric Design.** 2-2-0  
 Required of juniors in Textile Manufacturing.  
 Prerequisite: Fabric Structure, Textile 104.  
 Construction of fancy weaves, such as broken twills, curved twills, entwining twills, granite weaves. Imitation leno; honeycomb weaves; fabrics backed with warp or filling; fabrics ornamented with extra warp or filling; combining weaves together to produce new patterns. Mr. Hart.

**Textile 204. Fabric Analysis II.** 0-0-2  
 Required of juniors in Textile Manufacturing.  
 Prerequisite: Textile 105.  
 Analyzing samples of fancy fabrics for design, drawing in draft, reed and chain plan. Calculating particulars to reproduce fabric from data obtained from sample. Mr. Hart.

**Textile 205. Dyeing III. 4-4-4**

Required of juniors in Textile Dyeing.

The direct cotton colors are first studied. Their composition and application on cotton. Function of assistants used, and the effect of temperature and volume of dye bath upon depth of shade. Methods of after-treatment to improve fastness. Methods of making tests for fastness to washing, light, perspiration, and cross-dyeing. The diazotizing and developing process. Sulphur, basic, acid, acid chrome, and mordant colors, and methods of application. Mr. Grimshaw.

**Textile 206. Textile Printing. 2-2-2**

Required of seniors in Textile Dyeing.

The history of printing and the development of machinery used. Calico printing with the mordant, basic, and vat colors, aniline black, indigo, and insoluble azo colors. Resist and discharge styles. Mr. Grimshaw.

**Textile 207. Knitting II. 0-0-3**

Required of sophomores in Textile Manufacturing and Textile Dyeing.

Principles of producing knitted novelties. Hosiery design and analysis. Production control and costs. Mr. Shinn.

### Courses for Graduates and Advanced Undergraduates

**Textile 301. Yarn Manufacture III. 2-2-2**

Required of seniors in Textile Manufacturing.

Prerequisite: Textile 201.

Spinning, spooling, twisting. Description and setting of different parts. Builder motions for warp and filling. Bobbin holders, thread guides, traverse motion. Ply and carded yarns. Calculations for twist, speed, and production. Mill organization and administration. Mr. Hilton.

**Textile 302. Fancy and Jacquard Weaving. 2-2-2**

Required of seniors in Textile Manufacturing.

Prerequisite: Textile 202.

Pick and pick looms. Box and multiplier chain building. Arrangement of colors in box to give easy running loom. Extra appliances for weaving leno, towel, and other pile fabrics. Construction and operation of single, double lift, and rise and fall jacquards. Tie-up of harness for dress goods, table napkins, damask, and other jacquard fabrics, such as leno. Relative speed of looms. Production and calculations. Mr. Nelson, Mr. Hart.

**Textile 303. Fancy and Jacquard Design. 3-3-3**

Required of seniors in Textile Manufacturing.

Prerequisite: Textile 203.

Designing fancy and jacquard fabrics. These fabrics include table-cloths, figured double, plain; matelasse, velvet, corduroy. Leno weaves with one, two, or more sets of doups. Combinations of plain and fancy weaves with leno. Methods of obtaining leno patterns. Methods of making original designs by combinations of color, weave, and sketches. Designs for table napkins, table covers, dress goods, draperies. Mr. Nelson.

**Textile 304. Fabric Analysis III. 0-1-1**

Required of seniors in Textile Manufacturing.

Prerequisite: Textile 204.

Analyzing samples of cotton, wool, worsted, linen, and silk fabrics for size of yarns, ends and picks per inch, weight of warp and filling, so as to accurately reproduce samples analyzed. Obtaining design, drawing in draft, chain and reed plan for fancy fabrics, such as stripes, checks, extra warp and extra filling figures, leno fabrics, jacquard fabrics, draperies.

Mr. Nelson.

**Textile 305. Dyeing IV. 5-5-5**

Required of seniors in Textile Dyeing.

Prerequisite: Textile 205.

Method of dyeing vat colors. Application of indigo, aniline black, sulphur black, para red. Dyeing of mixed fabrics, such as cotton and wool, cotton and silk, wool and silk. Production of solid shades for multi-colored effects. Comparison of dyestuffs for relative strength and money value. Matching of shades and mixing of dyes to produce compound shades. Calico printing.

Mr. Grimshaw.

#### Courses for Graduates Only

**Textile 401. Yarn Manufacture. 2-2-2**

A study of breaking strength and related properties of cotton yarns made under various atmospheric conditions; comparison of yarns produced from long and short-staple cotton with regular and special carding processes; efficiency of various roller covering materials at the drawing processes; elimination of roving processes by special methods of preparation; comparison of regular and long-draft spinning.

Mr. Hilton.

**Textile 402. Textile Design and Weaving. 2-2-2**

Study and practice in more advanced designing and analysis of fabrics such as lenos made with twine and wire doups, lappits, and other fancy fabrics. Designing for jacquard dress goods, table covers, reversibles, and other fabrics. Making original designs for dobby and jacquard fabrics. Fabric cost analysis. Weaving fancy and jacquard fabrics.

Mr. Nelson, Mr. Hart.

**Textile 403. Textile Dyeing. 2-2-2**

The course consists of matching shades from standard and season color cards upon classes of materials which require skill in their dyeing, such as three-fibre, cotton-wool, and half-silk hosiery, woolens and worsteds with effect stripes, and cotton fabrics with woven figures or stripes of the different varieties of artificial silk.

Mr. Grimshaw.

**Textile 404. Textile Testing. 2-2-2**

A study of the moisture content of cotton, yarns, and fabrics. The evolutions in cotton fibres and their relation to spinning, weaving, and dyeing. The effect of mercerization on cotton yarns and fabrics. Testing yarns and fabrics under variable conditions for breaking strength and elasticity.

Textile Staff.

**Textile 405. Seminar. 1-1-1**

Members of the seminar will be assigned scientific articles of interest to the Textile Industry, which will be reviewed and discussed by individual members of the seminar. Papers prepared by students and research problems will be presented and discussed by the class. The class will meet one hour per week by special arrangement.  
Textile Staff.

**ZOOLOGY****Zool. 11. Farm Insects. 3-0-0**

This is a short study in which the beneficial and injurious insects are discussed in their relations to the farm. The various insecticides and methods of spraying are also included.  
Mr. Mitchell.

**Zool. 21. Fruit and Vegetable Insects. 0-0-3**

This course will deal with those insects which are economically most important to the grower and shipper of fruits and vegetables. Special emphasis will be placed mainly upon diagnosis and methods of control.  
Mr. Mitchell.

**Zool. 31. Beekeeping. 0-0-3**

A short study in the essentials of beekeeping, to introduce the student to better methods of keeping bees under North Carolina conditions. Some time is given to transferring, hive-building, spring management, and routine manipulations.  
Mr. Meacham.

**Courses for Undergraduates****Zool. 101. General Zoology. 4-4-0**

Required of freshmen or sophomores in Agriculture. This course or Botany 101-102 is required in the School of Science and Business.

An elementary study of animals, with special reference to the vertebrates and the more important economic groups. This course is designed to give the student a general knowledge of the animal kingdom.

Mr. Metcalf, Mr. Snyder, Mr. Mitchell, Mr. Meacham, Mr. Wray.

**Zool. 102. Animal Physiology. 3-3-0**

Prerequisite: Zool. 101.

Elective for sophomores in Agriculture.

A course devoted to the comparative physiology of vertebrate animals, with particular reference to mammals and man. Detailed studies are made of the various functions, with special emphasis on metabolism.

Mr. Metcalf, Mr. Meacham.

**Zool. 103. Ornithology. 0-0-4**

Prerequisite: Zool. 101.

This course consists of lectures, laboratory and field work, devoted to the identification and economic study of North Carolina bird life.

Mr. Snyder.

## Courses for Advanced Undergraduates

- Zool. 201. Genetics.** 4-0-0  
 Required of juniors in Agriculture. Elective for juniors and seniors in General Science.  
 Prerequisite: Bot. 101 and 102, or Zool. 101.  
 A subject devoted to the study of the basic principles of heredity. The students will be required to carry on and analyze their own breeding experiments with fruit flies, and to observe and analyze inheritance in other animals and plants. Mr. Snyder.
- Zool. 202. Economic Entomology.** 0-0-3  
 Required of sophomores in Biological Science and juniors in Agriculture.  
 Prerequisite: Zool. 101.  
 A study of the economic importance of insects with reference to farm crops, the health of man and domestic animals, with emphasis placed on their specific control. Mr. Mitchell.
- Zool. 203. Animal Morphology.** 3 or 5-3 or 5-0  
 Required of juniors in Biological Science.  
 Prerequisite: Zool. 101.  
 This course will be devoted to a study of the comparative morphology of animal types. Systems of organs will be studied in the various groups, and their interrelations pointed out. Mr. Snyder.
- Zool. 205. Field Crop Entomology.** 3 or 5-0-0  
 Elective for seniors in Agriculture.  
 Prerequisite: Zool. 202.  
 A subject in which detailed attention will be given to field crop insects, of special importance in North Carolina. Mr. Mitchell.
- Zool. 206. Horticultural Entomology.** 0-3 or 5-0  
 Elective for seniors in Agriculture.  
 Prerequisite: Zool. 202.  
 A subject in which detailed attention is given to the insect pests of horticultural crops in North Carolina. Orchard and nursery inspection and insect control are studied by the method of field inspection trips. Mr. Mitchell.
- Zool. 207. Vertebrate Embryology.** 3-0-0  
 Required of seniors in Poultry Production and Biological Sciences.  
 The comparative embryology of the principal groups of vertebrates, with special emphasis on the chick and the pig. Mr. Snyder.
- Zool. 208. Beekeeping.** 3-0-0 or 0-0-3  
 Elective for juniors and seniors.  
 The first term will consist of introductory beekeeping, marketing, fall management, and wintering. The third term will be devoted to proper equipment, spring management, and honey production. Mr. Meacham.

**Zool. Ex. 220. Animal Nature Study.** 3 or 5 credits.

This course is intended primarily for grade school teachers and high school science instructors who desire to enlarge their knowledge of the animal life around them so that they may use the animals from their own localities in their classes. All of the animals which may be studied successfully without the aid of the microscope are taken up. Field collections and observations are used as a basis for this course.

Mr. Metcalf, Mr. Snyder, and Mr. Mitchell.

### Courses for Graduates and Advanced Undergraduates

**Zool. 301. Applied Entomology.** 3-3-3

An intensive study of practical control measures for some of the most important economic insects, including spraying, dusting, fumigating, inspecting, mechanical measures, and farm practices. This course is intended to give the student interested in practical agriculture, horticulture, or field work in entomology a definite understanding of the methods used in insect control. Some important insect pest is selected, and studied from the standpoint of nature of injury, life history, and control. Mr. Mitchell.

**Zool. 302. Advanced Genetics.** 3-3-3

An advanced study of the laws of heredity, taking up the more complex principles and applications of Mendelian inheritance. The student will select a problem in breeding to be carried on as part of the course.

Mr. Snyder.

**Zool. 304. Systematic Entomology or Zoology.** 0-3 or 5-3 or 5

Required of juniors in Biological Science.

Prerequisite: Zool. 101, 202, or 203.

A study of the classification of various groups of animals. The student may elect to devote his time to a systematic review of the animal kingdom, or to any special group. Mr. Metcalf, Mr. Mitchell.

**Zool. 309. Field Zoology.** 0-3-3

Prerequisite: Zoology 101.

A course devoted to the study of the relation between animals and their environment. The Spring Term will be largely devoted to field trips.

Mr. Metcalf.

**Zool. 310. Laboratory Technique.** 3 or 5, 3 or 5, 3 or 5

A discussion of the various methods of microscopical technique, taxidermy, and illustrating, with special reference to their use by the scientist. After the student becomes grounded in the fundamental principles, he uses his practice time in making preparations for his thesis or other special studies.

Mr. Metcalf, Mr. Meacham.



## Courses for Graduates Only

Zool. 401, 402. Systematic Entomology. 3-3-3

A study of the various codes of nomenclature, methods of writing descriptions, constructing keys, determining priority, selecting and preserving types, and making bibliographies and indexes. The student selects a small group for development along some approved taxonomic system.

Mr. Metcalf, Mr. Mitchell.

Zool. 403, 404. Research in Zoology. 3-3-3

Problems in development, life history, morphology, ecology, micrology, cytology, taxonomy, or parasitology may be undertaken. The student must select definite problem after consultation, then develop it in a broad way, finally summing up the results of his researches with an acceptable thesis.

Mr. Metcalf, Mr. Snyder, Mr. Meacham, Mr. Mitchell.

Zool. 405. Seminar. 1-1-1

In addition to attendance upon the weekly seminar throughout the year, the student will be required to present a paper in his major field of research. Other reports will deal with the results of the research of members of the staff.

# REGISTER OF STUDENTS

1927-1928

## GRADUATE STUDENTS

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Armstrong, Lindsey Otis.....	Voc. Educ. ....	Raleigh
Barnes, Burlin B.....	Physics .....	Elkins, W. Va.
Brannock, Durant York.....	Chem. Eng. ....	Elon College
Brannon, Clarence H.....	Zool. ....	Raleigh
Browne, Cicely Cushman.....	Agr. (Hort). ....	Raleigh
Bullock, James Faucette.....	Agron. ....	Hester
Caceness, Hugh Lynn.....	Mod. Lang. ....	Raleigh
Cline, Ambrose Schenck.....	Soils .....	Lincolnton
Dawson, Wallace Harvey.....	Educ. ....	Elizabeth City
Dearstyne, Roy Styring.....	Botany .....	Raleigh
Fant, Gordon W.....	French .....	Raleigh
Fisher, Hilbert Adam.....	Physics .....	Raleigh
Fountain, Alvin Marcus.....	Soc. .... R. 1, Catharine Lake	
Garren, Gardner Marion.....	Agron. ....	Raleigh
Gauger, Herman Christian.....	Agr. (Poul.) ....	Winsted, Conn.
Ginn, William McKinley.....	Agr. (Poul) ....	Goldsboro
Goodman, John Wesley.....	Agr. Coop. ....	Raleigh
Green, Ralph Waldo.....	Soc. ....	Raleigh
Greene, Lester Maxwell.....	Agr. (Poul) ....	Aulander
Griffin, R. B.....	Educ. .... R. 2, Raleigh	
Grimshaw, Albert Harvey.....	Tex. Chem. & Dye.....	Raleigh
Hamrick, Fred Garland.....	Soc. .... R. 9, Gaffney, S. C.	
Harris, Mrs. Virginia F.....	Soc. ....	Raleigh
Henderson, Robert G.....	Potany .....	Madisonville, Tenn.
Henninger, Roswell Woodward.....	Econ. ....	Raleigh
Herman, John R.....	Soils .....	Newton
Homewood, Solomon Linn.....	An. Hus. ....	Barnardsville
Hostetler, Earl Henry.....	An. Hus. ....	Raleigh
Ingraham, Theodore Norton.....	C. E. .... R. 4, Lillington	
Knight, Thomas Maxwell, Jr.....	E. E. .... R. 1, Cheraw, S. C.	
Long, Marvin Waller.....	B. Ad. ....	East Bend
McCrary, Otis Frederick.....	Soils .....	Raleigh
McKimmon, Mrs. Jane S.....	Soc. ....	Raleigh
Mayer, William Lyndon.....	Educ. ....	Raleigh
Meacham, Frank Barnard.....	Agr. ....	Statesville
Moore, Jerry Hamilton.....	Agr. ....	Raleigh
Morey, Donald Roger.....	Physics .....	Buffalo, N. Y.
Nicholson, Newlin Bartimus.....	Agr. .... R. 1, Saxapahaw	
Nuckolls, William Joseph, Jr.....	Soils .....	Mineral, Va.
Perry, H. Judson.....	Soc. ....	Raleigh
Perry, James Whitney.....	Chem. Eng. ....	Raleigh
Proctor, Richard Shirley.....	Voc. Ed. (H. S. T.) .....	New Bern
Raper, Luther Eugene.....	Agr. (Poul) .... R. 1, Welcome	
Risher, Francis Washington.....	Ag. Ad. ....	Washington
Ruffner, Robert Henry.....	Econ. ....	Raleigh

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Ruggles, Edward Wolfe.....	Educ. ....	Southern Pines
Schumacher, Raymond Isadore.....	Ag. Ad. ....	Sealy, Texas
Shanklin, Julius Augustus.....	Soc. ....	Clemson College, S. C.
Shinn, William Edward.....	Tex. Mfg. ....	Georgeville
Sigmon, Hugh William.....	Chem. ....	R. 3, Newton
Stretcher, Edwin Eugene.....	B. Ad. ....	Richmond, Va.
Taylor, Herman Ward.....	Agr. ....	Wilmington
Thomas, Miss Elizabeth.....	Soc. ....	Raleigh
Thompson, Hughes Meacham.....	Chem. ....	Wake Forest
Wallace, Mrs. Lillian Parker.....	Educ. ....	Raleigh
Webster, Frederick Huse.....	Educ. ....	Elkhorn, Wis.
Whitford, Larry Alston.....	Botany ....	Albemarle
Wilfong, Herman Shuford.....	Poul. ....	Newton
Williams, Alva Edison.....	Voc. Ed. (Agr.) .....	R. 3, Linwood
Williams, John Henry.....	Econ. ....	Raleigh
Williams, Norwood Wade.....	Agr. (Poul) .....	R. 1, McCullers
Wooten, Ralph Leland.....	Ind. Mgt. ....	R. 2, Kinston
Wray, David Lonzo, Jr.....	Zool. ....	Eustis, Fla.
Young, David Luther.....	Chem. ....	Kiao-Chow, China
Young, Wade Phillips.....	Educ. ....	Mocksville

#### SENIOR CLASS

Alexander, Samuel Lee.....	B. Ad. ....	Charlotte
Ammons, Clifton Roosevelt.....	Voc. Ed. (Agr.) .....	Lumberton
Armstrong, Edwin Benson.....	Tex. Mfg. ....	Gastonia
Arthur, Leroy Leland.....	C. E. ....	Raleigh
Bailey, Conrad Ziegles.....	Arch. Eng. ....	Elizabeth City
Bailey, Madison Augustus, Jr.....	Ind. Mgt. ....	Greenwood, S. C.
Barden, William Jesse.....	Agr. (An. Hus.).....	R. I. Selma
Barnes, Jarvis Bingham.....	E. E. ....	Como
Barnes, Rupert Cecil.....	B. Ad. ....	Seven Springs
Barrier, John Jacob.....	E. E. ....	Washington, D. C.
Baugham, Charles Robert.....	B. Ad. ....	Asheville
Bell, Thurman Judson.....	E. E. ....	Spencer
Blanchard, William A.....	C. E. ....	R. 1, Watson
Boswell, William Jennings.....	B. Ad. ....	Bracey, Va.
Boyd, John Early, Jr.....	Cer. Eng. ....	Middleburg
Bridger, Livingston Adoffice.....	B. Ad. ....	Blandenboro
Brimley, Ralph Frederick.....	Agr. (Hort.) .....	Raleigh
Britt, Gordon Matthews.....	Ag. Ad. ....	R. 3, Clinton
Britt, Jay Boyd.....	Ag. Ext. ....	R. 1, Garner
Broadwell, Richard Preston.....	B. Ad. ....	R. 1, Holly Springs
Brown, Kenneth Hills.....	Science .....	Raleigh
Brown, William Hinton.....	E. E. ....	Oxford
Browne, Thomas Everett, Jr.....	E. E. ....	Raleigh
Bullock, Robert Harvey.....	Agr. ....	R. 3, Hester
Burke, George Leonard, Jr.....	E. E. ....	Spencer
Burwell, Dawson Alson, Jr.....	Ind. Mgt. ....	Stovall
Cadieu, John Neal.....	B. Ad. ....	Monroe
Capps, Frank .....	B. Ad. ....	Raleigh

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Carr, Henry James	Voc. Educ. (Agr.)	R. 6, Clinton
Carr, Hilliard Wainwright	B. Ad.	Asheville
Carson, Lester Gray	E. E.	Taylorville
Case, Charles Albright	E. E.	Oak Ridge
Clarke, Andrew James	Agr.	Revere, Mass.
Clifford, David Pearsall	E. E.	Dunn
Cobb, Joseph Carroll	Tex. Mfg.	Lancaster, S. C.
Cogdell, Charles Henry	B. Ad.	Ellease
Coley, Henry Mock	C. E.	Raleigh
Council, Alexander McAlister, Jr.	Agr. (An. Hus.)	R. 1, White Oak
Cox, William Ansel, Jr.	Arch. Eng.	Greenwood, S. C.
Daughtry, William Thomas, Jr.	C. E.	Woodland
Davis, Frederick Carr	M. E.	R. 1, Seven Springs
Davis, Jefferson Clark	E. E.	New Bern
Dunn, John Burwell	Tex. Mfg.	Enfield
Dunn, Jesse Monroe	Tex. Mfg.	Charlotte
Einwick, Louis Charles	B. Ad.	Newport News, Va.
Eller, Eugene Vaughn	Voc. Ed. (Agr.)	Warrens ville
Ellis, Paul Richardson	E. E.	Star
Evans, Marvin Ennis	Agr. (Poul.)	Black Creek
Faircloth, James Manning	C. E.	Clinton
Faison, Thomas Gideon	Gen. Sci.	Winton
Farmer, Thomas Clark	E. E.	Raleigh
Fentriss, Ray Hodgson	C. E.	Worthville
Foil, Joseph Orchard	Tex. Mfg.	Concord
Fonville, Alton David	B. Ad.	Raleigh
Franklin, Elgie Lenoir	M. E.	Altamont
Gaither, John Owen, Jr.	E. E.	R. 5, Statesville
Gheesling, Hama Thornton	E. E.	Charlotte
Gorham, Bruce Goodwin	M. E.	Rocky Mount
Gravelly, William Allen	B. Ad.	Monroe
Green, Forest Talmage	Hwy. Eng.	Cerro Gordo
Greene, Arthur Nathaniel	B. Ad.	Raleigh
Griffin, Kerlee Keith	B. Ad.	R. 1, Biltmore
Groves, Barron Glenn	Tex. Mfg.	Lowell
Gryder, Daniel Arthur	Tex. Che. & Dye	Stony Point
Hager, Guy Yates	E. E.	R. 2, Cleveland
Hall, Gilbert Page	Arch. Eng.	Elizabeth City
Hardee, Frank Stanton	Cer. Eng.	Stem
Hardy, Rudolph Ludwig	E. E.	Valhalla
Hart, James Garland	C. E.	R. 2, Virgilina, Va.
Haywood, Robert Whitley, Jr.	Chem. Eng.	Raleigh
Hendrix, Noah Lester	Agr. (An. Hus.)	R. 5, Salisbury
Hodgin, Ulton Grey	Ind. Mgt.	Greensboro
Holbrook, George William	Chem.	Ocala, Fla.
Howard, Bentz Buell	Tex. Mfg.	Concord
Hunt, Fred Lee	Voc. Ed. (Agr.)	R. 2, Wake Forest
Hunter, John Mason	Agr. (Hort.)	Scotts
Incoe, Garland Medicus	Arch. Eng.	R. 1, Castalia
Jackson, Clyde Winton	Voc. Agr.	Middleburg

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Jobe, Harlee Hines.....	Gen. Agr. ....	Mebane
Johnson, Robert Glenn.....	B. Ad. ....	Kipling
Kearney, Erich Wilson.....	Arch. Eng. ....	Franklinton
Kellam, Charles Edgar.....	B. Ad. ....	Biscoe
Kennedy, Horace Johnson.....	Voc. Educ. (H. S. T.).....	Charlotte
Kidd, John Love.....	Tex. Mfg. ....	Newton
Kilgore, Joseph Mallory, Jr.....	E. E. ....	Norfolk, Va.
King, Samuel Vines, Jr.....	Arch. Eng. ....	Tarboro
Kirkman, Charles Gordon.....	Voc. Educ. (Agr.) ..	Pleasant Garden
Knowles, Bruce Henry.....	B. Ad. ....	Wallace
Lane, William Cobb, Jr.....	E. E. ....	Sanford
Leary, Walter Clark.....	E. E. ....	R. 1, Merry Hill
McCain, James Hugh.....	E. E. ....	Asheboro
McColl, John Douglas.....	Agr. ....	R. 5, Laurinburg
McConnell, Carey Jones.....	Agr. (An. Hus.) .....	R. 14, Derita
McDowall, Jack, Jr.....	Voc. Ed. (H. S. T.).....	Brevard
Maness, Jesse Brown.....	Voc. Ed. (Agr.) .....	R. 1, Biscoe
Mangum, Zebulon Boyce.....	Tex. Mfg. ....	R. 5, Birmingham, Ala.
Matthews, Joseph Carson, Jr.....	Chem. ....	Raleigh
Merritt, Vernon Hall.....	B. Ad. ....	Raleigh
Moody, David Hugh.....	Agr. (An. Hus.) ..	R. 2, Waynesville
Moose, Perry Earl.....	C. E. ....	R. 3, Mt. Pleasant
Moose, Thomas Luther.....	Agr. ....	Concord
Morgan, John Jackson.....	Ag. Ad. ....	R. 1, Spring Hope
Morris, John Sanders.....	C. E. ....	R. 1, Franklinton
Morrison, Robert James.....	E. E. ....	Cherryville
Munroe, Homer A.....	B. Ad. ....	R. 2, Council
Nelson, Thomas Hill.....	Tex. Mfg. ....	Raleigh
Noblin, Charles Joseph.....	B. Ad. ....	Raleigh
Orders, William Carl.....	Agr. (An. Hus.) .....	Mooresville
Overman, Charles Wood.....	Agr. (Hort.) ....	R. 5, Elizabeth City
Owen, William Franklin.....	E. E. ....	Salisbury
Park, Arthur Isaac.....	Voc. Ed. (H. S. T.) .....	R. 1, Dobson
Pearson, Roy Ross.....	Voc. Ed. (H. S. T.) ..	R. 3, Morristown, Tenn.
Person, Rufus Morgan, Jr.....	M. E. ....	R. 8, Charlotte
Phillips, William Paul.....	Voc. Ed. (Agr.) .....	Manley
Pike, Douglas O'Connell .....	M. E. ....	Raleigh
Pleasants, Miles Otis.....	Voc. Ed. (Agr.).....	R. 2, Louisburg
Plunkett, Frank Milton.....	Voc. Ed. (Agr.).....	R. 6, Greensboro
Polk, Morgan Jerome.....	M. E. ....	Asheville
Pope, John Hilton.....	Agr. (An. Hus.) .....	R. 1, Tillery
Powers, John E.....	C. E. ....	Maple Hill
Preslar, Basil Alexander.....	M. E. ....	R. 3, Marshville
Rankin, David Cyrus.....	Voc. Ed. (Agr.) .....	R. 6, Greensboro
Raper, Paul Alexander.....	Agr. (Poul.) .....	R. 1, Welcome
Ridenhour, Clarence Adolphus.....	Tex. Mfg. ....	Concord
Riley, John McConnell.....	B. Ad. ....	R. 6, Raleigh
Roberts, Wade Livingstone.....	Ind. Mgt. ....	R. 4, Asheville
Rogers, Henry Harper.....	Physics .....	Raleigh

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Rothgeb, Ross McKinley.....	M. E. ....	Raleigh
Rowe, George Samuel.....	C. E. ....	Newton
Rush, Paul Van.....	C. E. ....	Denton
Sechler, William Ralph.....	Voc. Ed. (Agr.)....	R. 3, China Grove
Sechrest, James Roscoe.....	Chem. Eng. ....	Raleigh
Shaw, Luther .....	Gen. Agr. ....	R. 1, Saxapahaw
Shearin, Arthur Eugene.....	Agr. (An. Hus.)....	R. 3, Rocky Mount
Shuford, Joe Withers.....	B. Ad. ....	Hickory
Silver, John Roy.....	B. Ad. ....	R. 1, Horseshoe
Sloan, Frederick Siler.....	Agr. (Hort.) ....	Franklin
Smith, Perry Maurice.....	Chem. Eng. ....	R. 1, Henderson
Smithwick, Norman Thompson.....	C. E. ....	LaGrange
Spry, Howard James.....	Tex. Mfg. ....	R. 1, Back Bay
Stafford, William LaFayette.....	Cer. Eng. ....	Mooresville
Stainback, William Peers.....	E. E. ....	Henderson
Stevens, Charles Vergereau.....	E. E. ....	R. 2, Biltmore
Stott, Hester Myatt.....	Voc. Ed. (Agr.) ....	Wendell
Straughan, Cad Leon.....	Agr. (An. Hus.)....	R. 1, Siler City
Stuckey, David Leslie.....	Cer. Eng. ....	R. 4, Kenly
Sullivan, Hubbard, Lowry.....	Arch. Eng. ....	Asheville
Sutton, Paul Millard.....	M. E. ....	Seven Springs
Swain, William Edwin.....	Hyw. Eng. ....	Raleigh
Tate, William Linn.....	Chem. Eng. ....	Burlington
Taylor, Lawrence Arthur.....	B. Ad. ....	Asheville
Thomas, Percy Durand.....	E. E. ....	Raleigh
Tomlinson, Jonathan Clifton.....	Agr. ....	R. 1, Black Creek
Trevathan, Phesington Edward.....	Cer. Eng. ....	R. 3, Rocky Mount
Tucker, Cornelius Stickley.....	Ind. Mgt. ....	Amherst, Va.
Turner, Frank Brown.....	M. E. ....	Durham
Turner, Paul Randolph.....	Ag. Ad. ....	Enfield
Vestal, Herman Husband.....	Voc. Ed. (H. S. T.)....	R. 1, Staley
Walker, William Clyde.....	B. Ad. ....	R. 1, Hillsboro
Ward, William .....	B. Ad. ....	Raleigh
Warlick, John H.....	Tex. Mfg. ....	Granite Falls
Warner, William Crawford.....	Voc. Ed. (Agr.) ....	R. 1, Mt. Gilead
Webb, John Bunch, Jr.....	Agr. ....	R. 2, Edenton
Westcott, Harry Tracey.....	Voc. Ed. (H. S. T.)....	Manteo
White, Charles Howard.....	B. Ad. ....	Asheville
White, Glenn Deal.....	Agr. ....	Hickory
White, Thomas Elbert, Jr.....	E. E. ....	Edenton
Whitley, Zelma Edison.....	Ind. Mgt. ....	Bethel
Williams, Frank Moring.....	Tex. Mfg. ....	Raleigh
Williams, Ormond Joerns.....	Chem. ....	Raleigh
Williams, William Henry.....	Voc. Ed. (Agr.) ....	R. 3, Linwood
Wilson, Charles Spurgeon.....	Agr. (An. Hus.)....	R. 5, Newton
Woodside, James White.....	Agr. ....	R. 6, Statesville
Wooten, Hugh Hill.....	Ag. Ad. ....	R. 2, Statesville
Worthington, Emerson Glenn.....	B. Ad. ....	Ayden
Young, Joseph Loici.....	Tex. Mfg. ....	Newton

## JUNIOR CLASS

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Adams, Edward Vance.....	B. Ad. ....	Washington
Albright, William Purvis.....	Agr. (Poul.) .....	R. 7, Greensboro
Alexander, Gilman Reid.....	C. E. ....	Montreat
Allwood, Albert .....	Tex. Mfg. ....	Braedale, England
Andrews, Thomas Curtis.....	Agr. ....	R. 2, Mt. Gilead
Apple, Arlie Dewitt.....	C. E. ....	R. 6, Burlington
Aydlett, Abner Laurance.....	B. Ad. ....	Elizabeth City
Badgett, Kenneth Monroe.....	Agr. ....	Jackson Hill
Baker, Harry Whitner.....	Agr. ....	R. 4, Newton
Dallance, Laurence Alton.....	Ind. Mgt. ....	Currituck
Ballance, Paul Salem.....	Voc. Ed. (Agr.) .....	Maple
Ballentine, James William.....	Voc. Ed. (Agr.) .....	Middlesex
Barnes, James Howard.....	B. Ad. ....	Barnesville
Barnhardt, Marshall Luther.....	C. E. ....	Salisbury
Barwick, Eugene Tull.....	B. Ad. ....	Grifton
Beacham, Hardy Roosevelt.....	E. E. ....	R. 1, Beaufort
Beck, Crawford .....	B. Ad. ....	R. 2, Lexington
Bell, William Fletcher, Jr.....	Voc. Ed. (H. S. T.) .....	Pilot Mt.
Black, James William.....	Tex. Chem. & Dye.....	Kinston
Boney, Yancy Davis.....	Arch. Eng. ....	Clinton
Bonney, Fleetwood Guy.....	Ind. Mgt. ....	Woodleigh
Bordner, Dale Nelson.....	Arch. Eng. ....	Asheville
Bowie, John Routh.....	Tex. Mfg. ....	Glendale Springs
Branch, Daniel Bernice.....	E. E. ....	Wilmington
Branscom, Noah Omnes.....	Ag. Ad. ....	R. 4, Campbello, S. C.
Bristow, William French, Jr.....	E. E. ....	Raleigh
Britt, James Henry.....	E. E. ....	R. 2, Hertford
Brown, Miles Wendell.....	C. E. ....	Statesville
Browning, James Marshall.....	Arch. Eng. ....	Burlington
Bunn, Robert Dean.....	Tex. Mfg. ....	Henderson
Bunn, Thomas Cade.....	Voc. Ed. (Agr.) .....	R. 2, Zebulon
Burbury, William Henry.....	Tex. Mfg. ....	Gastonia
Burgess, Harry Lee.....	C. E. ....	New London
Burroughs, Hubert Hudson.....	Gen. Sci. ....	Bethel
Byers, Kenneth .....	B. Ad. ....	Spartanburg, S. C.
Byrum, Thomas Joe.....	C. E. ....	R. 3, Charlotte
Calhoun, Charlie Marion.....	E. E. ....	R. 1, Rocky Mt.
Capel, Norman Thomas.....	Voc. Ed. (Agr.).....	Seaboard
Carpenter, Owen Maxwell.....	E. E. ....	R. 11, Charlotte
Cartner, Hubert Wesley.....	Agr. (An. Hus.) .....	Mocksville
Cathey, Jasper Clark.....	Agr. ....	R. 5, Charlotte
Chandler, John Williamson, Jr.....	B. Ad. ....	Ruffin
Cline, Ira Glenn.....	B. Ad. ....	Newton
Cole, John Farmer.....	B. Ad. ....	Raleigh
Coletta, Peter Carmine.....	Cer. Eng. ....	Gastonia
Coley, Paul McGinnis.....	Voc. Ed. (Agr.) .....	R. 2, Stanfield
Connelly, Charles Wearn.....	Arch. Eng. ....	Charlotte
Conrad, Ernest Clifton.....	Chem. Eng. ....	R. 1, Lexington
Cooper, James Edward.....	B. Ad. ....	Graham

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Craver, Clifford Ellwood.....	Agr. ....	R. 1, Welcome
Crisp, Richard Hodges.....	B. Ad. ....	Falkland
Crotts, Luther Owens.....	Agr. (An. Hus.) .....	R. 3, Mocksville
Crum, Frederick .....	Ind. Mgt. ....	Goldsboro
Darden, John Bell.....	M. E. ....	Spartanburg, S. C.
Daughtridge, Harvey Jordan.....	B. Ad. ....	Rocky Mt.
Davis, James White.....	Voc. Ed. (Agr) .....	R 2, Harmony
Day, Russell Vanburen.....	Voc. Ed. (Agr.) .....	R. 2, Ronda
Dickinson, Gerald Potter.....	B. Ad. ....	Beaufort
Dillingham, Everett Lee.....	Voc. Ed. (Agr.) .....	Barnardsville
Dorsett, Gilbert Taylor.....	E. E. ....	Raleigh
Dunlap, Robert Hamilton.....	Voc. Ed. (H. S. T.).....	Charlotte
Elam, Paul Wilson.....	B. Ad. ....	Statesville
Eller, Wayne Vannoy.....	B. Ad. ....	Ready Branch
Ellis, Howard McDonald.....	C. E. ....	Washington
Ellis, Paul Cecil.....	Chem. Eng. ....	Siler City
Ervin, John William, Jr.....	Arch. Eng. ....	Newton
Evans, Robert Kerr.....	Voc. Ed. (H. S. T.).....	Mooresville
Evans, Wilfred Victor C.....	Agr. ....	S. Africa
Ferguson, John Clyde.....	Ind Mgt. ....	R. 2, Cameron
Field, Roddy Allen, Jr.....	Tex. Mfg. ....	Newman, Ga.
Finch, Marion Clifford.....	Ind. Mgt. ....	Rocky Mt.
Fitzgerald, William Ralph.....	B. Ad. ....	Asheville
Floyd, English Hubert.....	Agr. ....	Fairmont
Fowler, William Frank.....	C. E. ....	Winston-Salem
Gaskill, Seth Bridgeman.....	B. Ad. ....	Aurora
Gaston, Walter Moore.....	E. E. ....	R. 2, Candler
Goldston, Eugene Frizzell.....	Science .....	Goldston
Goodwin, Franklin Pierce, Jr.....	B. Ad. ....	Greensboro
Grant, Thomas Alexander.....	M. E. ....	Wilmington
Greaves-Walker, Arthur McKinley...	Cer. Eng. ....	Raleigh
Green, Herbert Charles.....	Voc. Ed. (Agr.) .....	Ellerbe
Griffith, Henry Lovette.....	Agr. ....	Ruffin
Hall, Donald Booth.....	Cer. Eng. ....	Hornell, N. Y.
Hamrick, Henry Olson.....	E. E. ....	Ruth
Harrell, John William.....	Agr. ....	R. 1, Gibsonville
Harris, James Sidney.....	B. Ad. ....	Henderson
Harshaw, Clare Hill.....	E. E. ....	Grove City, Pa.
Harvell, Roger Winfeld.....	B. Ad. ....	Newton
Haywood, Kenneth Presley.....	E. E. ....	Mt. Gilead
Henley, Oscar Newton.....	Agr. (An. Hus.) .....	Greensboro
Hibbard, Charles Edwards.....	C. E. ....	New Bern
Highsmith, John Henry, Jr.....	B. Ad. ....	Raleigh
Hinson, Thad Wayne.....	Tex. Mfg. ....	Maxton
Hipps, Jesse Bennett.....	C. E. ....	Winston-Salem
Holden, Alexander Biggs.....	B. Ad. ....	Wilmington
Howard, George Robert.....	Tex. Chem. & Dye. ....	Concord
Hoyle, Sibley Lowe.....	C. E. ....	Newton
Hubbard, Eugene Draughon.....	C. E. ....	R. 1, Fayetteville
Hunsucker, George Eugene.....	Voc. Ed. (H. S. T.).....	Hamlet



<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Hutchinson, Daniel Hoogland.....	E. E.....	Summerville, S. C.
Jenkins, Berry George.....	C. E.....	Greenville
Jenkins, Francis DeVane.....	Ind. Mgt.....	Winston-Salem
Jivatode, Ramkrishna Sakharem.....	E. E.....	Poona City, India
Johnson, Dwight Sperguson.....	Tex. Chem. & Dye.....	Erlanger
Johnson, George Lenard.....	M. E.....	Henderson
Keistler, Kemmett Lee.....	B. Ad.....	Denver
Kelly, John Evander.....	Agr.....	Texas, Md.
Kilgore, Wilson Baxter.....	E. E.....	Norfolk, Va.
Kimball, Robert Eugene.....	Arch. Eng.....	Enfield
King, Charles Herbert.....	Agr.....	R. 5, Statesville
King, Frank.....	Ind. Mgt.....	Statesville
Kinloch, James Caldwell, Jr.....	Tex. Mfg.....	Tryon
Kinney, Albert Beecher.....	E. E.....	High Rock
Koontz, Karl Kenton.....	Arch. Eng.....	Raleigh
LaBruce, Legere Richardson.....	B. Ad.....	Georgetown, S. C.
Lackey, Garland Radford.....	Agr.....	R. 2, Hiddenite
Lawton, Joseph Raymond.....	Chem. Eng.....	Urbanna, Va.
Lee, Floyd Edwin.....	Chem. Eng.....	Selma
Lewis, Richard Rutledge.....	E. E.....	Wyndale, Va.
Little, Rhyode Linton.....	Ind. Mgt.....	Statesville
Loman, Cleve Edgar.....	Ind. Arts.....	High Point
Long, Nathan Alexander.....	Tex. Mfg.....	Burlington
Loughlin, Kenneth Clark.....	Tex. Chem. & Dye.....	Wilmington
Love, Frederick Altstarlter.....	Ind. Mgt.....	Raleigh
McCarn, Everett Lovelace.....	E. E.....	Spencer
McCown, George Myers, Jr.....	B. Ad.....	Florence, S. C.
McKinnon, John Henderson.....	B. Ad.....	Red Springs
McLeod, John Alton.....	B. Ad.....	R. 1, Jackson Springs
Marley, Alfred Roy.....	Tex. Mfg.....	Gastonia
Mason, Clyde Philip.....	C. E.....	R. 2, Swanquarter
Mason, John Thomas.....	E. E.....	Greenville
Mast, Phil H.....	Agr.....	Valle Crucis
Mathews, Newton Peterson.....	M. E.....	Goldsboro
Maxwell, William Thomas.....	Chem. Eng.....	Raleigh
Mayfield, James Horace.....	Cer. Eng.....	R. 1, Norlina
Metts, William Franklin.....	M. E.....	Greenville, S. C.
Miller, George Kimball.....	Min. Eng.....	Old Fort
Miller, Otis Lemuel.....	Chem. Eng.....	Rock Hill, S. C.
Miller, Wade Dobbin.....	B. Ad.....	Todd
Mintz, Rudolph Ivey.....	C. E.....	R. 1, Shallotte
Mitchell, Dalton Carmell.....	E. E.....	R. 2, Colerain
Mitchem, Ernest Paul.....	C. E.....	Lowell
Mitchiner, John Tyson.....	B. Ad.....	R. 2, Franklinton
Moore, Dick Everette.....	B. Ad.....	Hamlet
Moore, Joseph Ernest.....	Voc. Educ. (H. S. T.).....	Lenoir
Moore, Lawrence White.....	Agr.....	R. 1, Portsmouth, Va.
Morrison, Robert Henry.....	Ind Mgt.....	Mooreville
Moseley, William Edward.....	E. E.....	Kinston
Moseley, Wiley Thomas, Jr.....	B. Ad.....	Kinston

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Nesbitt, Earl Johnson.....	M. E. ....	Old Fort
Nixon, William .....	M. E. ....	Sunbury
Norman, James Wood, Jr.....	Chem. Eng. ....	Plymouth
Norman, Macon Gordon.....	Arch. Eng. ....	Plymouth
Outen, William Austin.....	Tex. Mfg. ....	R. 2, Mount Holly
Owens, Gerald Lanier.....	C. E. ....	Edenton
Panton, Harry Walton.....	E. E. ....	Milwaukee
Pardue, William Atticus.....	Tex. Chem. & Dye. ....	Trenton, S. C.
Parker, Augustus .....	Voc. Ed (Agr).....	R. 5, Marshville
Parks, Victor Worth.....	B. Ad. ....	Pisgah
Parrish, William Collier.....	C. E. ....	R. 3, Rougemont
Pearson, Walter Gilbert .....	M. E. ....	Elizabeth City
Peele, Thomas Christopher.....	Voc. Ed. (Agr.) .....	Rich Square
Pemberton, Henry Marshall, Jr.....	E. E. ....	Fayetteville
Penny, Carl Barbour.....	M. E. ....	R. 1, Raleigh
Perry, Clifford Burgess.....	E. E. ....	Elizabeth City
Perry, John, 3rd .....	E. E. ....	R. 3, Hendersonville
Pittman, Levi Mewborn.....	E. E. ....	LeGrange
Pollock, John Emmet.....	Voc. Ed. (H. S. T.).....	R. 1, Warsaw
Pollock, Stanley Zack.....	Voc Ed. (Agr.) .....	R 1, Warsaw
Pollock, William Manley.....	M. E. ....	R. 1, Warsaw
Poole, Paul Jerman.....	B. Ad. ....	Raleigh
Purcell, Samuel Mitchell, Jr.....	Tex. Mfg. ....	Salisbury
Ramos, Francisco .....	Tex. Mfg. ....	Saltillo, Mexico
Ratchford, Robert Henry.....	Tex. Mfg. ....	Concord
Redfearn, Alec .....	Chem. ....	New Bedford, Mass.
Rhyné, Joseph Esleie .....	Ag. Ad. ....	Dallas
Rich, Orus Neill.....	E. E. ....	Goldsboro
Roberts, William Fletcher.....	E. E. ....	Mt. Gilead
Russell, Thaddeus Terrell.....	B. Ad. ....	Granite Falls
St. Amand, Alex, Jr.....	C. E. ....	Summerville, S. C.
Sawyer, Walter Vernon.....	B. Ad. ....	R. 1, Johnston, S. C.
Seal, Charles Vaughan.....	B. Ad. ....	Franklin, Va.
Selby, Robert Leroy.....	E. E. ....	Durham
Seligson, Stanley Lawrence.....	B. Ad. ....	Raleigh
Shapard, Robert Payne, Jr.....	Tex. Mfg. ....	Griffin, Ga.
Shaw, Henry Elias.....	C. E. ....	R. 2, Ivanhoe
Shaw, John Davis.....	E. E. ....	Winton
Shoffner, Robert Worth.....	Ag. ....	R. 1, Julian
Shuford, Charles Franklin.....	Voc. Educ. (H. S. T.)....	Fayetteville
Shugart, Allen Edward.....	Voc. Ed. (Agr.) .....	R 3, Yadkinville
Singletery, Howard Monroe.....	Ag. ....	Bladenboro
Sitison, Clyde Thomas.....	Ind. Mgt. ....	Edenton
Smith, Alton Osborne.....	Voc. Ed. (Agr.) R. 2,	Jackson Springs
Smith, Glenn Roosevelt.....	Ag. Ad. ....	R. 1, Stanfield
Smith, Walter Harold.....	Tex. Mfg. ....	Thomasville
Smith, Walter Tilford.....	C. E. ....	Norfolk, Va.
Speir, Edwin Gibson.....	Tex. Mfg. ....	Charlotte
Stafford, Herbert Jackson.....	B. Ad. ....	R. 4, Elizabeth City
Stamey, Robert B.....	Cer. Eng. ....	Newton

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Staunton, Joseph Graham.....	Chem. Eng.	Kittrell
Stephenson, James Thomas.....	B. Ad.	Raleigh
Stokes, Henry.....	Tex. Mfg.	Tuscaloosa, Ala.
Story, Edward Parker.....	Agr.	R. 1, Eure
Strickland, Andrew Calvin, Jr.....	M. E.	Richmond, Va.
Swindell, Robert Temple.....	B. Ad.	Belhaven
Tanfield, Augustus Latham.....	E. E.	R. 2, Washington
Tate, Charles Bernard.....	C. E.	Old Fort
Tate, Edgar Anderson.....	Ind. Mgt.	Greensboro
Taylor, Charles Gordon.....	Ind. Mgt.	Valle Crucis
Taylor, Charles Lewis.....	Arch. Eng.	Rosemary
Taylor, James Henry.....	B. Ad.	Valle Crucis
Taylor, John Alexander.....	E. E.	R. 3, Candler
Taylor, Virgil Lynwood.....	C. E.	R. 1, Hookerton
Thomas, Erle Whitehead.....	Tex. Mfg.	R. 2, Wilmington
Thomas, Parke Edgar.....	M. E.	Grove City, Pa.
Thompson, John Russell.....	B. Ad.	Charlotte
Thompson, Layton Stephen.....	Tex. Mfg.	R. 1, Fairmont
Trogon, Robert Balfour.....	B. Ad.	Spartanburg, S. C.
Tucker, Alfred Edward, Jr.....	Agr.	Danville, Va.
Tull, Edward Rountree, Jr.....	E. E.	Kinston
Vaughan, Fred Pierce.....	B. Ad.	Rosemary
Vernon, Thomas Martin.....	B. Ad.	Stoneville
Vestal, Ellis Vance.....	Agr.	R. 1, Ore Hill
Walton, Benjamin Franklin, Jr.....	M. E.	R. 1, Raleigh
Waters, Frank Hughes.....	M. E.	New Bern
Whittenton, James Marshall.....	E. E.	Benson
Williams, Arthur Carouth.....	Agr.	R. 2, Bentonville
Williams, Benjamin Farrell.....	Con. Eng.	Richmond, Va.
Williams, Dal Haywood.....	B. Ad.	R. 5, Kinston
Williams, Joseph.....	Agr.	R. 1, Beulaville
Williams, James Lewis.....	Arch. Eng.	Acme
Wilson, Robert Amos.....	Voc. Ed. (H. S. T.)	R. 1, Tryon
Winchester, Jack Calvin.....	E. E.	R. 2, Summerfield
Winkler, Paul Frank.....	Chem. Eng.	R. 1, Boone
Wood, Horace J.....	B. Ad.	R. 1, Graham
Woodlief, Washington Duke.....	M. E.	R. 1, Kittrell
Worth, Edgar Wilson, Jr.....	M. E.	R. 2, Raleigh
Wortham, Richard Lee.....	M. E.	Wilmington

#### SOPHOMORE CLASS

Acton, Herbert Rufus, Jr.....	E. E.	Raleigh
Adams, Braxton Colwell.....	B. Ad.	LaGrange
Adams, Joseph George.....	C. E.	Youngstown, Ohio
Adams, James Miller, Jr.....	M. E.	Raleigh
Aderholt, Kenneth Adolphus.....	Cer. Eng.	Sanford
Albright, George Jordan, Jr.....	C. E.	Spencer
Alexander, Moultrie Moore.....	E. E.	Concord
Alexander, Robert Flow.....	Arch. Eng.	R. 14, Derita
Allen, Corbett Ulysses.....	Chem. Eng.	Murphy

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Allen, James Maxwell.....	E. E. ....	Louisburg
Allen, Stanley Bradshaw.....	B. Ad. ....	Portsmouth, Va.
Armstrong, James Sutton.....	C. E. ....	Spencer
Arrowsmith, John Francis.....	B. Ad. ....	Kingstree, S. C.
Ashe, Hugh Earl.....	E. E. ....	Wilson
Askew, Harold Brennecke.....	Tex. Mfg. ....	Union, S. C.
Baggett, Allie Parker.....	B. Ad. ....	R. 3, Dunn
Baggett, Delmas Eli.....	B. Ad. ....	Dunn
Bailey, Everett Cameron.....	Ind Mgt. ....	Waycross, Ga.
Bailey, Wallace Kincaid.....	Agr. ....	Woodleaf
Banks, Lester Vernon.....	E. E. ....	R. 1, Richland
Barbee, Linwood.....	Ag. Ad. ....	R. 1, Spring Hope
Barnes, Murphy Livingston.....	Voc. Ed. (Agr.) ....	R. 1, Linwood
Bass, Edison Plato.....	Voc. Ed. (Agr.) ....	R. 1, Goldsboro
Beaver, David Eugene.....	B. Ad. ....	Salisbury
Bell, Banks H.....	C. E. ....	Raleigh
Belvin, Charles H., Jr.....	E. E. ....	Raleigh
Benfield, Robert Carl.....	C. E. ....	Concord
Benson, James Willis.....	B. Ad. ....	Nashville
Bethea, James Edwin.....	C. E. ....	Raleigh
Bevill, William Irvin.....	E. E. ....	Oxford
Blackwood, John Odell.....	Voc. Ed. (Agr.) ....	R. 4, Chapel Hill
Bowden, Miss Elizabeth Jane.....	Gen. Sci. ....	Raleigh
Bowers, Frederick William.....	B. Ad. ....	Lexington
Boyd, John Backstrom.....	Tex. Mfg. ....	Mooreville
Bradley, William Tatum.....	E. E. ....	Hamlet
Brady, Bryant Jennings.....	Agr. ....	Star. Rt. Carthage
Branch, Joseph Ormond.....	E. E. ....	Kittrell
Briggs, Robert Hartwell, Jr.....	E. E. ....	Silver, S. C.
Bright, Robert Hal.....	Voc. Ed. (Agr.) ....	R. 2, Clarkton
Brittain, Montreville Grady.....	Agr. ....	R. 1, Horse Shoe
Broadwell, John Aaron.....	C. E. ....	R. 2, Selma
Brock, John Moses.....	B. Ad. ....	Farmington
Brown, Edmond Joseph.....	Voc. Ed. (H. S. T.)....	R. 2, Crumpler
Buchanan, Edgar Willrad.....	B. Ad. ....	Spruce Pine
Bullard, Amos Gentry.....	Voc. Ed. (Agr.)....	Acme
Bumpass, Roy Pleasants.....	B. Ad. ....	Greensboro
Burney, Lessie Byron.....	Arch. Eng. ....	Lumberton
Burnham, Philip French.....	Chem. Eng. ....	Charlotte
Campbell, Wesley Hugh.....	E. E. ....	Raleigh
Cannon, Claude.....	B. Ad. ....	Rosemary
Cannon, Harold McMillan.....	B. Ad. ....	Spartanburg, S. C.
Carr, Thomas Leon.....	Voc. Ed. (Agr.) ....	R. 6, Clinton
Cathey, Archie Eugene.....	B. Ad. ....	Mooreville
Chambers, James Waitstill.....	M. E. ....	Charlotte
Cherry, John Thadecus.....	E. E. ....	Katesville
Chestnutt, William Porter.....	Tex. Mfg. ....	Englewood, Tenn.
Choplin, John Paul.....	Poul. ....	Winston-Salem
Clark, David Setzer.....	Voc. Ed. (Agr.) ....	Eufala
Clarke, Frank.....	C. E. ....	Mooreville

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Clayton, John Andrew.....	Agr. ....	R. 2, Woodsdale
Collier, Robert Glenn.....	E. E. ....	R. 2, Clarkton
Coltrane, James Bruce.....	B. Ad. ....	Trinity
Colwell, Robert Franklin .....	Tex. Mfg. ....	Wilmington
Conant, Paul Vernon.....	C. E. ....	Hasbrouck Hts. N. J.
Cooke, Arlis Lee.....	Arch. Eng. ....	R. 7, Winston- Salem
Cooper, Edward Monroe, Jr.....	M. E. ....	R. 3, Kinston
Cooper, Julian Lawrence.....	B. Ad. ....	Nashville
Cowhig, Paul Kingston.....	C. E. ....	Charlotte
Cox, Walter Ross.....	C. E. ....	Greensboro
Cranmer, James Pearce.....	B. Ad. ....	Southport
Craver, Harlan Craig.....	C. E. ....	Concord
Crawley, Percy Cofield.....	B. Ad. ....	R. 2, Littleton
Crenshaw, Kirby Ezelle.....	C. E. ....	Monroe
Crocker, Bernard, Jr.....	C. E. ....	Raleigh
Crotts, William Oscar, Jr.....	B. Ad. ....	Winston-Salem
Crowson, Fred Bayard, Jr.....	E. E. ....	Goldsboro
Crump, Claud Wiseman.....	M. E. ....	R. 4, Mocksville
Currie, Neill D.....	B. Ad. ....	No. 2, Raeford
Cutts, Charles Clinton.....	E. E. ....	Florence, S. C.
Davis, Homer Vance.....	B. Ad. ....	Leicester
Davis, Robert Bruce.....	Agr. ....	R. 4, Kinston
Day, Boston Massachusetts.....	Tex. Mfg. ....	R. 2, Ronda
Dedmon, George Bunyan.....	Agr. ....	R. 8, Shelby
Dellinger, Norris Willard.....	C. E. ....	Linville Falls
Dellinger, Paul Grier.....	Chem. Eng. ....	Charlotte
Dick, James Theophilus, Jr.....	Chem. ....	Mebane
Dixon, Odell Andrew.....	E. E. ....	R. 5, Greensboro
Douthit, Judd Henry.....	M. E. ....	Palmerville
Drye, Roy Edgar.....	Voc. Ed. (Agr.) .....	R. 1, Oakboro
Duncan, James Clarence.....	C. E. ....	Greenwood, S. C.
Dunham, R. Sheldon.....	Voc. Ed. (Agr.) .....	Bladenboro
Eaddy, Joseph Ansel.....	B. Ad. ....	Lake City, S. C.
Eagle, Paul Franklin.....	E. E. ....	Charlotte
Eagles, Lorenzo Don.....	Voc. Ed. (Agr.) .....	R. 1, Macclesfield
Edwards, James Clair.....	B. Ad. ....	R. 2, Siler City
Elam, Carlton Nicholas.....	Agr. ....	Baskerville, Va.
Ellington, Thomas Settle, Jr.....	E. E. ....	Pineville
Ellis, Joe, Jr.....	Voc. Ed. (Agr.) .....	R. 1, Ramseur
Eubanks, Hoyle.....	Ind. Mgt. ....	R. 8, Monroe
Exum, Robert.....	B. Ad. ....	Snow Hill
Fennell, Edwar Marshall.....	Cer. Eng. ....	Hickory
Feree, Tyson Thaddeus.....	Arch. Eng. ....	Asheboro
Fesperman, Henry Dewey.....	E. E. ....	Albemarle
Finch, Glenn Odell.....	E. E. ....	Lexington
Fletcher, Robert James.....	B. Ad. ....	Hartsville, S. C.
Floyd, Edwin Verne.....	B. Ad. ....	Randleman
Floyd, John David.....	Voc. Ed. (H. S. T.).....	Salisbury
Forbes, Fred James, Jr.....	B. Ad. ....	Greenville
Forbes, Ray Corbet.....	E. E. ....	R. 2, Ahoskie

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Ford, C. Harold.....	B. Ad.	Asheville
Ford, John Edward.....	B. Ad.	Greensboro
Fornes, Gaston Graham.....	M. E.	Arapahoe
Forney, Charles Daniel, Jr.....	Tex. Che. & Dye.	Lawndale
Forrest, Mortimer Elliott, Jr.....	M. E.	Raleigh
Freeman, Archie Bertrum.....	C. E.	R. 1, Colerain
Freeze, Carl Columbus.....	Voc. Ed. (Agr.)	Mooresville
Frisbie, Edward Tate.....	Voc. Ed. (Agr.)	R. 1, Marion
Froneberger, Lawrence Laban, Jr.....	Arch. Eng.	Asheville
Fryer, Matthew Alexander.....	M. E.	Whiteville
Garibaldi, William Thomas.....	Arch. Eng.	Charlotte
Gettys, William M. ....	Voc. Ed. (Agr.)	R. 1, Hollis
Gilkey, Carlton Edward Winfield.....	B. Ad.	Marion
Gooding, Earl Lemwood.....	Agr.	Oriental
Goodman, Christopher Glade.....	Agr.	R. 1, Oakboro
Goodwin, Henry Wescott.....	C. E.	Morehead City
Gray, John Bowie, Jr.....	B. Ad.	Wilson
Green, Charles Clarence.....	B. Ad.	Lexington
Greene, Albert Cicero.....	M. E.	R. 3, Raleigh
Griffin, Greeley Loran.....	Chem. Eng.	R. 1, Biltmore
Griffin, James Lanier, Jr.....	E. E.	Greensboro
Grimes, Robert Allison, Jr.....	Chem.	Hickory
Hammond, Walter Whitfield.....	E. E.	Asheboro
Harden, John William.....	Tex. Mfg.	Graham
Hardison, James Hubert.....	Voc. Ed. (Agr.)	R. 1, Jamesville
Harkey, Charles Nathan.....	B. Ad.	Charlotte
Harkey, Robert Augustus.....	B. Ad.	Charlotte
Harrill, Robert Howard.....	B. Ad.	Lattimore
Harris, Gilmer Anderson.....	Voc. Ed. (Agr.)	Elmwood
Harris, Joseph Attmore.....	Ag. Ad.	R. 1, Oriental
Harris, John Gordon.....	E. E.	Norlina
Harwood, Edgar Hoskins.....	Chem. Eng.	Winston-Salem
Haskett, Norman Church.....	Agr.	Hertford
Hassen, Salame Hart.....	Arch. Eng.	Asheville
Hasty, Houghston Stephen.....	Tex. Mfg.	Charlotte
Hatcher, John Howlette.....	Ind. Mgt.	Hickory
Hauptfleisch, Daniel Benjamin.....	Agr. . . . .	Dewetsdorp, O. F. S. Africa.
Haws, Lawrence Earl.....	C. E.	R. 1, Biltmore
Henderson, Otis Alonzo.....	B. Ad.	R. 1, Landrum, S. C.
Henson, Garnett Nelson, Jr.....	B. Ad.	Raleigh
Hill, Hoyle Durward.....	C. E.	Charlotte
Hines, Leslie Cobb.....	Voc. Agr.	R. 1, Goldsboro
Hobbs, Fermor Worthington, Jr.....	Ind. Mgt.	Edenton
Hobbs, William Wade.....	B. Ad.	Greensboro
Hodges, Frank Josiah.....	Chem. Eng.	Lexington, Va.
Hodges, James Weston.....	Chem. Eng.	Greenville
Hodges, Thomas Lawrence.....	B. Ad.	Asheville
Holjes, Meldon Aitken.....	C. E.	Winston-Salem
Hollingsworth, James Theodore.....	Ind. Mgt.	Biltmore
Holman, Francis Kennedy.....	Ind. Mgt.	Sumter, S. C.

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Holoman, Dallas, Jr.	B. Ad.	Raleigh
Honeycutt, Joe Young	B. Ad.	Smithfield
Horney, Henry Wooster	E. E.	R. 2, High Point
Houtz, Howard Kennedy	Ind. Mgt.	Elizabeth City
Hovis, Lee Michal	B. Ad.	High Shoals
Hubbard, Sam Archibald	E. E.	Asheville
Hughes, Thomas McIver	C. E.	Lancaster, S. C.
Humble, John Theodore	B. Ad.	Asheboro
Ipock, Leslie Nathaniel	Ag. Ad.	R. 2, New Bern
Isom, William Floyd	Chem. Eng.	Charlotte
Jackson, Andrew Roy	B. Ad.	Overhills
Jackson, Charles DeWitt	Voc. Ed. (Agr.)	R. 2, High Point
Jackson, Edgar Taylor	C. E.	Charlotte
Jarman, John Frank, Jr.	Arch. Eng.	Wilmington
Jeffrey, Robert Norris	Chem. Eng.	Raleigh
Jenkins, Herbert Moore, Jr.	C. E.	Washington
Johnson, Francis M.	C. E.	West Asheville
Johnson, M. W.	B. Ad.	Marshall, Minn.
Jones, Daniel Everington	E. E.	R. 3, Laurinburg
Jones, Harry Clay, Jr.	Chem. Eng.	R. 1, Fletcher
Jones, Melvin Hayes	B. Ad.	Granite Falls
Jourdan, Charles Herbert	M. E.	Durham
Jurney, William Howard	C. E.	Harmony
Kelly, William Robinson	Ind. Mgt.	Grove City, Pa.
Kiger, Thamar Elmo	E. E.	Mt. Airy
King, William Bonniwell	E. E.	Windsor
Kirk, Joseph Graham	Tex. Mfg.	Mebane
Kluttz, Worth Miller	E. E.	Salisbury
Koonce, Wilbur Euclid	Chem. Eng.	Chadbourn
Lancaster, Joseph Guilford	E. E.	Rocky Mt.
Lancaster, Raleigh Alton	E. E.	R. 2, Vanceboro
Latimer, Fred Christopher	Voc. Ed. (H. S. T.)	Independence, Mo.
Lawrence, Willard Emery	C. E.	Smithfield
Lee, Benjamin Franklin, Jr.	B. Ad.	Lexington
Leggett, Ilow Waddell	M. E.	Greenville
Lepo, John Mathias	B. Ad.	Youngstown, Ohio
Liles, Duncan McIver	Tex. Mfg.	Wilson Mills
Little, Richard Ross	Min. Eng.	Wadesboro
Long, Charles Sheldon	Voc. Ed. (Agr.)	R. 2, Blounts Creek
Love, Henry Green	B. Ad.	Burlington
Luck, Howard Mynter	B. Ad.	Raiford
Lyerly, Herbert Alexander	E. E.	Spencer
McCall, Clifton Harry	Ind. Mgt.	Marion
McCollum, Robert Truman	Voc. Ed. (H. S. T.)	R. 1, Wentworth
McDuffie, Edwin Lee	Arch. Eng.	Raeford
McFadyen, Duncan Graham	B. Ad.	Raeford
McGregor, James Tillman, Jr.	Tex. Mfg.	Stonewall, Miss.
McKenzie, Melvin Reade	B. Ad.	Candor
McKnight, Eugene Audrey	Tex. Mfg.	McComb, Miss.
McLain, Isaac Albert	Voc. Ed. (Agr.)	R. 5, Statesville

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
McLaughlin, Lewis Wilson.....	Agr. Spec. ....	R. 2, Mt. Ulla
McMurray, Otis Miller.....	E. E. ....	Abbeville, S. C.
McNair, John Colwell.....	Chem. Eng. ....	Wilmington
McRackan, William Robert, Jr.....	E. E. ....	Whiteville
Maddry, Lynn Gray.....	E. E. ....	Raleigh
Marshall, Claud Edison.....	E. E. ....	Mt. Airy
Martin, Glenn Kendall.....	C. E. ....	R. 1, Wadesboro
Matthes, Leon Guy.....	Voc. Ed. (Agr.) .....	Ingold
Matthews, Claude Edward, Jr.....	B. Ad. ....	Raleigh
May, James Norwood.....	B. Ad. ....	LaGrange
Meacham, Earl Hollaman.....	Voc. Ed. (Agr.) ....	R. 6, Statesville
Meece, Frank Hanford.....	E. E. ....	Biltmore
Meekins, Edmund Lindsay.....	Ind. Mgt. ....	Washington
Miller, Joseph Paul.....	B. Ad. ....	Clifton
Mitchell, Charles Scott, Jr.....	C. E. ....	Spring Hope
Mitchiner, Sam Ruffin.....	Agr. ....	R. 2, Franklinton
Mizelle, Cecil Jackson, Jr.....	B. Ad. ....	Woodard
Moore, E. Bryan.....	C. E. ....	Marshville
Moore, William Fleet.....	Arch. Eng. ....	R. 2, Clinton
Morgan, Henry Williams.....	B. Ad. ....	Tryon
Morgan, Melzer Adron.....	Voc. Ed. (Agr.) ....	R. 1, Cary
Morgan, Paul David.....	B. Ad. ....	R. 1, Spring Hope
Moss, Thomas Benton.....	Agr. ....	R. 2, Enfield
Mullaney, Owen Joseph, Jr.....	Tex. Chem. & Dye....	Hyannis, Mass.
Murphy, Ashley Monroe.....	B. Ad. ....	R. 1, Atkinson
Muse, Archie Braxton.....	B. Ad. ....	Carthage
Newton, Francis Enoch.....	Arch. Eng. ....	Wilmington
Oldham, Charles Manly.....	B. Ad. ....	Goldston
Ottinger, William Franklin.....	C. E. ....	Asheville
Owen, Gordon Norman.....	Gen. Sci. ....	R. 2, Parkersburg
Papenfuss, George Frederik.....	Agr. ....	Libertas, S. Africa
Parham, George Houghtaling.....	B. Ad. ....	Oxford
Park, Roy Hampton.....	B. Ad. ....	Dobson
Parker, Hubert Haywood.....	B. Ad. ....	Raleigh
Parker, Linwood Wynne.....	E. E. ....	R. 2, Ahoskie
Parker, Thomas Henry.....	C. E. ....	Norwood
Patterson, Edwin Milas, Jr.....	B. Ad. ....	Spencer
Patton, Joseph Marion, Jr.....	Chem. ....	Swannanoa
Pearce, Henry Eugene, Jr.....	B. Ad. ....	Franklinton
Perry, John Edwin.....	Agr. ....	Oriental
Perry, Thomas Onis.....	Agr. ....	R. 1, Creedmoor
Peterson, Stephen Frank.....	Voc. Ed. (Agr.).....	R. 1, Kerr
Phillips, Harold Clayton.....	E. E. ....	R. 2, Cameron
Pickett, George Eugene.....	E. E. ....	Durham
Pigott, Rupert Lee.....	C. E. ....	Gloucester
Pinkston, Hugh Durant, Jr.....	C. E. ....	Winston-Salem
Plonk, Fred Wendell.....	B. Ad. ....	Kings. Mt.
Plonk, Zeb Oates.....	B. Ad. ....	Kings. Mt.
Powell, Luke Andrew.....	Voc. Ed. (Agr.) ....	R. 2, Clinton
Powers, Wesley Lawrence.....	Ag. Ad. ....	Northwest, Va.



<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Price, Charlie Clyde.....	M. E.	Reidsville
Price, Earl Reid.....	E. E.	Mayodan
Proctor, Ernest Hugh.....	C. E.	R. 6, Rocky Mt.
Quantz, Albert Theodore, Jr.....	Tex. Mfg.	Rock Hill, S. C.
Rabon, Clarence Hubert.....	Voc. Ed. (Agr)	R. 2, Chadbourn
Rau, Carl Milo.....	Voc. Ed. (H. S. T.)	R. 1, Castle Hayne
Regan, James Miller.....	Arch Eng.	Hickory
Rhodes, James Franklin.....	E. E.	Comfort
Rich, Raymond Ray.....	Voc Ed. (Agr.)	R. 1, Tomahawk
Richardson, Van Waldron.....	Ag. Ad.	R. 2, New Bern
Rion, Daniel Stephenson.....	Tex. Mfg.	Tryon
Roberts, Elbert Haden.....	B. Ad.	Asheville
Rockett, William Coltrane.....	B. Ad.	R. 1, Randleman
Rodriquez, Renato.....	Chem. Eng.	Brooklyn, N. Y.
Rogers, Charles Urbin.....	B. Ad.	R 5, Williamston
Rogers, Henry Wells.....	Tex. Mfg.	Albemarle
Rudisill, Lawrence Edwin.....	Tex. Eng.	Cherryville
Ruggles, Albert Couch.....	Science	Southern Pines
Sale Fred Albert.....	E. E.	Raleigh
Sargent, Charles Scales.....	B. Ad.	Ronda
Savage, George Kittrell.....	Voc. Ed. (Agr.)	R. 1, Corapeake
Schafer, Isidor Albert.....	B. Ad.	Mt. Airy
Shachtman, Hyman.....	E. E.	Winston-Salem
Shore, Stewart Binkley.....	B Ad.	Boonville
Shore, Wesley Reece.....	Tex. Mfg.	Rocky Mt.
Silver, George Edgar.....	E. E.	Bandana
Simerson, Adam Howard.....	Agr. Spec.	Linwood
Simkins, Edgar Alonzo, Jr.....	E. E.	Goldsboro
Sims, Addison Binford.....	M. E.	Raleigh
Singletary, Frederic Bunyan.....	Tex. Mfg.	Greensboro
Singletary, Herbert Evander.....	Voc. Ed. (Agr.)	R. 1, Tarheel
Singletary, Robert Edgar.....	B. Ad.	Clarkton
Small, Bartlett Ray.....	M. E.	Washington
Smathers, Jasper Boyd.....	Gen. Sci.	R. 2, Canton
Smith, Allen Henry.....	B. Ad.	Gastonia
Smith, Elwood McCarley.....	E. E.	Brown Summit
Smith, Julian Craft.....	B. Ad.	Bethel
Smith, Mayton Douglas.....	B. Ad.	R. 1, Varina
Smith, Thomas Glenn.....	M. E.	New Bern
Spence, Wellford Dandridge.....	E. E.	Hamlet
Spencer, Miss Ada Curtis Spencer.....	B. Ad.	Raleigh
Spoon, Whitney Jennings.....	B. Ad.	Charlotte
Stanland, Eddie Jackson.....	B. Ad.	Southport
Stevenson, Marvin.....	Ag. Ad.	R. 2, New Bern
Stewart, Thomas Percival, Jr.....	E. E.	R. 4, Henderson
Stimson, De Parx.....	M. E.	Winston-Salem
Stinson, Walter Lee.....	Chem. Eng.	Goldston
Stone, Luther Monroe.....	Agr.	R. 1, Nashville
Stovall, James Polk.....	Agr.	R. 1, Virgilina, Va.
Straughan, Frank Lealond.....	Ind. Mgt.	R. 1, Siler City

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Stroupe, Odes Lawrence	B. Ad.	Crossnore
Stuart, Archie David	Agr.	R. 1, Hamer, S. C.
Sullivan, George Elias	Arch. Eng.	Raleigh
Summey, James Wirt	B. Ad.	Dallas
Sutton, Walton Ray	Voc. Ed. (Agr.)	R. 1, Goldsboro
Swain, Jack Harold	Agr.	R. 1, Mackeys
Swicegood, Glenn Moyer	Voc. Ed. (Agr.)	R. 1, Linwood
Swindell, William Hulburt	C. E.	Pantego
Tant, Everette Royer	B. Ad.	Raleigh
Taylor, Clarence Roscoe	C. E.	Winston-Salem
Tetterton, Milton Dale	E. E.	Plymouth
Townsend, Grady Wise	Ag. Ad.	R. 1, Lumberton
Truesdell, Ralph Ephraim, Jr.	E. E.	Charlotte
Tucker, Harvey Conklin	Cer. Eng.	Fair Bluff
Tucker, Roy Brooks	E. E.	Marshville
Tucker, Richard Calvin	Chem. Eng.	Raleigh
Turner, George Summy, Jr.	E. E.	Winston-Salem
Tyson, Sam Newell	M. E.	R. 2, Stantonsburg
Tysor, Eugene Weston	Arch. Eng.	Winston-Salem
Ulmer, Franklin Curtis	Tex. Mfg.	Washington
Upchurch, Lewis Marvin	B. Ad.	Raeform
Usry, John Smith	C. E.	Greensboro
Vann, Albert Lee	Voc. Ed. (Agr.)	Salemberg
Vaughan, Durward Eric	E. E.	R. 6, Durham
Veach, Everette Kermit	Voc. Ed. (Agr.)	R. 2, Thomasville
Venable, Boyd Cleveland	Ag. Ad.	Joynes
Vernon, Thomas Alfred	B. Ad.	Sharpsburg
Vickrey, Elbert Carleton	Arch. Eng.	R. 1, Greensboro
Vinson, Andrew Jackson, Jr.	B. Ad.	R. 1, Woodland
Wade, Louis Mann	B. Ad.	Raleigh
Warren, Robert S.	Science	Asheville
Watson, James Daniel, Jr.	Agr.	R. 2, Johnston, S. C.
Weaver, Arnold Lewis	B. Ad.	Lexington
Weaver, Harold	B. Ad.	Aberdeen
Welborne, Arvil Wesley	B. Ad.	Statesville
Weltmer, Wilton Wesley	E. E.	Asheville
West, Thomas Hoke	M. E.	R. 2, Seven Springs
Westbrook, James Arthur	M. E.	Portsmouth, Va.
Westray, Charles Lee	M. E.	R. 1, Spring Hope
White, James Woodard	B. Ad.	Edenton
White, Robert Clinton	B. Ad.	Windsor
White, Stokes	Tex. Mfg.	Concord
White, Wilbur M.	E. E.	Hertford
Whitesell, William Kenneth	Ind. Arts	Gibsonville
Whitley, Ernest Albert	B. Ad.	Albemarle
Williams, Jonathan Greenlee	C. E.	R. 1, Old Fort
Williams, William Vann Meter	Chem. Eng.	Badin
Williamson, Francis Monroe	M. E.	Raleigh
Williamson, Guthrie McQueen	Agr.	R. 2, Chadbourne
Williamson, Lester Henry	B. Ad.	Ellerbe

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Williamson, Williford Taft	C. E.	Raleigh
Williamson, William Vardell	Tex. Mfg.	Fayetteville
Willis, Hubert McAuley	Agr.	R. 1, Elizabethtown
Wimbish, Howard Simpson, Jr.	Ind. Mgt.	Greensboro
Windsor, Ruben Carter	Tex. Mfg.	Reidsville
Winstead, Landon Bruce	B. Ad.	Raleigh
Winstead, Lindsay Jamieson	B. Ad.	Richlands
Woodall, George Raymond	E. E.	Raleigh
Wooten, Robert Buchanan	Agr.	R. 1, Lewis Turnout, S. C.
Worth, Eugene Barnhardt	M. E.	R. 2, Raleigh
Wright, Sydney Melton	B. Ad.	Fentress, Va.
Wright, William	M. E.	R. 4, Hampton, Va.
Young, Henry J., Jr.	Tex. Mfg.	Raleigh
Yount, James Victor	Voc. Ed. (Agr.)	R. 1, Granite Falls
Zimmerman, Junius Ellard	Agr.	R. 4, Lexington

## FRESHMAN CLASS

Abee, Dallas Caroll	Arch. Eng.	R. 4, Hickory
Abernathy, George Wesley	M. E.	Glen Alpine
Albertson, Lawton Rodgers	Agr.	R. 1, Hallsville
Aldridge, Robert Patton	Arch. Eng.	Oriental
Allen, Edward Lawrence	B. Ad.	Raleigh
Allen, Josiah Fowler	Science	Raleigh
Allen, John Reynolds, Jr.	Voc. Educ. (Agr.)	Auburn
Allen, Luther Stanton	Ag. Ad.	Oriental
Allgood, Joel O'Dell	B. Ad.	Liberty, S. C.
Anderson, George Catto, Jr.	Arch. Eng.	Salisbury
Anderson, Louis Edgar, Jr.	Chem. Eng.	R. 8, Charlotte
Andrews, Joseph Currie	M. E.	Dunn
Angell, Lester Huey	Voc. Ed. (Agr.)	R. 4, East Bend
Apple, Amon Lee	E. E.	R. 1, Brown Summit
Arthur, Raymond	Chem. Eng.	Aurora
Ashe, John Grange, Jr.	Arch. Eng.	Raleigh
Ashe, John Reid	E. E.	Whittier
Ashley, Robert Bascom	Arch. Eng.	Black Mt.
Ashworth, Joseph Morgan	Agr.	Fairview
Atkinson, Henry Downing	Tex. Mfg.	Winston-Salem
Atkinson, Herbert Emerson	E. E.	Winston-Salem
Auman, Toffie Clyde	Voc. Ed. (Agr.)	West End
Averette, William Hunt, Jr.	B. Ad.	Oxford
Ball, Ned Barclay	Tex. Mfg.	Raleigh
Barber, Theodore Gilbert	M. E.	R. 2, Aulander
Barnes, Rudolph J.	C. E.	R. 1, Linwood
Barnes, Thomas Rudolph	Chem. Eng.	Como
Barnhill, Julian Sylvester	Chem. Eng.	Stella
Barwick, Joe Foy, Jr.	Ind. Mgt.	Ayden
Bass, Turner Cheshire	B. Ad.	R. 2, Scotland Neck
Beard, Ralph Lowery	Tex. Mfg.	Winston-Salem
Beaty, Joe Felix	B. Ad.	R. 10, Paw Creek
Beavers, Barnes	E. E.	No. Tazewell, Va.

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Beck, Henry Odell	Agr.	R. 2, Lexington
Bell, Harry Wallace	E. E.	Pittsboro
Bennett, John Carmack, Jr.	M. E.	Hazlehurst, Ga.
Bethea, Theodore Cobb	E. E.	Raleigh
Biggers, William Garrison	E. E.	Mars Hill
Biggerstaff, Coen	Voc. Ed. (Agr.)	R. 3, Newton
Bingham, Hal Johnson	M. E.	Farmer
Blackwell, Aubrey Richard	Agr.	R. 1, Ruffin
Blair, Mott Parks, Jr.	Voc. Ed. (Agr.)	Marshville
Boggs, Carl Andrews	Chem. Eng.	R. 1, Jacksonville
Booker, Grover Frederick	Voc. Ed. (H. S. T.)	Rocky Mt.
Boring, Hampton Wade	B. Ad.	Troy
Bost, Adolphus Daniel	M. E.	Morgantown
Boyette, John Vernon	E. E.	Peachland
Bradshaw, Palmer McNairy	C. E.	Lenoir
Brake, William Cecil	Voc. Ed. (H. S. T.)	R. 5, Rocky Mt.
Brake, William Howard	Voc. Ed. (Agr.)	R. 5, Rocky Mt.
Breedlove, John Leon	Agr.	R. 1, Franklinton
Brickhouse, Richard Everett	E. E.	Norfolk, Va.
Britt, Hilbreth Leon	E. E.	Orrum
Britt, Walter Harmen, Jr.	Voc. Ed. (Agr.)	Boykins, Va.
Broadway, Cary Lee	C. E.	R. 3, Linwood
Brown, Harry Griffin	Arch. Eng.	Concord
Brown, Henry Samuel	C. E.	Reidsville
Brown, Jesse Herman	E. E.	R. 1, Selma
Brown, Jonas William	Voc. Ed. (H. S. T.)	R. 2, Crumpler
Brown, Larkin Brevard	Tex. Mfg.	R. 15, Pineville
Brown, Thomas Alfred	E. E.	R. 2, Charlotte
Bryant, B. Allen	B. Ad.	Asheville
Bryant, William Jordan	M. E.	Raleigh
Buff, Bynum Abram	Ag. Ad.	Ruth
Buie, Daniel McPherson	B. Ad.	Red Springs
Bullard, Clarence Winthrop	B. Ad.	Chadbourne
Bullock, William Edwin	Agr.	R. 3, Stem
Bundy, Reuben Oscar	Tex. Mfg.	Jamestown
Burch, Lee Woodard	Min. Eng.	R. 4, Mt. Olive
Burdell, John Halliday	C. E.	Charlotte
Burke, Edward Mendenhall	B. Ad.	Gibsonville
Burton, Homer Thurman	Agr.	R. 1, Jacksonville
Butler, Robert Fulton	Voc. Ed. (Agr.)	R. 1, Salemburg
Byrd, Richard Edward	Agr.	R. 1, Erwin
Caldwell, Ralph Marshall, Jr.	C. E.	Aberdeen
Calhoun, Everette William	Voc. Ed. (Agr.)	R. 5, Greensboro
Callihan, William Beaufort	Voc. Ed. (Agr.)	R. 1, Whiteville
Campbell, Horace	Agr.	R. 4, Dillon, S. C.
Carawan, William Ruel	Chem. Eng.	R. 1, Swan Quarter
Carpenter, Gordon Bickle	Tex. Mfg.	Lowell
Carroll, Raymond Gaffney	Agr.	Shelby
Carter, Edgar Earl	Chem. Eng.	R. 1, Ingold
Carter, Edward Herbert, Jr.	Chem. Eng.	Raleigh

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Carter, Everette Johnston	E. E.	Winston-Salem
Carter, William Wright	E. E.	Elm City
Cartner, Glenn Herrick	Agr.	Mocksville
Cashwell, James Edwin	Voc. Ed. (Agr.)	Ingold
Cate, Walter Refford	Chem. Eng.	Mebane
Cates, Chester Howard	Agr.	Mebane
Caveness, Robert Lee	Arch. Eng.	Greensboro
Clark, Charles Leroy	Chem. Eng.	R. 7, Winston-Salem
Clark, Robert Curtis	B. Ad.	Jackson Springs
Clarke, Louis Buford	Ind. Mgt.	Charlotte
Clayton, George Thomas	Voc. Ed. (Agr.)	R. 2, Woodsdale
Clement, Walter Thomas, Jr.	Arch. Eng.	Enfield
Clifton, John Vaden	C. E.	R. 1, Raleigh
Cline, John Franklin	Voc. Ed. (Agr.)	R. 6, Statesville
Clodfelter, Dwight Kermit	M. E.	R. 1, Lexington
Cobb, Hilary Justin	E. E.	R. 1, Merry Hill
Cochran, Parke Clinton	M. E.	West End
Cogburn, Walter Watson	Chem. Eng.	Canton
Coley, Harvey Turner	B. Ad.	R. 3, Rocky Mt.
Colgin, Robert Hunter	Arch. Eng.	Norfolk, Va.
Collins, Wade Hampton	Arch. Eng.	Cameron
Colvard, Sherman Thomas	Voc. Ed. (Agr.)	Reddies River
Comer, Austin Fulcher, Jr.	B. Ad.	Greensboro
Cook, Freeman Waldo	Agr.	Georgeville, R. I.
Cooper, Earl Cranford	B. Ad.	R. 1, Fayetteville
Cooper, Joseph Edward	Tex. Mfg.	Birmingham, Ala.
Cooper, William Eliot	B. Ad.	Nashville
Couch, Everett Goodrich, Jr.	Cer. Eng.	Darlington, S. C.
Counter, Clarke Albert	M. E.	R. 1, Winter Haven, Fla.
Cox, John Alton	E. E.	Grifton
Cox, Lewis Tagg	Arch. Eng.	Asheboro
Crawford, John William	Agr.	R. 4, Statesville
Crawford, William Thomas	E. E.	Williamston
Creighton, George Clifton, Jr.	Arch. Eng.	Raleigh
Cutler, David Bell	C. E.	New Bern
Dameron, George Wayne	C. E.	R. 1, Bessemer City
Daniel, James Marshall	E. E.	Wilson
Davidson, John Springs	B. Ad.	R. 20, Huntersville
Davis, Edward Martin	E. E.	Winston-Salem
Davis, Fitzgerald Edwin	B. Ad.	Raleigh
Davis, John Jake	C. E.	Marshall
Dazey, John Richard	E. E.	Nocatee, Fla.
Dean, Walter Melvin	E. E.	R. 1, Neuse
Dendy, James Haskell	Tex. Mfg.	Union, S. C.
Dew, Thomas Eugene	Agr.	Delco
Deyton, Clarence Pinkney	B. Ad.	R. 1, Green Mt.
Di Meo, Saverio	E. E.	Phila, Pa.
Dixon, Jackson Kinsey, Jr.	B. Ad.	Trenton
Dixon, Roy Linwood	E. E.	Oriental
Dixon, William Randolph	Arch. Eng.	Rocky Mt.

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Dixon, Ernest Floyd	Arch. Eng.	Charlotte
Dodd, Jack Griffin	Tex. Mfg.	Wendell
Dosher, John Warren	C. E.	Southport
Duckett, Edgar James	C. E.	Waynesville
Durham, Raymon Monroe	Voc. Ed. (Agr.)	Cycle
Eason, George Gaston	C. E.	R. 2, Macclesfield
Eastep, Charles Herbert	E. E.	Todd
Eatmon, Charles Otto	Voc. Ed. (Agr.)	Raleigh
Eaves, John Kendall, Jr.	Hwy. Eng.	R. 1, Cabarrus
Edmondson, James Onward	E. E.	Rosemary
Edwards, Leslie Ashford	Ag. Ad.	R. 1, Bentonville
Edwards, Ozelle Vernon	Chem. Eng.	R. 6, Henderson
Elliott, Jim David	Tex. Mfg.	Dillon, S. C.
Elliott, Robert Baltzell	B. Ad.	Balto, Md.
Eury, Claude Alexander, Jr.	C. E.	Danville, Va.
Exum, James Gooden	B. Ad.	Snow Hill
Farrar, John Wesley	Voc. Ed. (H. S. T.)	R. 2, Stokesdale
Fenton, Thomas Hubert	M. E.	Chicago, Ill.
Ferguson, John Vann	B. Ad.	Siler City
Ferguson, Wade Hampton, Jr.	Voc. Ed. (Agr.)	R. 2, Pittsboro
Fields, Julian William	B. Ad.	LaGrange
Fields, Therman Mevlin	Voc. Ed. (Agr.)	R. 1, Boardman
Fitzgerald, Jean Lucien	M. E.	Asheville
Fleetwood, Wilson White	B. Ad.	Hertford
Fletcher, Fred	B. Ad.	Raleigh
Fletcher, Frank Utley	B. Ad.	Raleigh
Flowers, Bert	B. Ad.	Darlington, S. C.
Foister, Dewey Allen	Chem. Eng.	Asheville
Fortune, Crawford Pitt	M. E.	Old Fort
Foscue, James Earnest	Tex. Mfg.	Jamestown
Fowler, George Howard	Arch. Eng.	Statesville
Franklin, John Martin	Arch. Eng.	Elkin
Franklin, Lloyd Otto	C. E.	Altamont
Franklin, Theodore Earl	E. E.	Morgantown
Franks, Major Clifton	Gen. Sci.	R. 1, Garner
Freesland, Robert DeLeon	C. E.	Dillon, S. C.
Freeze, Jacob Frank, Jr.	B. Ad.	Sylva
Frink, Walton Grady	E. E.	Clarendon
Fuffa, Anthony Romulus	M. E.	Phila, Pa.
Fulford, James Everett	E. E.	Gloucester
Furtado, Anthony Silveira	E. E.	New Bedford, Mass.
Gammon, John Newton	Tex. Mfg.	Griffin, Ga.
Gardner, James Cuthrell	E. E.	Rocky Mt.
Gardner, Robin Brem	C. E.	Mt. Holly
Garner, Max Cortny	Voc. Ed. (Agr.)	R. 3, Raleigh
Garris, Howard Reed	Voc. Ed. (H. S. T.)	Conway
Garrison, James Parks	Tex. Mfg.	Belmont
Gaskins, James Alfred	E. E.	New Bern
Gaston, Albert Maury	Agr.	Belmont
Gatlin, Ray Carldon	Ind. Mgt.	Stonewall

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Gatlin, Robert Henry	C. E.	Raeeford
Gentry, John Julius	B. Ad.	Winston-Salem
Geoghegan, John Temple	Chem. Eng.	Danville, Va.
Ghormley, Lee Roy	Arch. Eng.	Robbinsville
Gibson, Gordon Graham	C. E.	Red Springs
Gibson, John Melvin	C. E.	R. 2, Laurinburg
Gill, Hubert Seaton, Jr.	Arch. Eng.	Raleigh
Godfrey, Richard Edward	E. E.	New Bern
Gooding, Steve Richard	B. Ad.	R. 1, Trenton
Gray, Ian Dunbar	Agr.	Johannesburg, S. Africa
Greenbaum, Milford Martin	Chem.	New York, N. Y.
Greene, Ernest Leland	Science	R. 3, Raleigh
Greene, Ralph Beamon	Voc. Ed. (Agr.)	R. 2, Ronda
Greene, Robert Lee	Science	R. 3, Raleigh
Greenlee, John Elmer	Agr.	R. 1, Old Fort
Griffin, Frank Byers	Arch. Eng.	Forest City
Grigg, Ralph Wendell	E. E.	Lincolnton
Grinmer, James Brickell	Agr.	R. 2, Halifax
Gryder, Howard Taft	Voc. Ed. (Agr.)	R. 1, Stony Point
Gurganus, Henry	C. E.	R. 4, Washington
Gurley, Joseph Byron	E. E.	Rosemary
Guy, Buford Mason	B. Ad.	Statesville
Gwin, James Crowson	C. E.	Salisbury
Haar, Lawrence Frederick	Tex. Mfg.	Wilmington
Hackett, William Marriner	C. E.	R. 1, Belhaven
Halsey, Zeno Alexander	Agr.	Piney Creek
Haltiwanger, James William, Jr.	Tex. Mfg.	Columbia, S. C.
Hamer, Brooks McCall	B. Ad.	Dillon, S. C.
Hampton, John Robert, Jr.	C. E.	Raeeford
Hampton, William Charles	B. Ad.	Asheville
Hamrick, Aaron Winfred	E. E.	R. 2, Shelby
Hanks, George Russell	M. E.	Elkin
Harbour, John Blake	Voc. Ed.	Dora, Ala.
Hardison, Audrey Burell	Arch. Eng.	Washington
Hargrove, Willis Festus	Tex. Mfg.	Greensboro
Harrell, Albert Noble	Agr.	R. 1, Gibsonville
Harrell, Mangum	B. Ad.	High Point
Harrill, Reid	Ind. Mgt.	Bostic
Harris, Edgar Randolph	C. E.	Danville, Va.
Hartman, Horace Howard	E. E.	Raleigh
Harton, Robert Kenneth	E. E.	Raleigh
Harvin, Thomas Kirven	C. E.	R. 3, Petersburg, Va.
Hassell, Herman L.	E. E.	Kinston
Hatcher, Essie Owen	E. E.	Princeton, W. Va.
Hathaway, Philip Joseph	Science	R. 1, Creswell
Hatsell, Carl Alfred	M. E.	Beaufort
Hayes, Hubert	Arch. Eng.	Lenoir
Hays, Howard Maxwell	C. E.	Asheville
Haynes, A. J.	Voc. Ed. (Agr.)	R. 2, Lincolnton
Hearing, Reginald Edward	Agr.	Fentress, Va.

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Helsabeck, Robert Ray.....	E. E. ....	King
Henderson, Frank Howe.....	Chem. Eng. ....	Norfolk, Va.
Henderson, Robert Taft.....	B. Ad. ....	Jackson Springs
Henry, John Wilbur.....	C. E. ....	Raleigh
Herbst, Frederick Clemens.....	B. Ad. ....	Henderson
Hickman, William Eldred.....	Agr. ....	Tabor
Hobbs, Guy Cornelius.....	E. E. ....	R. 2, Edenton
Hobby, Joe McCullers.....	Agr. ....	McCullers
Hoke, Kenneth Wesley.....	B. Ad. ....	Granite Falls
Holbrooks, Caldwell Augustus.....	Arch. Eng. ....	Albemarle
Holden, Herbert Lee, Jr.....	Arch. Eng. ....	Rocky Mt.
Holloway, William Hugh.....	B. Ad. ....	R. 6, Durham
Hollowell, Marvin Edgar.....	Ag. Ad. ....	R. 4, Goldsboro
Holoman, George Chreston.....	Chem. Eng. ....	Raleigh
Holt, Raymond.....	Science ....	Troy
Holt, Robert Flavius.....	B. Ad. ....	R. 3, Pink Hill
Holt, Thurman Meritt.....	M. E. ....	Gibsonville
Honeycutt, Orien Bryant.....	Science ....	R. 6, Oxford
Honeycutt, William Joseph.....	Tex. Mfg. ....	Franklinton
Hood, Ned Alexander.....	Agr. ....	R. 3, Newton
Houser, Howard Kelley.....	Tex. Mfg. ....	Cherryville
Houston, Alexander Sawyer.....	B. Ad. ....	Raleigh
Howell, David Asbury.....	E. E. ....	Waynesville
Huddleston, Miss Margaret Louise.....	Educ. (H. S. T.) .....	Raleigh
Hull, Josiah Evans.....	Ag. Ad. ....	Washington
Humble, Ralph Carpenter.....	M. E. ....	Asheboro
Humphrey, Prye Emerson.....	Agr. ....	Fort Bragg
Hunter, Fred Monroe.....	Tex. Chem. & Dye .....	Concord
Hunter, Robert Francis.....	M. E. ....	R. 14, Derita
Hunter, Thomas Jefferson, Jr.....	Tex. Mfg. ....	R. 8, Charlotte
Hunter, West Porter.....	E. E. ....	R. 7, Charlotte
Huntley, William Thomas, Jr.....	Science ....	Aberdeen
Hutchinson, Mideon Charles.....	E. E. ....	Wilmington
Ingle, Willie Walter.....	E. E. ....	Burlington
Inscoe, Joseph William.....	Tex. Mfg. ....	Castalia
Irby, Claudius Addison.....	E. E. ....	R. 3, Enfield
Isley, Erwin Eugene.....	Voc. Ed. (Agr.) .....	R. 7, Burlington
Israel, William Osborne.....	Voc. Ed. (Agr.) .....	R. 1, Candler
Ivey, Reef Challance.....	Ag. Ad. ....	R. 4, Lumberton
Jackson, Angus Allen.....	Ind. Mgt. ....	R. 2, Wake Forest
Jackson, Alvin Joyner.....	E. E. ....	R. 1, Cary
Jackson, Charles Walter.....	B. Ad. ....	Black Mountain
Jackson, Earl Cox.....	E. E. ....	Grifton
James, George Carlton.....	B. Ad. ....	Parmele
Jenkins, Cecil.....	B. Ad. ....	R. 1, Franklinton
Jinnette, Richard Sanders.....	B. Ad. ....	R. 1, Bentonville
Johnson, Allie Winslow.....	B. Ad. ....	Culberson
Johnson, David Woodson, Jr.....	B. Ad. ....	Winston-Salem
Johnson, James Martin, Jr.....	C. E. ....	Raleigh
Johnson, William Howard.....	Science ....	Madison



<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Johnston, William Henry, Jr.	C. E.	Raleigh
Jones, Charlie Sidney	B. Ad.	R. 1, Knightdale
Jones, Philip Carlton	Agr.	R. 4, Raleigh
Jones, Thomas Johnston, Jr.	C. E.	Durham
Jordan, Everitt Lindsay	M. E.	Winston-Salem
Joyner, Francis Leonidas	Arch. Eng.	Henderson
Joyner, Robert Lee	C. E.	Woodland
Kaston, Benjamin Jules	Biol.	New York, N. Y.
Kearns, Austin Fuller	Voc. Ed. (Agr.)	Thomasville
Kelly, Daniel Thomas	M. E.	R. 2, Carthage
Kelly, Ernest Dexter, Jr.	B. Ad.	Mt. Holly
Kennedy, John Thomas	Chem. Eng.	Ansonville
Kerr, Thomas Clifton	Tex. Mfg.	Shelby
Kimel, Walter Talmadge	M. E.	R. 1, Clemmons
King, Jake	B. Ad.	Thomasville
Kirby, Kenneth Alexander	E. E.	Kenly
Kirk, Richard Carlyle	E. E.	R. 4, Greensboro
Kiser, Eoa Lewis	C. E.	R. 1, Bessemer City
Kittrell, George Parker	Agr.	R. 1, Corapeake
Kornegay, Giles Roscoe	B. Ad.	Burgaw
Lancaster, Jay Van	Ag. Ad.	R. 4, Grifton
Lane, Ralph Mosley	Voc. Ed. (H. S. T.)	R. 1, Dover
Lane, William Franklin	Tex. Mfg.	R. 4, Wilson
Latham, Dennis Harold	Voc. Ed. (Agr.)	R. 2, Bath
Law, Marvin Amos	Tex. Mfg.	Paw Creek
Lawrence, Clingmon Grady	Voc. Ed. (Agr.)	R. 1, Hiddenite
Lawrence, David Moore	M. E.	Newport News, Va.
Lawrence, Wrew Edward	B. Ad.	Scotland Neck
Lee, John Harry	E. E.	Monroe
Lee, Troy Herbert	Agr.	R. 2, Polkton
Lee, Walter Shaw	B. Ad.	Raleigh
Lennon, Richard Simpson	B. Ad.	Rowland
Lentz, Harry Phifer	C. E.	Concord
Leonard, Raymond Wesley	C. E.	R. 6, Lexington
Lewis, Harvey B.	B. Ad.	R. 2, Statesville
Lewis, John Gary	Tex. Mfg.	Fairmont
Lewis, Jetter Wilton	B. Ad.	Fairmont
Lichty, Henry Frederick	E. E.	R. 5, Lehigh, Pa.
Lineberger, Ormand Reid	Agr.	R. 2, Catawba
Linville, Burton Sink	Voc. Ed. (Agr.)	Winston-Salem
Little, Arthur C.	B. Ad.	Newton
Lloyd, Stacy Gary	B. Ad.	Spencer
Loftin, Richard Bassett	Agr.	Flat Rock
Lovelady, Charles Glenn	C. E.	Norwood
Lovill, William Richard, Jr.	B. Ad.	Boone
Lowery, Swindell Lee	Agr.	R. 1, Trenton
Lucas, Charles Clement	C. E.	R. 1, Black Creek
Lucas, Charles Davidson	Tex. Mfg.	Charlotte
Ludlum, Henry Bruce	Agr.	R. 1, Shallotte
Luther, Herbert Lee	M. E.	Pipe

<i>Name</i>	<i>Course</i>	<i>Postoffice</i>
Lutz, Carl Washington.....	Voc. Ed. (Agr.) .....	R. 4, Newton
Lyon, Herbert Grady.....	Arch. Eng. ....	R. 3, Creedmoor
Lyon, Jesse Blount.....	Voc. Ed. (Agr.) ....	R. 3, Creedmoor
McCall, John DeWitt, Jr.....	Arch. Eng. ....	Florence, S. C.
McCall, William Amos.....	E. E. ....	Charlotte
McClenny, George Arthur.....	Voc. Ed. (Agr.) ....	R. 1, Goldsboro
McCullen, Donald Sugg.....	M. E. ....	R. 1, Faison
McDowall, Luther Gilbert.....	B. Ad. ....	Gainesville, Fla.
McGinn, George H.....	Tex. Mfg. ....	R. 1, Charlotte
McGinnis, Dan.....	Voc. Ed. (Agr.) ....	R. 2, Lincolnton
McIntyre, Charles Smith.....	Voc. Ed. (Agr.) ....	R. 4, Maxton
McIntyre, William Stewart.....	Arch. Eng. ....	R. 4, Maxton
McKenzie, Frederick Donald.....	Tex. Mfg. ....	Fayetteville
McKinney, Hal Grey.....	Arch. Eng. ....	Lillington
McKinney, Winston Reeves.....	Tex. Mfg. ....	Mt. Airy
McLawhorn, Harvey D.....	Ag. Ad. ....	Vanceboro
McLemore, Price Chrenleigh.....	Tex. Mfg. ....	R. 5, Montgomery, Ala.
McLeod, James Theron.....	Voc. Ed. (Agr.) .....	R. 1, Jackson Springs
McNeill, James Dobbin.....	B. Ad. ....	Fayetteville
McNeill, William Wright.....	C. E. ....	Raleigh
McQueen, William Angus.....	B. Ad. ....	Fayetteville
McRorie, William Carlyle.....	B. Ad. ....	Rutherfordton
McRoy, William David.....	Chem. Eng. ....	R. 1, Chocowinity
McVey, Daniel Howard.....	Ag. ....	R. 1, Snow Camp
Mabry, Joseph Thomas Benson.....	Voc. Ed. (Agr.) .....	R. 1, Hollister
Maddrey, William Glenn.....	Voc. Ed. (Agr.).....	Severn
Manning, Albert Franklin, Jr.....	Tex. Mfg. ....	Middlesex
Marker, Miss Evelyn Sylvia.....	B. Ad. ....	Raleigh
Marker, Miss Naomi Mae.....	C. E. ....	Raleigh
Mason, Robert Edward, Jr.....	B. Ad. ....	Raleigh
Mast, William Thomas.....	B. Ad. ....	Valle Crucis
Matthews, Dougald MacMillen.....	Tex. Mfg. ....	Raleigh
Mauney, Bernard Shelton.....	E. E. ....	R. 5, Shelby
Mauney, James Herman.....	M. E. ....	R. 1, Shelby
Mauney, Leslie Morris.....	M. E. ....	Old Fort
May, William Henry, Jr.....	B. Ad. ....	Burlington
Mayfield, Wallace Boyd.....	B. Ad. ....	R. 1, Norlina
Meade, James Orin.....	C. E. ....	Glenwood
Meiggs, Joseph Oscar.....	E. E. ....	Elizabeth City
Melton, Dewey Preston.....	E. E. ....	Cherryville
Mendenhall, Walter Guy.....	Arch. Eng. ....	Spencer
Mercer, Hughlan Douglas.....	Ag. ....	R. 1, Black Creek
Mercer, Lee Roy.....	Chem. Eng. ....	Norfolk, Va.
Merriam, Harold Booth.....	B. Ad. ....	Winston-Salem
Meyer, George Peter.....	Science .....	Norfolk, Va.
Miller, Ernest Homer.....	C. E. ....	Asheville
Miller, Robert J. Miller.....	B. Ad. ....	Warsaw
Mills, Ernest Floyd.....	B. Ad. ....	Greensboro
Minish, James Walter.....	Tex. Mfg. ....	Elkins
Mintz, John Hamilton.....	Science .....	R. 1, Shallotte

<i>Name</i>		<i>Postoffice</i>
Mitchell, Gilbert Morgan, Jr.	B. Ad.	Radford, Va.
Mitchiner, Eugene Hoke	Agr.	R. 1, Garner
Mizell, Charles Eli, Jr.	B. Ad.	Roper
Montague, Theodore Dixon	M. E.	Goldsboro
Montony, Robert Frederick	E. E.	Andrews
Moore, Theophilus Lawrence	E. E.	R. 1, Battleboro
Morgan, Walter Leslie	E. E.	Edenton
Morrow, Jim Mack	Chem. Eng.	R. 2, Mt. Ulla
Morrow, Richard Breedon	Agr.	Pinehurst
Mott, Thomas Alexander, Jr.	Tex. Mfg.	Hickory
Motz, Frederick Victor, Jr.	E. E.	Fayetteville
Naylor, Hugh Hamilton	Chem. Eng.	Jackson, Mich.
Nesbitt, Gorden Benjamin	Agr.	Fairview
Newby, James Ewart	B. Ad.	Hertford
Nichols, John Hervey	E. E.	Earl
Nicks, Glenn	C. E.	R. 4, Greensboro
Noble, George Nicholson	B. Ad.	R. 7, Kinston
Norment, James Douglas	E. E.	R. 1, Whiteville
O'Berry, Thomas Preston	Science	Evergreen
Ogburn, James William, Jr.	C. E.	Rural Hall
Ogden, Charles Howard, Jr.	E. E.	Charlotte
Oldham, Clinton Carroll	B. Ad.	Raleigh
Outerbridge, Alexander Wilson	Voc. Ed. (Agr.)	Winston-Salem
Overall, Edward Carmack	B. Ad.	Asheville
Overton, Lemuel Hill	Voc. Ed. (Agr.)	Ellerbe
Page, Herbert Jay	E. E.	R. 1, Hendersonville
Page, Carl Lawrence	Science	R. 1, Sellers, S. C.
Page, William Burns	E. E.	R. 1, Fairmont
Page, Willis H.	Voc. Ed. (H. S. T.)	Warsaw
Palmer, Benjamin Cline	E. E.	Shelby
Palmer, Marshall Francis	Chem. Eng.	Southern Pines
Paramore, Lee Roy	Ag. Ad.	R. 1, Vanceboro
Parham, Jasper Wayland	Chem. Eng.	R. 5, Henderson
Paris, Raymond Walton	M. E.	Raleigh
Parker, Alton Winton	Voc. Ed. (Agr.)	Conway
Parkerson, Snodie Leon	Tex. Mfg.	R. 3, Greenville
Patrick, Henry	E. E.	Belmont
Patterson, Dean Eusibius	Voc. Ed. (Agr.)	R. 1, Burlington
Patterson, Joseph Hunt	Tex. Mfg.	Manly
Paul, Daniel Murray	Agr.	Pantego
Pearce, Egbert Curtis, Jr.	Chem. Eng.	Thomasville
Pearce, Floyd Douglas	Voc. Ed. (Agr.)	Zebulon
Pearce, Herman Cullom	B. Ad.	R. 2, Wake Forest
Pearcy, Bernard Allen	Chem. Eng.	Raleigh
Peele, Edward Wilson	M. E.	Aulander
Peele, Leon Charles	B. Ad.	Roxobel
Peele, Richard Herbert	B. Ad.	Rich Square
Peele, Webster Woodard	Min. Eng.	R. 4, Goldsboro
Pepler, Petrus Johannes	Agr.	S. Africa
Perry, Abraham McClellan	B. Ad.	Windsor

<i>Name</i>		<i>Postoffice</i>
Pierce, Urias Bixby	Chem. Eng.	R. 3, Lincolnton
Piercy, James Eulet	E. E.	Asheville
Pike, Braxton Lee	B. Ad.	R. 7, Mt. Olive
Pippin, William Joseph, Jr.	Science	Washington
Pollard, Jesse Arthur, Jr.	Cer. Eng.	Burnsville
Potter, James Harper	B. Ad.	Snow Hill
Prince, John Hubert	Tex. Mfg.	Fair Bluff
Pritchard, Harold Bowden	Voc. Ed. (H. S. T.)	R. 1, Weicksville
Privett, Robert Glenn	E. E.	Spring Hope
Propst, Roy Clyde, Jr.	Tex. Mfg.	Kannapolis
Purcell, Eugene	Tex. Chem. & Dye	R. 1, Wentworth
Purnell, John Ferguson	C. E.	Franklinton
Quinn, Pratt	Tex. Mfg.	R. 1, Cherryville
Ragliand, Lorenzo Emmett	E. E.	R. 1, News Ferry, Va.
Ramsey, Jacob Cline	E. E.	Dillon, S. C.
Randall, Herman Thadis	E. E.	Paw Creek
Rankin, James Edgar	Cer. Eng.	Statesville
Raper, Ira Franklin	Voc. Ed. (Agr.)	R. 1, Welcome
Raper, Samuel Leroy	Agr.	Linwood
Reams, Charles Davis	Tex. Mfg.	Roxboro
Reavis, Junius Edward	E. E.	Statesville
Redmon, James Foster	C. E.	R. 1, Cleveland
Reeves, James Murray	E. E.	R. 1, Marshall
Regan, Neil Frederick	Agr.	Cerro Gordo
Reynolds, William Daniel	Voc. Ed. (Agr.)	R. 1, Clinton
Rhodes, Edward Rudolph	B. Ad.	R. 2, Fairmont
Rich, Charles Hampton	B. Ad.	Winston Salem
Richardson, James Warren	B. Ad.	Piedmont, S. C.
Richmond, David Kerr	M. E.	Roxboro
Riddick, John Frontis	E. E.	Gatesville
Riley, Samuel Gayle, Jr.	Tex. Mfg.	Raleigh
Robbins, Gordon Vincent	Agr.	Sharpsburg
Robbins, William Carlton	Ag. Ad.	Raleigh
Roberts, Eugene Wallace	Tex. Mfg.	Winnboro, S. C.
Roberts, Ralph Walter	B. Ad.	McAdenville
Robey, William Marvin	C. E.	Asheville
Robinson, Bertie De	Voc. Ed. (Agr.)	R. 1, Ingold
Robinson, Gabriel Hogue, Jr.	B. Ad.	Wallace
Robinson, Thomas Christopher	E. E.	Ansonville
Rogers, William Ray	Tex. Mfg.	Sylva
Ross, George William	Voc. Ed. (H. S. T.)	Washington
Rowland, Macon Rogers	M. E.	R. 1, Richfield
Ruffin, Mack Thomas, Jr.	Agr.	R. 3, Tarboro
Rushing, Kermit Ashcraft	Tex. Mfg.	R. 3, Marshville
Russell, Harold Edward	B. Ad.	Hubert
Rutter, Edgar Andrews	B. Ad.	Gastonia
Saleeby, Rajie Ali	Arch. Eng.	Dillon, S. C.
Sanderson, Richard Edward	Agr.	R. 1, Burgaw
Sapp, Clifton Fletcher	C. E.	R. 6, Winston-Salem
Schaub, Carter Stuart	M. E.	Winston-Salem

<i>Name</i>	<i>Postoffice</i>
Scholl, John Clifton	B. Ad. . . . . Angier
Scott, Hugh Andrew	Tex. Mfg. . . . . Goldsboro
Seal, James Louis	Arch. Eng. . . . . Franklin, Va.
Sessoms, Robert	Voc. Ed. (Agr.) . . . . Richardson
Shankle, Thomas Alexander	C. E. . . . . Mt. Gilead
Sharpe, Robert Council	Voc. Ed. (Agr.) . . . . R. 1, Linwood
Shaw, Percy Colin	Agr. . . . . Richlands
Shearon, James Leonard	B. Ad. . . . . R. 2, Wake Forest
Shelor, Robert Abel	Arch. Eng. . . . . Sumter, S. C.
Shepherd, James Livingstone	M. E. . . . . Orrum
Shepherd, Marshal Leroyce	E. E. . . . . Orrum
Sherrill, John Russell	Tex. Mfg. . . . . Raleigh
Sherrill, Nicholas Johnson, Jr.	Ind. Mgt. . . . . Charlotte
Shimer, George Hayman	E. E. . . . . Windsor
Shinn, Harry Livingston	C. E. . . . . R. 6, Salisbury
Shipman, Mitchell Lee, Jr.	B. Ad. . . . . Raleigh
Shoaf, Henry Weldon	Agr. . . . . Lexington
Shoulars, Philip Edison	Voc. Ed. (Agr.) . . . . Rich Square
Shuford, Guy Eward	Voc. Ed. (Agr.) . . . . R. 2, Lincolnton
Shuford, Walter Julius, Jr.	B. Ad. . . . . Hickory
Sims, John Henry	Ind. Mgt. . . . . R. 1, Waxhaw
Sinclair, Donald Edward	Chem. Eng. . . . . Rutherford, N. J.
Singletary, Rupert Bridger	E. E. . . . . Clarkton
Sledge, Hartwell Kendrick, Jr.	E. E. . . . . Charlotte
Sloan, Astor Rothschild, Jr.	B. Ad. . . . . Wallace
Smith, Charlie Milton	C. E. . . . . Belvidere
Smith, Graham Larkin	E. E. . . . . R. 2, Raleigh
Smith, George Walter, Jr.	B. Ad. . . . . Gastonia
Smith, Henry Harrison	E. E. . . . . Pinebluff
Smith, Harrison Olive	E. E. . . . . Brown Summit
Smith, Hilton Theodore	E. E. . . . . Greensboro
Smith, John Winfred	B. Ad. . . . . Liberty
Smith, Preston William	E. E. . . . . Windsor
Smith, Waymon	E. E. . . . . Tar Heel
Smith, William Sterling	E. E. . . . . Farmington
Smithwick, Richardson Pearce	H. E. . . . . Merry Hill
Snipes, Julian Brooks	Agr. . . . . Bynum
Sparger, Frederick James, Jr.	Tex. Mfg. . . . . Greensboro
Spence, William Oscar	Chem. Eng. . . . . Raleigh
Sprinkle, Charles Monroe	Chem. Eng. . . . . R. 6, Mt. Airy
Spruill, Richard E.	M. E. . . . . Jamestown
Staton, Bruce Henry	Voc. Ed. (Agr.) . . . . R. 4, Marshville
Stephenson, Wayne Derwood	Chem. Eng. . . . . R. 1, Swannanoa
Stevens, William Walter	Voc. Ed. (Agr.) . . . . R. 4, Raleigh
Stokes, James Oliver	Agr. . . . . Kenansville
Stone, John Greenville, Jr.	E. E. . . . . Greensboro
Stout, Mack	Arch. Eng. . . . . Sanford
Strickland, Henry Howard	Arch. Eng. . . . . R. 2, Rocky Mt.
Stroud, Madison Estridge	B. Ad. . . . . Kinston
Stroud, Speight Hardy	B. Ad. . . . . R. 6, Kinston

<i>Name</i>		<i>Postoffice</i>
Stull, Charles Edward	Arch. Eng.	Princeton, W. Va.
Sugg, Edward Eusebe	B. Ad.	Hookerton
Suggs, Robert Bailey, Jr.	Tex. Mfg.	Belmont
Sumrell, Ferrall Nixon	Cer. Eng.	R. 1, Ayden
Sykes, Edward Richard	E. E.	Wendell
Tadlock, James King	B. Ad.	Windsor
Tarlton, George	Arch. Eng.	R. 2, Marshville
Tarry, George Patrick	Science	Townsville
Taylor, Emmett Claude	Ag. Ad.	Bachelor
Taylor, John Marion	Ag. Ad.	R. 4, Lumberton
Taylor, Will Robinson, Jr.	C. E.	Wilmington
Thiel, Henry Jackson, Jr.	E. E.	Greensboro
Thomas, Crawford Lentz	Ag. Ad.	Raeford
Thomas, David Boyd	Science	Gibsonville
Thomas, Robert Gordon	E. E.	Vass
Thomas, William Earl	Tex. Mfg.	R. 1, Monroe
Thompson, Glenn Russell	B. Ad.	Greene, Iowa
Thompson, Willie Lee	E. E.	R. 6, Charlotte
Thrift, Charles Bolling	B. Ad.	Raleigh
Tignor, Parker Leigh	E. E.	Oxford
Tilley, Arthur Kermit	C. E.	R. 8, Durham
Tingle, James Alphonso	M. E.	Alliance
Todd, Graham Norwood	Arch. Eng.	Greensboro
Towson, Jacob Tolley	B. Ad.	Smithsburg, Md.
Trask, George W. Jr.	Agr.	R. 1, Wilmington
Tucker, Andrew Harriss	B. Ad.	Wilmington
Turner, Charlie	M. E.	Old Fort
Turner, Charles Burress, Jr.	C. E.	Hendersonville
Turner, Charlie Elbert	M. E.	Winnsboro, S. C.
Turner, Ralph Watkins	Agr.	R. 6, Mebane
Tyler, Charles Leo	B. Ad.	Roxobel
Tyson, Robert Marsh	B. Ad.	Carthage
Vick, Rufus Greene	Agr.	Rosemary
Vipond, Leslie C.	E. E.	Norfolk, Va.
Vipond, Milton R.	Chem. Eng.	Norfolk, Va.
Vorel, Charles Joseph	B. Ad.	Fairfax, Iowa
Vuncannon, Oscar Floyd	M. E.	High Point
Ward, N. McIver	Science	R. 4, Edenton
Ward, Robert Lee	Tex. Chem. & Dye.	Charlotte
Ward, Thomas Harrison	E. E.	Raleigh
Warren, Edwin Philip	M. E.	Raleigh
Watkins, John Barnell	E. E.	Avondale
Watkins, Louie Willard	B. Ad.	Salisbury
Watson, Raymond Alexander	Agr.	R. 2, New Bern
Weed, Hugh	B. Ad.	Georgetown, S. C.
Welch, John Davis	E. E.	R. 1, Hobbsville
Wells, Julian Victor	Agr.	R. 1, Teachey
Wells, Milburn	Chem. Eng.	R. 2, Ronda
West, Henry Ivey	M. E.	R. 2, Seven Springs
Wester, James Earl	Voc. Ed. (Agr.)	R. 4, Louisburg

<i>Name</i>		<i>Postoffice</i>
Whaley, Charles Duffy	E. E.	R. 4, Snow Hill
Wheeler, John Wiggins	Arch. Eng.	Edenton
Whcless, William Arthur	Science	Spring Hope
Whitaker, William Justice	C. E.	High Point
White, John Ivey, Jr.	B. Ad.	Nashville
White, Thomas Skinner, Jr.	B. Ad.	Hertford
Whitehead, John Lewis	Tex. Mfg.	Chatham, Va.
Whitley, Joseph Speight, Jr.	C. E.	R. 6, Charlotte
Whitlock, William Wilson	E. E.	Zebulon
Wilder, Samuel Taylor, Jr.	Tex. Mfg.	Louisburg
Wilfong, William Sidney	B. Ad.	R. Swannanoa
Wilkerson, Edwin Charles	B. Ad.	LaGrange
Wilkes, John Lindsey	B. Ad.	R. Dillon, S. C.
Wilkins, Cecil Alexander	Voc. Ed. (Agr.)	Cayce, Ky.
Wilkins, John Sartin	Agr.	2, Burlington
Wilkinson, Elmer H.	Arch. Eng.	R. 5, Goldsboro
Williams, Barnes Jay	M. E.	Angier
Williams, Daniel Winfred	Cer. Eng.	Troy
Williams, John Blaney, Jr.	B. Ad.	Clinton
Williams, Luther, Jr.	C. E.	Monroe
Williams, Morrison Patton, Jr.	Arch. Eng.	Charlotte
Williams, Robert Glenn	E. E.	R. 3, Pink Hill
Williford, William Earle	C. E.	Wilmington
Wilson, Fred. L.	Tex. Mfg.	R. 1, Bakersville
Wilson, Roland Clark	Agr.	Magnolia
Wilson, Robert Palmer	Agr.	R. 3, Gastonia
Wilson, Sam Meadows	B. Ad.	Louisburg
Winchester, Henry Pal	Voc. Ed. (Agr.)	R. 2, Summerfield
Winslow, Wayland Coffield	E. E.	Edenton
Woodall, Clarence E.	C. E.	R. 1, Benson
Woodley, Heyward C.	B. Ad.	Jackson Springs
Woodside, Gales Thomas	Science	R. 6, Statesville
Woodworth, Gilbert Holt, Jr.	B. Ad.	Erwin
Woolley, Warner Frank	B. Ad.	Troy
Workman, James Waller	Arch. Eng.	Burlington
Worthington, Wilbur L.	E. E.	R. 3, Winterville
Wray, Suttle Alva	E. E.	Charlotte
Wright, Earle Emmett	B. Ad.	Independence, Mo.
Wright, Seba Carlyle	Chem. Eng.	R. 5, Henderson
Yates, John Andrew	B. Ad.	Mocksville
Zimmerman, Guy Beckel	Voc. Ed. (Agr.)	R. 2, Clemmons

## SPECIAL STUDENTS

Alexander, Glenn Houston	Agr.	R. 20, Huntersville
Allgood, Lawrence Wheeler	Tex. Mfg.	Roxboro
Andrews, Martha Bailey Hawkins	Arch. Eng.	Raleigh
Baird, David Franklin	B. Ad.	Valle Crucis
Bell, Mrs. Jane Keistler	English	Raleigh
Bonner, John Havens	Zool.	Raleigh
Branch, Ernest Alexander	B. Ad.	Raleigh

<i>Name</i>	<i>Postoffice</i>
Cheatham, Charles Hamlin, Jr.....	Agr. .... Oxford
Childress, Thomas McDonald .....	C. E. .... Washington, D. C.
Combs, Herbert Cranford .....	Tex. Mfg. .... High Point
Drennan, John Francis .....	B. Ad. .... Raleigh
Ellis, Hubert Francis .....	Agron. .... Salisbury, S. Africa
Fisher, Max Fulton .....	Chem. Eng. .... Lake Landing
Fleischmann, Augustus Wilson .....	Physics .... Raleigh
Flowers, Wilbur .....	B. Ad. .... Darlington, S. C.
Freeman, James LeCausey .....	Agr. .... R. 1, Colerain
Geile, Francis August .....	C. E. .... Madison, Indiana
Greaves Richard Elliott .....	Agr. (Poul.) .... Raleigh
Greenhalgh, Walter William .....	Tex. .... New Britain, Conn.
Hanes, Andrew Thomas, Jr.....	Tex. Mfg. .... Winston-Salem
Hester, John Bradsher .....	Agr. .... R. 1, Roxboro
Hilton, John Thomas .....	Tex. Mfg. .... Raleigh
Hinkle, Mrs. Mary Simons .....	Educ. .... Raleigh
Hoagland, Dale Milton .....	Agr. .... Fort Bragg
Hogue, N. W. ....	Science
Hunter, Richard Grant .....	B. Ad. .... Raleigh
Hutchinson, Henry Hamilton .....	Cer. Eng. .... Raleigh
Ingram, William McKinley .....	Hwy. Eng. .... Kenansville
Ireland, Dan Walla. ....	Chem. .... R. 1, Elon College
Johnson, Edgar Martin .....	Physics .... Culbertson
Johnston, James Marion .....	Tex. Mfg. .... Rocky Mt.
Kelly, William Ross.....	Arch. Eng. .... R. 3, Bladenboro
Lancaster, Robert Linwood.....	B. Ad. .... Raleigh
Lanier, Archie Eford .....	M. E. .... Statesville
Lawrence, Elizabeth Lewis .....	Lands. Gard. .... Raleigh
McDaniel, Wayne Alan .....	English .... Raleigh
Manushak, Harry Lawrence.....	B. Ad. .... Youngstown, Ohio
Neas, Audie Eugene .....	Agr. .... Greenville, Tenn.
Nissen, Richard Wray .....	B. Ad. .... Winston Salem
Pearce, Leonard Lee, Jr.....	B. Ad. .... Raleigh
Phelps, John Yancy .....	B. Ad. .... R. 5, Bunn
Powell, William Henry.....	Tex. .... Tarboro
Ragland, Jack Chauncey .....	B. Ad. .... Marion
Rand, Walter, Jr.....	Tex. Mfg. .... Richlands
Reppard, Aaron Henry, Jr.....	Tex. Mfg. .... Orlando, Fla.
Robbins, William Frank .....	Lands. Garden .... Boone
Shepard, Frederick Blount .....	C. E. .... Wilmington
Smith, Thomas Maybon .....	Pub. Speak. .... Raleigh
Sorrell, Lewis Patrick .....	Science .... Raleigh
Spurlock, Albert Thomas .....	Tex. Mfg. .... R. 2, Hickory
Watson, Hubert Jordan .....	Tex. Mfg. .... Worcester, Mass.
Williams, John Allen .....	Agr. .... R. 1, Jonesville
Wood, Eugene Harrison .....	B. Ad. .... Enfield
Wootten, John Martin .....	Arch. Eng. .... Hickory



## SUMMER SCHOOL, 1927

### STATE TEACHERS

(Six Weeks)

<i>Name</i>	<i>Postoffice</i>
Banks, Dessie .....	Raleigh
Baucom, Mrs. C. R. ....	Apex, R. 1
Beavers, George M. ....	Apex, R. 1
Beavers, Jane .....	Apex, R. 1
Benjamin, Ruth .....	Clinton, S. C.
Berry, Corum G. ....	Rutherford College
Broadhurst, Margaret Elizabeth .....	Mt. Olive
Bullock, Henry Harrison .....	Fuquay Springs
Bunn, Mrs. F. E. ....	Zebulon
Campbell, Hattie A. ....	Raleigh
Causey, Ruth Lillie .....	Grifton
Chapman, C. Herbert .....	Welcome
Chapman, Esther Clark .....	Welcome
Chapman, William Ennis, Jr. ....	Pendleton, S. C.
Crawford, B. M. ....	Eure
Davis, Evander Ayers .....	Raleigh
Deyton, Jason B. ....	Spruce Pine
Edwards, Mabel Estelle .....	Mullins, S. C.
Ewards, Tress .....	Mullins, S. C.
Eller, Chelcie Baird .....	Ready Branch
Farrior, Minnie Bryan .....	Raleigh, R. 4
Felton, Annie Pitt .....	Raleigh
Gibbs, Julian Estell .....	Wilson
Hamilton, Mrs. Clifford Elliott .....	Clayton
Haney, James Broadus .....	Marshville
Harker, Bettie .....	Morehead City
Henderson, Gladys .....	Dover
Henderson, Margaret W. ....	Clarks
Hodges, Sallie M. ....	Warsaw
Hoggard, Mrs. Verona .....	Severn
Holland, Cora E. ....	Warsaw
Houk, Guy L. ....	Franklin
Houston, Ruth .....	Raleigh
Hutcheson, R. G. ....	Vass
Johnson, Trixie .....	North Emporia, Va.
Johnson, Walter Myatt .....	Raleigh, R. 3
Jones, George L. ....	Mullins, S. C.
Jones, Junius Linwood .....	Apex
Kersting, Mrs. Aileen F. ....	Raleigh
Kimball, Lily .....	Townsville
Kimball, Mamie Love .....	Townsville
Kiser, James Paul .....	Bessemer City
Latta, Elsie .....	Oxford
Latta, Hulda G. ....	Oxford
Long, Ola S. ....	Morehead City

<i>Name</i>	<i>Postoffice</i>
McColl, W. C. ....	Polkton
McCormick, Florence .....	Raleigh
McCulloch, William W. ....	Pleasant Garden
McLeod, M. R. ....	Jackson Springs
Manning, Elizabeth G. ....	Louisburg
Marsh, Mrs. Eunice Watson .....	Marshville
Massey, Mrs. P. H. ....	Zebulon
Nelson, Miss Mary .....	Raleigh
Nelson, Miss Charlotte .....	Raleigh
Nickles, Ruth .....	Hodges, S. C.
Parks, Paul V. ....	Sanford
Penny, Mary Mildred .....	Raleigh, R. I.
Pettigrew, Mrs. C. Caldwell .....	Hopewell, Va.
Pigg, Clara M. ....	Madison
Prevette, Mrs. John G. ....	Raleigh
Raper, R. H. ....	Welcome
Riddle, Georgia Ray .....	Raleigh
Rux, Leona Currin .....	Henderson
Sawyer, H. Curtis .....	Eure
Shaw, Nannie V. ....	Macon
Shore, Mrs. R. S. ....	Troutman
Shore, Mr. R. S. ....	Troutman
Simmons, Louise .....	Brunson, S. C.
Smaw, Louise .....	Raleigh
Smith, A. O. ....	Jackson Springs
Swain, Meredith .....	Raleigh
Swann, Nellie .....	Raleigh
Torrence, Mrs. Espie Lee .....	Raleigh
Umstead, L. W. ....	Garner
Uzzle, Elizabeth .....	Wilson's Mills
Uzzle, Ellen .....	Wilson's Mills
Weatherspoon, Laura .....	Raleigh
Williams, William E. ....	Godwin
Zimmerman, Robert Glenn .....	Lexington

## GRADUATES

(Six Weeks)

Campbell, Charles R. ....	Washington
Cotner, John B. ....	Raleigh
Dixon, Alfred Alexander .....	Raleigh
Fountain, Alvin M. ....	Catherine Lake
Grove, Cornelius Sherman .....	Hickory
Harper, Raymond Branch .....	Trenton, R. 2
McCrary, Otis F. ....	Raleigh
Marshall, Roger P. ....	Raleigh
Peeler, Ralph James .....	Granite Quarry
Ruggles, Edward W. ....	Raleigh
Wilfong, Herman S. ....	Newton

## COLLEGE CREDIT

(Six Weeks)

<i>Name</i>	<i>Postoffice</i>
Abee, Ruth .....	Belmont
Alexander, Samuel L. ....	Charlotte
Allen, Cleon Minton .....	Cary
Anderson, John R., Jr. ....	Rutherfordton
Allwood, Albert .....	Braedale, England
Armstrong, Edwin Benson .....	Gastonia
Aydlett, A. Laurance .....	Elizabeth City
Barber, Milton A., Jr. ....	Raleigh
Barnes, Sadie Rae .....	Raleigh
Barnhardt, John Jacob .....	Acme
Baucom, Mrs. Eliza Lindsey .....	Raleigh
Baxter, William K., Jr. ....	New Bern
Beavers, Lydia .....	Apex
Bivens, Curtis L. ....	Monroe
Bowden, Elizabeth .....	Raleigh
Bowie, John Routh .....	Glendale Springs
Boyd, John Backstrom .....	Mooresville
Bridger, Livingston A. ....	Bladenboro
Buff, Bynum A. ....	Ruth
Bullard, Mrs. M. Louise .....	Raleigh
Burgess, Harry L. ....	New London
Burnette, W. Ruby .....	Farmville
Burwell, Dawson A. ....	Stovall
Burwell, John Cole, Jr. ....	Warrenton
Capps, Frank .....	Raleigh
Carson, Lester Grey .....	Taylorsville
Clark, Eric Conrad, Jr. ....	Clarkton
Cobb, Joseph .....	Lancaster, S. C.
Cole, John F. ....	Raleigh
Coltrane, James Bruce .....	Trinity
Combs, Herbert .....	High Point
Cox, William R. ....	Raleigh
Cunningham, Cornelius C. ....	Raleigh
Darby, Elizabeth .....	Lowreys, S. C.
Davis, Mildred .....	Zebulon
Dearstyne, Roy S. ....	Raleigh
Dickinson, Gerald Potter .....	Beaufort
Dosher, John Warren .....	Southport
Dunn, John Burwell .....	Enfield
Edwards, Jonas William .....	Macclesfield, R. 2
Eller, Wayne Vannoy .....	Ready Branch
Eubanks, Hoyle .....	Monroe
Evans, Robert Kerr .....	Mooresville
Evans, Wilfred V. C. ....	Bloemfontein, S. Africa
Faison, Thomas Gideon .....	Winton
Farlow, Mrs. Elbert .....	Wallace
Farlow, Elbert .....	Wallace

<i>Name</i>	<i>Postoffice</i>
Finch, Glenn Odell	Lexington
Fitzpatrick, May	Carlin, Nevada
Flowers, Bert	Darlington, S. C.
Forbes, Ray Corbet	Ahoskie, R. 2
Franklin, Elgie Lenoir	Altamont
Franklin, E. W. Jr.	Raleigh
Franklin, Howard Oscar	Crossnore
Frye, Ethel	Raleigh
Gaither, John O. Jr.	Statesville, R. 5
Goodwin, Pauline	Raleigh
Greene, Arthur N.	Raleigh
Green, Mrs. R. W.	Raleigh
Grimes, Alston	Raleigh
Grimes, Robert Allison	Hickory
Grimshaw, Albert H.	Raleigh
Groves, Barron G.	Lowell
Haar, Lawrence F.	Wilmington
Hadley, Warren L.	Charlotte
Hall, Donald Booth	Hornell, N. Y.
Harden, William Reid	Winnsboro, S. C.
Hardin, Lawrence L.	Clover, S. C.
Hardison, James Hubert	Jamesville
Harris, Mrs. Virginia F.	Raleigh
Hassell, Herman L.	Kinston
Hauptfleisch, Daniel Benjamin	Dewetsdorp, S. Africa
Haws, E. Lawrence	Biltmore
Hayes, Theodore Ward	Latta, S. C., R. 2
Hendrix, Noah Lester	Salisbury, R. 5
Herman, John Richard	Newton
Hicks, Elsie May	Raleigh
Hodgin, Ulton Grey	Greensboro
Holbrook, George William	Ocala, Fla.
Holdford, Anne	Raleigh
Hutchinson, Henry H.	Raleigh
Inscoe, Garland M.	Castalia, R. I.
Jarman, Frank	Wilmington
Jivatode, Ramkrishma S.	Poona City, India
Johnson, George L.	Henderson
Justice, Richard W.	Raleigh
Keistler, Kemmett Lee	Denver
King, Charles Harbert	Statesville, R. 2
Kinloch, James C., Jr.	Tryon
Kinney, Albert Beecher	High Rock
Kirkman, Charles Gordon	Pleasant Garden
Knowles, Bruce Henry	Wallace
Lambe, Charles R.	Snow Camp, R. I.
Lancaster, R. Alton	Grifton, R. F. D.
Lattimore, Brevard	Shelby
Leonard, Curtis A.	Lexington
Leonard, Minnie Paige	Ramseur

<i>Name</i>	<i>Postoffice</i>
Long, Nathan A. ....	Burlington
Long, William M. ....	Statesville
Love, Frank R. ....	Burlington
Lowill, William Richard .....	Greensboro
McCown, George .....	Florence, S. C.
McDowall, Jack .....	Gainesville, Fla.
McKaughan, Robert Lee .....	Kernersville, R. 1
McLawhorn, Mary Ida .....	Winterville
McNeill, Ruth L. ....	Vass
Maddy, Katherine .....	Raleigh
Mangum, Edna .....	Magee, Miss.
Mann, Harvey Blount .....	Raleigh
Matthews, Dougald M. ....	Raleigh
Matthews, Eugene Wysor .....	Raleigh
Mayer, William Lyndon .....	Raleigh
Metts, William F. ....	Greenville, S. C.
Mial, Corinna L. ....	Raleigh
Michael, Glenn Eugene .....	Kernersville, R. 1
Mintz, Rudolph .....	Shallotte
Morris, Esther J. ....	Raleigh
Morris, R. M. ....	Concord
Munn, George Alton .....	Biscoe
Nash, Dorothy .....	Raleigh
O'Brien, Benson G. ....	Rockingham
Papenfuss, George F. ....	S. Africa
Phelps, John Yancey .....	Bunn, R. 1
Plaster, Spencer .....	Winston-Salem
Pleasants, Miles Otis .....	Louisburg
Plunkett, Frank M. ....	Greensboro
Poole, C. Parker .....	Raleigh, R. 2
Poole, Mrs. Marvin B. ....	Raleigh, R. 2
Poole, Marvin B. ....	Raleigh, R. 2
Pope, John Hilton .....	Tillery, R. 1
Poston, Lyda E. ....	Shelby, R. 5
Raiford, Walker C. ....	Ivor, Va.
Raper, Paul A. ....	Welcome
Robertson, Dorothy .....	Greensboro
Rothgeb, Ross M. ....	Raleigh
Rush, Paul Van .....	Denton
Shanklin, Julius Augustus .....	Clemson College, S. C.
Shearin, Mrs. Edgar L. ....	Raleigh, R. 3
Simerson, Adam Howard .....	Linwood
Smaw, Annie .....	Raleigh
Smith, Frank .....	York, S. C.
Smith, Henry Harrison .....	Pine Bluff
Smith, Thomas Maybon .....	Raleigh
Smith, William Sterling .....	Farmington
Sorrell, Lewis P. ....	Raleigh
Stephenson, Leonidas Dacosta, Jr. ....	Raleigh
Stone, Charles Marion .....	Charlotte

<i>Name</i>	<i>Postoffice</i>
Stone, Mrs. Hugh L. ....	Raleigh, R. 4
Stott, Hester Myatt .....	Wendell
Stovall, James Polk .....	Virgilina, Va. R. 1
Strider, Rodolphus .....	Star
Stuckey, David Leslie .....	Kenly, R. 4.
Sumrell, Jessie .....	Greenville
Swinson, Emmett .....	Goldsboro, R. 4
Tate, Edgar Anderson .....	Greensboro
Thomas, Erle W. ....	Wilmington
Thompson, Hughes-Meacham .....	Raleigh
Thompson, Mrs. Hughes-Meacham .....	Raleigh
Thompson, Layton S. ....	Fairmont
Tillery, Paul A. ....	Raleigh
Towson, J. Tolley .....	Smithsburg, Md.
Tucker, Roy Brooks .....	Marshville
Veach, Everette Kermit .....	Thomasville
Walker, William Clyde .....	Hillsboro, R. 1
Walton, Cyrus Leslie .....	Jacksonville
Ward, William .....	Raleigh
Wearn, Celia Lindsay .....	Raleigh
Weeks, Mrs. Jessie M. ....	Moorhead, Miss.
Weeks, Jesse M. ....	Moorhead, Miss.
Wetherington, J. Harper .....	New Bern
White, Lawrence L. ....	Burlington
White, Stokes .....	Concord
Whitesell, W. Kenneth .....	Gibsonville
Whitford, Larry A. ....	Silverdale
Williams, A. E. ....	Durham, R. 6
Williams, William Henry .....	Linwood, R. 3
Winchester, Jack Edwin .....	Summerfield
Winston, F. C. ....	Youngsville
Woodall, George Raymond .....	Raleigh
Woodlief, Washington Duke .....	Kittrell
Wooten, Hugh Hill .....	Statesville
Wooten, Ralph Leland .....	Kinston, R. 2
Wortham, Richard Lee .....	Wilmington
Worthington, Lyman J. ....	Raleigh, R. 2
Young, Wade Phillips .....	Linwood
Zimmerman, Edward Wilson .....	Durham

## COTTON CLASSING

(Six Weeks)

Adams, Charles Reed .....	Four Oaks
Austin, William B. ....	Charlotte
Barber, W. S. ....	Mt. Ulla
Bizzell, Henry McNeill .....	Goldsboro
Boyd, A. J. ....	Warrenton
Brower, P. E. ....	Norlina
Clark, W. G. ....	Tarboro

<i>Name</i>	<i>Postoffice</i>
Coggin, C. E. ....	
Dilling, P. F. ....	King's Mountain
Dixon, James W. ....	Four Oaks
Dorman, W. P. ....	Red Springs
Ford, E. S. ....	Louisburg
Forrest, J. E. ....	Fountain
Gibson, Claude Wilson ....	Osborne
Goedecke, Otto ....	Raleigh
Harper, Sam C. ....	Raleigh
Harrelson, Stacy ....	Cherryville
Hay, J. T. Jr. ....	Camden, S. C.
Hightower, F. R. ....	Wadesboro
Kimbrough, William A. ....	Thomasville, Ala.
Little, Johnny ....	Oakboro
McKay, James ....	Red Springs
McRae, Thomas L., Jr. ....	Rockingham
Miller, Harvey H. ....	Salisbury
Patterson, Hubert C. ....	Albemarle
Sanders, J. J. ....	Smithfield
Schulke, E. ....	Ridgeway
Stephens, L. A. ....	Angier
Thomas, Charles ....	Rockingham
Turner, Wilbur L. ....	Smithfield
Weeks, Howell ....	Enfield
Wilson, N. L. ....	Roseboro
Woodall, W. R. ....	Smithfield
Wooten, F. M. ....	Camden, S. C.

#### STUDENTS IN VOCATIONAL AGRICULTURE

##### (Two Weeks)

Anthony, Jesse O. ....	Belews Creek
Bason, Jere Wilson ....	Graham
Beason, Belton J. ....	Dobson
Black, Robert Emerson ....	Piney Creek
Blum, George Benjamin ....	Middleburg
Bohanan, C. R. ....	Franklinton
Brackin, Rufus Foy ....	Headland, Ala.
Bridges, Thomas Wayne ....	Mooresboro
Brown, Charlie Bradford ....	Statesville, R. 6
Brumfield, L. F. ....	Sparta
Buck, George Cleveland ....	Kinston
Bullard, H. Wilson ....	Cadburn
Bushong, Albert B. ....	Ellenboro
Cherry, Harper Nicholson ....	Washington
Chesnutt, N. B. ....	Whiteville
Colvard, Quincy E. ....	Norwood
Cone, Aaron A. ....	Macon
Cooper, Samuel Allen ....	Graham
Corbin, Arthur F. ....	Pembroke

<i>Name</i>	<i>Postoffice</i>
Daughety, Benjamin Franklin	Pink Hill
Daughtridge, Stanley Leon	Rocky Mount
Davis, Henry A.	Almond
Dellinger, T. P.	Crossnore
Edwards, P. W.	Ellerbe
Eldridge, Harvey Allen	Dunn, R. 2
Elliott, Thomas B.	Moyock
Fielder, William V.	Spring Valley, Va.
Garrison, Charles R.	Seneca, S. C.
Gaston, Perry H.	Candler
Glazener, Julian A.	Brevard
Grant, R. T.	Candor
Harris, R. P.	Dunn, R. 6
Henley, J. M.	Salemburg
Herring, Leroy Copeland	Richlands
Homewood, Solomon Linn	Raleigh
Hunter, Alton Blaine	Tobaccoville
Hutcheson, Robert Henry	Snow Camp
Isbell, W. J.	Passion
Jackson, Clyde A.	High Point, R. 2.
Jernigan, Eugene Carl	Woodland
Johnston, Henry Grady	Stringer, Mass.
Jordan, Robert C.	Richburg, S. C.
Kearns, E. T., Jr.	Thomasville
Kelly, H. N.	Evergreen
Kimzey, R. Morris	Leicester
Kizer, H. F.	Rocky Point
Long, Paul T.	Rocky Mount
McBroom, George O.	Red Springs
MacDonald, Wade E.	Scotts
McGahey, William Luther	Aurora
McIntyre, Kenneth H.	Red Oak
Marsh, Miles E., Sr.	Fairview
Massey, P. H.	Zebulon
Meekins, Edward N.	Cary
Michael, Joseph E.	Ingold
Miller, John D.	Newton
Morgan, Eli J.	Snow Hill
Morrison, Charles Ellis	Shelby
Osteen, L. L.	Rockingham
Overby, William Troy	Jamesville
Raper, Luther E.	Welcome
Sanders, E. I.	Hertford
Sanders, E. Parker	Durham
Satterwhite, Pitts H.	Ronda
Seagroves, Herbert London	Sanford
Seymore, Frank	Goldsboro, R. 4
Shaw, J. Paul	Raleigh, R. 4
Singleton, Gary Higgins	Westminster, S. C.
Smith, Emory	Poplar Branch



<i>Name</i>	<i>Postoffice</i>
Smith, George W. ....	Woodsdale
Smith, Neill M. ....	Vass
Strickland, Paul ....	Belton, S. C.
Sutton, Dennis H. ....	Forest City
Tatum, Matthew Lee ....	Fayetteville
Taylor, Vestal Columbus ....	Lattimore
Tew, Wilbur F. ....	Dunn, R. 1
Thompson, Edward Robert ....	Chadbourn
Veazey, Alexander Holloway ....	Goldsboro
Warrick, Clarence Westbrook ....	Pikeville
White, William Burgess ....	Dobson
Wilkins, William P. ....	Turbeville, Va.
Wilson, J. Alvin ....	Denver
Winchester, George Luther ....	Summerfield
Winchester, Robert B. ....	Summerfield
Wolfe, J. J. ....	Louisburg
Wright, Clyde Robert ....	Boonville

## SUMMARY OF ENROLLMENT, 1927-1928

### ENROLLMENT BY CLASSES

Graduate Students .....	65
Seniors .....	176
Juniors .....	238
Sophomores .....	374
Freshmen .....	624
Specials .....	54
Mechanic Arts Course for Tradesmen.....	90
	1,621
Short Course Students .....	204
Students in Correspondence Courses.....	2,798
Students in Extension Classes.....	352
	3,354
Summer School Students .....	1,224
State Teachers .....	79
College Credit .....	186
Graduates .....	11
Cotton Classing .....	34
Two Weeks Voc. Agr. Teachers .....	86
	396
Short Course Students .....	828
	1,224
Grand Total .....	6,199
Excluding 119 duplicates in Summer School and College.....	119
	6,080

### ENROLLMENT BY SCHOOLS

#### School of Agriculture

Students in:	
Agricultural Administration .....	28
Fruit Growing and Truck Farming .....	4
General Farming .....	125
Poultry Production .....	5
Stock Raising and Dairying .....	13
	175
Students in Short Courses .....	43
Poultry .....	83
	126
Students in Correspondence Courses.....	2,465
Students in Extension Classes .....	}
	2,766
<b>Total .....</b>	<b>2,766</b>

**School of Education**

## Students in:

High School Teachers .....	29	
Industrial Arts .....	2	
Teachers of Vocational Agriculture.....	119	
		<hr/> 150
Students in Correspondence Courses.....	18	
Students in Extension Classes .....	24	
		<hr/> 192

**School of Engineering**

## Students in:

Architectural Engineering .....	76	
Ceramic and Mining Engineering .....	19	
Chemical Engineering .....	63	
Civil Engineering, incl. Hwy. Eng. ....	148	
Electrical Engineering .....	221	
Mechanical Engineering .....	93	
Mechanic Arts for Tradesmen .....	90	
		<hr/> 710
Electrical Metermen .....	57	
Highway and Municipal Engineers .....	21	
Students in Correspondence Courses .....	238	
Students in Extension Classes .....	80	
		<hr/> 396
		<hr/>
Total .....		1,106

**School of Science and Business**

## Students in:

Business Administration .....	301	
Industrial Management .....	40	
Science .....	51	
		<hr/> 392
Students in Correspondence Courses .....	77	
Students in Extension Classes .....	248	
		<hr/> 325
		<hr/>
Total .....		717

**The Textile School**

## Students in:

Textile Chemistry and Dyeing .....	11	
Textile Manufacturing .....	118	
		<hr/>
Total .....		129

## The Graduate School

Graduate Students in:	
Agriculture .....	22
Education .....	10
Engineering .....	4
Science and Business .....	27
Textile .....	2
	<hr/>
Total .....	65
Summer School .....	1,224
	<hr/>
Grand Total .....	6,199
Excluding 119 names counted twice (Summer School and College	119
	<hr/>
	6,080

THIRTY-EIGHTH ANNUAL COMMENCEMENT  
JUNE 7, 1927

DEGREES CONFERRED

Bachelor of Science

IN AGRICULTURE

Henry Madison Adams	William McKinley Ginn
William Amos Alexander	George Caswell Moye
Erwin Belmont Cameron	Ralph Elbert Nance
William Earl Donnell	Newlin Bartimus Nicholson
Albert Ferdell Dougherty	Thornal Durant O'Quinn
John Leak Fort	Buford Alexander Sides
Robert Roy Fountain	Rodolphus Strider
Russell Stuart Gaston	Charles Ballard Utter
Monroe Carlton German	David Crenshaw Worth
	Russell Wade Zimmerman

Bachelor of Science in Engineering

ARCHITECTURAL ENGINEERING

Francis King Dawson	Herbert Hudgins Diggs
William Nicholas Denton, Jr.	George Franklin Hackney
	James Marion Pickell, Jr.

CERAMIC ENGINEERING

Ernest Neville Brackett	Lorenzo Robert Whitaker
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CHEMICAL ENGINEERING

William Hugh Barkley	Claud Baker Denson
Durant York Brannock	Wilbur Kenneth Enos
Cyrus O. Butler	Ellis Fairley Monroe
	James Whitney Perry

CIVIL ENGINEERING

Daniel Sanford Allen	Luther Rice Mills, Jr.
Donald Joseph Barmettler	Clyde Guthrie Rice
William Andrew Daily	Kennon Vines Wainwright
Charles Henry Green	Hiram William Watkins
Carl Cecil Julian	Henry Monroe Weedon
Allard Flagg LaBruce	Walter Jay Wilkie
	Charles Williamson Wray

CIVIL AND HIGHWAY ENGINEERING

Charlie Dickens Bass	Edwin Lenoir Jordan
Frank Miller Chedester	Raymond Robert Trevathan
Theodore Norton Ingraham	Frank Jerome Williams

CIVIL ENGINEERING, HIGHWAY OPTION

Frederick William Habel	Francis Rohmer LeBaron, Jr.
	Earl Lawrence Turbyfill

## ELECTRICAL ENGINEERING

James Lay Campbell	Joseph Crowder Mason
Julius Edward Davis	William Elmore Mathews
James Woodell Fagan	Clifford Gordon Montgomery
Marshall T. Furniss Fairchild	Thomas Allan Morrow
Barney Willard Garvin	Carey Albert Phillips
Allen Everett Huggins	Martin Lawrence Rockfield
Locke Rayner Humbert	William Jennings Russell
George Dudley Humphrey	James Levi Smathers
Henry Clay Hurley	James Gilbert Smith
George Vallerchamp Keller, Jr.	Milburn Kerby Stewart
Allen Wilder Kemp	Paul Lewis Stuart
Bernard Jacob Kopp	John Edward Whitton
Marvin Winston McCulloh	Westray Edwin Wilson
	John Samuel Wood

## MECHANICAL ENGINEERING

John Alston Anthony, Jr.	James Marion Williamson
Joseph David Conrad	W. C. Williamson
Robert Alexander Kendrick	Ralph Leland Wooten
Doran Royal Pace	William Arthur Yost, Jr.
Locke McKinnon Stuart	Edward Wilson Zimmerman

## Bachelor of Science

## IN AGRICULTURAL ADMINISTRATION

William Lee Adams	George Edward Jones
George Bennett Crisp	Benjamin Franklin Shelton, Jr.
	Henry Gray Shelton

## IN BIOLOGY

Claud James Goodman	Lynwood Earl Robbins
	James Randolph Thomson, Jr.

## IN BUSINESS ADMINISTRATION

Wallace Harvey Dawson	Mrs. Jane Simpson McKimmon
Hubert Reading Fields	Byron Caviness O'Quinn
Max Phillips Folley	Harvey Wade Regan
Gordon Traywick Gresham	Walter Price Shuford
Eugene Patterson McAskill	Archie Leon Speight
Frank Serpell McCoy	Horace Edward Springer
Dewey MacKinley MacMillan	Frederic Wyvon Tolar

## IN INDUSTRIAL MANAGEMENT

Alfred Foster Jordan	James Blanding Upshur
Hubert Kinsland Plott	James Joseph Wright, Jr.

## IN VOCATIONAL EDUCATION

Cleland Minton Allen	Curtis Adam Leonard
John Jacob Barnhardt	William Watson McCulloch
William Ruby Burnette	Robert Morrison Morris
Jonas William Edwards	George Alton Munn
Theodore Ward Hayes	Charlotte Ruth Nelson
John Richard Herman	Benson Gladstone O'Brien
Charles Robert Lambe	Edward Ransom Spruill
John Edwin Tiddy	Wilbur Frank Tew

**Bachelor of Science**

## IN TEXTILE CHEMISTRY AND DYEING

Stacy Boyd Carson

Albert Harvey Grimshaw

## IN TEXTILE ENGINEERING

Frank Tse-juí Chang

William Clarence Park

## IN TEXTILE MANUFACTURING

Harry Leighton Brown

Arthur Curthbert Jones

John Davis Cassada

Cecil Ivey Knight

Macon Crawford Comer

George Ehrhardt Kohn

John Henry Dulin

John Flood Matheson

Early Andrew Feimster, Jr.

Franz Erion Plummer

James Bright Griffin

David Alexander Purcell

John Leslie James

Marion Kirk Sanders

George K. Y. Tom

**ADVANCED DEGREES****Master of Science**

## IN AGRICULTURAL ADMINISTRATION

Robert Lee Hunt

B. S., Texas A. &amp; M. College

## IN CHEMISTRY

Raymond Lester Poplin

Mary Elizabeth Yarbrough

A. B., Wake Forest College

A. B., Meredith College

David Luther Young

B. S., Wake Forest College

## IN INDUSTRIAL MANAGEMENT

Edward Lamar Cloyd

B. E., N. C. State College

## IN SOCIOLOGY

Ernest George Moore

B. S., N. C. State College

## IN VOCATIONAL EDUCATION

Homer Lester Stanton

B. S. Adrian College

## IN ZOOLOGY

Archibald McFarland Woodside

David Lonzo Wray, Jr.

B. S., N. C. State College

B. S., N. C. State College

## IN AGRONOMY

Robert Lee Sloan

Herman Ward Taylor

B. S., N. C. State College

B. S., N. C. State College

## IN AGRONOMY, DIVISION OF SOILS

Evander Ayers Davis	Shober Korner Jackson
B. S., N. C. State College	B. S., N. C. State College
Adam Hugh Harris	Luther George Willis
B. S., N. C. State College	B. S., Mass. Agricultural College

## IN ELECTRICAL ENGINEERING

Le Roy Monroe Keever  
B. S., N. C. State College

## IN TEXTILE MANUFACTURING

Boo Tsung Kwia  
B. S., A. & M. College of Texas

## CIVIL ENGINEER

Winfield Scott Morris  
B. E., N. C. State College

## ELECTRICAL ENGINEER

Fabius Henry Kohloss  
B. S., Alabama Polytechnic Institute

## MASTER OF AGRICULTURE

Floyd Henry Harper	Paul Hanner Kime
B. S., University of Maryland	B. S., M. S., N. C. State College
M. S., N. C. State College	

Allen Gallaudet Oliver

## MASTER OF TEXTILES

Isaac Lewis Langley  
B. E., N. C. State College

## STUDENTS GRADUATING WITH HIGH HONORS IN SCHOLARSHIP

1927

Cyrus O. Butler	James Whitney Perry
John Davis Cassada	Franz Erion Plummer
Frank Miller Chedester	Buford Alexander Sides
Joseph David Conrad	Raymond Robert Trevathan
Robert Roy Fountain	Frank Jerome Williams
John Flood Matheson	Westray Edwin Wilson
William Elmore Mathews	David Crenshaw Worth
	William Arthur Yost, Jr.

## STUDENTS GRADUATING WITH HONORS IN SCHOLARSHIP

1927

William Amos Alexander	Edwin Lenoir Jordan
William Hugh Barkley	Cecil Ivey Knight
Donald Joseph Barmettler	William Watson McCulloch
John Leak Fort	Marvin Winston McCulloch
Theodore Norton Ingraham	David Alexander Purcell
George Dudley Humphrey	Johnnie Samuel Wood



**MEDALS AND PRIZES AWARDED**

ELDER P. D. GOLD CITIZENSHIP MEDAL  
Buford Alexander Sides

NORRIS ATHLETIC TROPHY  
Jack McDowall

NATIONAL ASSOCIATION OF COTTON MANUFACTURERS MEDAL  
Franz Erion Plummer

SENIOR ORATORICAL MEDAL  
Westray Edwin Wilson

INTERSOCIETY ORATORICAL MEDAL  
Hendrik Johannes Oberholzer

INTERSOCIETY DECLAIMER'S MEDAL  
Hendrik Johannes Oberholzer

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