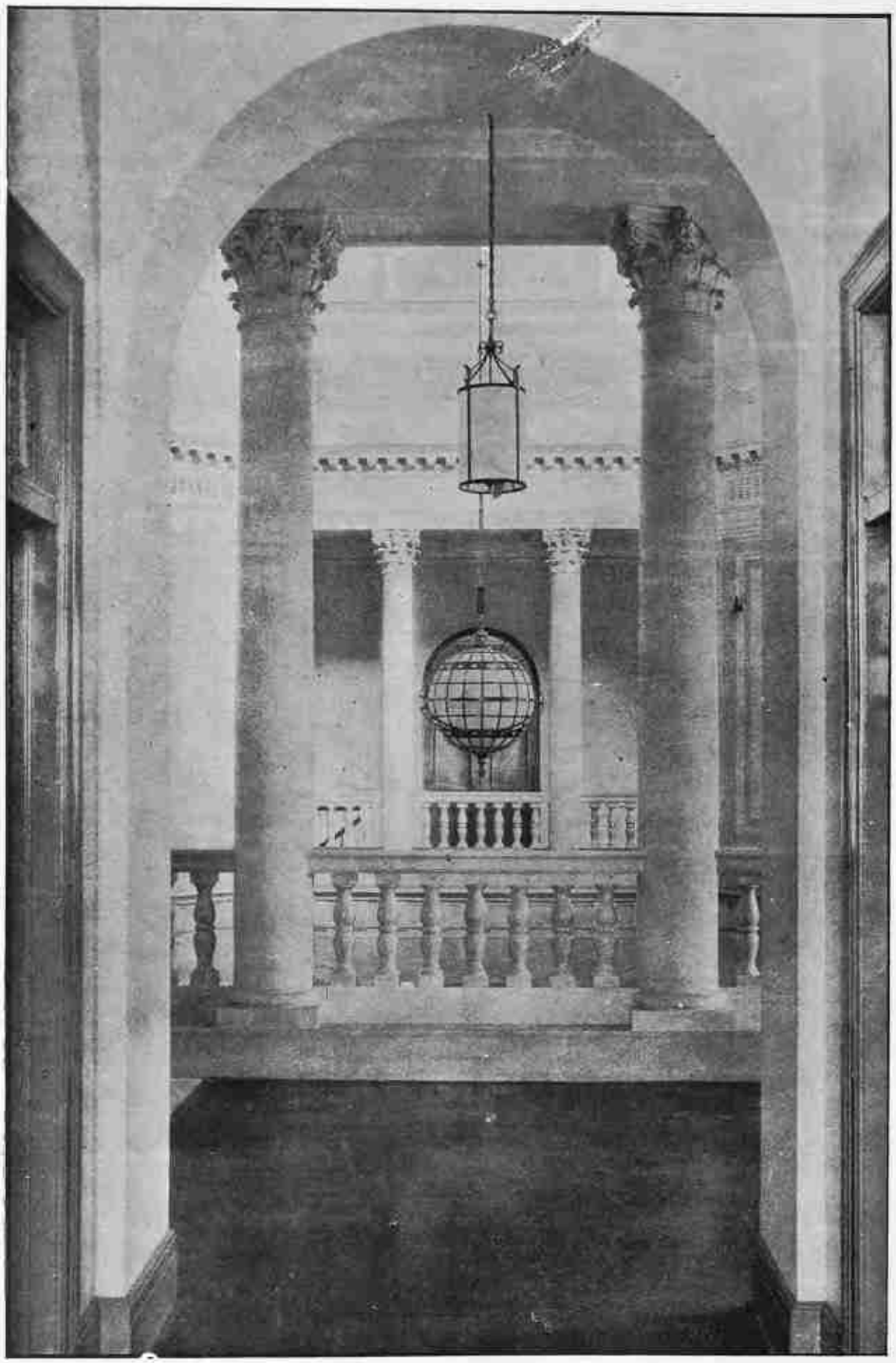
North Carolina State College

Summer School

June 13—July 22, 1927

State College Station
Raleigh



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STATE COLLEGE RECORD

VOL. 26 MARCH, 1927 No. 3

Summer School

JUNE 13—JULY 22, 1927

Announcement *of* Courses

North Carolina State College
of Agriculture *and* Engineering

STATE COLLEGE STATION
Raleigh

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SUMMER SESSION, 1927

The fourteenth Summer Session of the North Carolina State College of Agriculture and Engineering, which begins Monday, June 13th, and closes Friday, July 22nd, has broadened considerably its instruction, particularly by offering additional courses in the Liberal Arts field. In the new courses as well as those regularly given, the work will be directed primarily to the needs of teachers in secondary education. The usual technical courses will also be offered, as well as courses for teachers of Industrial Arts who hold a certification of Grammar Grade C or higher.

In addition to the subject matter courses open to all students who have graduated from high school and particularly suitable for those persons preparing to teach in the secondary schools, there will be courses in the methods of teaching the various high school subjects. There will be offered advanced courses in the field of education, dealing with Philosophy, History of Education and Psychology. The purpose of these courses is to build upon the several courses in Education that have been given heretofore and will be repeated in 1927.

The State College Summer School is desirous of using its faculty and laboratories, which are particularly well prepared and equipped in the scientific and technical fields, to meet the rapidly developing needs of the State. The Summer School is, however, making ample provision for those persons who want training in the advanced academic subjects, and is providing the best of instruction in the Liberal Arts studies.

HIGH SCHOOL PRINCIPALS AND SCIENCE TEACHERS

There will be offered for principals and teachers of high schools, both professional and subject-matter courses. Special courses in methods of teaching high school science, together with courses in the various physical sciences, will occupy a large place in the Summer School. This is made necessary by the demand throughout the State for professionally trained teachers of science in the secondary schools. Emphasis will be placed upon training teachers of third year science in the high school, and subject matter courses in Geography will be given in addition to a course in Methods of Teaching Geography.

Dr. J. Henry Highsmith, State Supervisor of High Schools, will have charge of the general courses for high school principals and teachers. Professor Garfield A. Bowden, of the University School, Cincinnati, Ohio, will offer the same courses he gave last summer in the teaching of science, and will give the course in Methods of Teaching Geography. An effort will be made to help the teachers in the planning of laboratories for high school science and in the proper use of laboratory equipment. Teachers planning to take the science courses are requested to bring their high school texts. An exhibit of laboratory equipment will be on the campus.

AGRICULTURE

A six-weeks course in professional and technical subjects will be given for the teachers of agriculture, in addition to the two weeks intensive instruction for teachers who are unable to attend the six-weeks session. These courses are designed for both the teachers already in service and for prospective teachers of agriculture in the vocational schools.

A two-weeks course for teachers of agriculture will begin June 13 and run till Saturday noon, June 25. This is for the teachers now in service. Persons taking this course for credit will be required to begin class work June 13. This work will be in charge of Mr. Roy H. Thomas, State Supervisor of Agricultural Education, assisted by the staff of the Department of Vocational Education and by Assistant Supervisors.

COURSES FOR FARM WOMEN AND FOR CLUB GIRLS

A one-weeks course in home economics and agriculture is provided for farm women July 4-9 and for Club girls July 11-16.

The first course is designed to serve leaders in home demonstration clubs as well as any farm housewife.

The second is planned solely for girl club leaders. These courses are under the direction of Jane S. McKimmon, Assistant Director of Extension, and her staff of workers.

Instruction is offered in the following:

Food Selection and Preparation.

This course is planned to emphasize the important place of certain foods in the diet and simple methods of combining these foods in attractive and well-balanced meals. Mary E. Thomas, Foods and Nutrition Specialist, four home demonstration agents assisting.

Clothing.

This course will include standards in clothing selection leading to the ideal wardrobe. Helen N. Estabrook, Clothing Specialist, three home demonstration agents assisting.

Room Improvement.

This course involves the principles of home furnishing applied to the girl's bedroom, selection of color schemes, background finishes and accessories. Helen N. Estabrook, Household Furnishing Specialist, three home demonstration agents assisting.

Poultry.

This will be a joint course for boys and girls and will include care and management of chicks and poultry diseases. B. F. Kaupp, Head Poultry Department, and assistants.

Advanced Poultry Production.

This course is for those farm women who have previously taken poultry lectures and demonstrations at the College. The course will deal in an advanced manner with poultry house construction; brooding and chick problems and disease; judging birds for egg production; candling and grading eggs; showing what quality table poultry and eggs must be produced; and how to handle same to obtain most money on the market. Coöperative work. B. F. Kaupp, Head Poultry Department, and W. F. Armstrong, Assistant Professor Poultry Science.

Home Gardening.

This course will deal with cultural practices in home vegetable gardening. G. O. Randall, Assistant Professor of Horticulture.

BOYS' SHORT COURSE

A special course, July 11 to July 16, inclusive, for 4-H club members and local leaders. This course is designed to meet the needs of the farm boys who wish to come to College for a week of intensive instruction in subjects relating to agriculture, in order that they may be qualified to aid in organizing and directing the club work in their respective communities. Recreation features will be provided.

Every effort will be made for the comfort and safety of all club members attending this short course. The supervision of competent leaders is provided.

COTTON CLASSING

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, nor for men who lack earnestness of purpose. There are no entrance requirements for the Cotton Classing courses except that the applicant should have a good English education.

INDUSTRIAL ARTS

During the Summer School emphasis will be given to the preparation of teachers of industrial arts for the various communities of North Carolina. The rapid growth of industrial education in our State is creating a demand for supervisors and teachers who are competent to develop it in the right direction. Courses will be given in shop practice, mechanical drawing, methods of teaching, subject-matter, and administration.

Supervisors and teachers are needed for the work in the junior and senior high schools, part-time and continuation schools, and evening schools. The need is for those who are familiar with both general and vocational education and are capable of placing the proper emphasis on the courses to be outlined for a particular locality.

Industrial arts education depends largely upon the soundness of the philosophy of the type of training which underlies the introduction of industrial studies. For this reason those professionally minded teachers with vision will welcome courses giving them a better basis for their work in the classroom.

Courses in Textiles designed for men who are employed in the manufacturing plants, as well as courses for teachers who are employed in the textile communities, will be given. These courses will be arranged on a unit basis in order to meet the needs of the various groups who may wish to come to the College for different periods.

INDUSTRIAL ARTS FOR ELEMENTARY TEACHERS

The purpose of the courses in Industrial Arts for the Elementary School is to create interest in these problems using them to motivate the Elementary School subjects and to prepare teachers and supervisors who will become leaders in introducing this work in their school systems. Credit for these courses may be used either in raising or renewing certificates. The courses will be open only to those who hold a Primary or Grammar Grade C Certificate or one of higher grade.

Teachers desiring to raise or renew their certificates will take the first two of the courses in the list following, and one course selected from the remainder of the list.

Ed. s104. The Theory of Industrial Arts in the Elementary School. Five hours per week; three credits.

Ed. s105. Practical Arts Problems. Ten hours per week; three credits.

Tex. s115. Courses for Teachers. Four hours per week; two credits.

Ed. s201. Educational Psychology. Five hours per week; three credits.

Ed. s210. Educational Tests and Measurements. Five hours per week; three credits.

Ed. s230. Vocational Guidance. Five hours per week; three credits.

NOTE—The above courses are described elsewhere in this bulletin.

PHYSICAL EDUCATION AND COACHING

The Summer School will offer opportunity for coaches and teachers of physical training to take specialized courses in the Department of Physical Education. The courses in athletic coaching and physical training are arranged especially for instructors already engaged in teaching during the regular school year and for others who wish to supplement the preparation they may have received in college. The courses take up the more important problems of coaching, and are designed for the purpose of fitting men more completely to take charge of athletics and physical training in schools and colleges throughout the country.

Leaders in education now recognize the fundamental need of athletics as an important part of any broad educational program. The demand for competent teachers, supervisors, and directors far exceeds the supply. This is especially true in case of men qualified both in coaching and in conducting classes in physical training. Our schools are seeking men who are college trained to take charge of their athletics; men who are versed in all phases of athletic coaching and administration. Approximately thirty states in the Union now have adopted legislation making physical education a prescribed part of the elementary and secondary school program.

RECREATION

There will be supervised recreation, consisting of tennis tournaments, baseball, volleyball, basketball and handball. Instruction in swimming will be provided for both men and women. The new swimming pool, lockers and showers, and other gymnasium facilities will be available to all students.

GRADUATE STUDIES

Practically all of the departments of instruction at the College that are offering undergraduate work during the Summer School will also offer graduate work. Persons who have completed their undergraduate work and desire to continue toward an advanced degree may do one-half term's work by pursuing graduate studies during the six-weeks Summer School. Special provision will be made to pursue *in absentia* graduate work started at the College during the Summer School. Credit will be given for this work done away from the College, provided it is arranged and registered for. In special cases, a student may continue work at the College or in the field for the whole summer and receive a full quarters credit.

COLLEGE CREDIT

Beginning with 1924-1925, the regular session of State College was divided into three terms; consequently "credit," as used throughout this bulletin, refers to term credit, or twelve weeks work, unless otherwise designated. Therefore, 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. Since, however, no student will be allowed to take more than eighteen hours of work per week without special permission, this restriction will prevent a student's taking more than one ten-period course.

Thirty days of work during the six weeks will be accepted for a term's work if all the requirements of the course are met. This includes one day for registration and one day for examination.

The courses for college credit are open to graduates of standard high schools, and to others of equal qualifications. These courses give college students the opportunity to remove conditions, so that they may enter their classes in the fall in full standing. They will also make it possible to secure advanced credit. The college-credit courses are also open to teachers who hold standard State certificates.

All professional courses offered will have value both for teachers' certificates and for college credit. The subject-matter courses may also be counted by teachers for academic credit towards securing or raising their certificates.

PROVISION FOR BOTH MEN AND WOMEN

All courses are open to both men and women. Special accommodations in the dormitories are provided for the women, and special attention will be given to their comfort and welfare.

ENTERTAINMENTS AND SOCIAL FEATURES

Arrangements are being made for several high-grade entertainments, including lectures and music, during the session. A reception for students and faculty, followed by other social and recreational events such as week-end picnics and excursions, serve to foster a congenial spirit in the student-body as well as to keep students physically and mentally fit for efficient study.

FEES AND EXPENSES FOR SIX-WEEKS STUDENTS

All fees and other charges are payable in advance or upon registration, and all checks should be payable to N. C. State College.

Registration	$12.50
*Tuition (except for teachers)	10.00
Room Rent, each person (two or more in room)	7.50

The college dining room will not be kept open during Summer School except during the Farm Women's, and Boys' and Girls' Short Course. The cafeteria, which is in the same building with the dining room, will be run for the benefit of the Summer School students and faculty.

A great many members of the faculty and regular college students eat in the cafeteria and find it very satisfactory, and about as cheap as the dining room, with the addition of greater variety from which to select, and longer periods in which to eat. The cafeteria charges are reasonable.

In a limited number of cases one may be able to room alone upon payment of $10 room rent.

The registration fee is not returnable after June 6. There will be no refund of room rent or tuition after June 20.

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* FREE TUITION FOR TEACHERS

Exemption from the payment of the $10.00 tuition fee is provided by legislative enactment for teachers now in service in the schools of North Carolina, and for residents of the State who are preparing to teach during the school year 1927-28.

Teachers now in service and students preparing to teach, who are residents of the State, will be required to sign the usual teacher's agreement to teach in North Carolina for at least six months, or to pay the tuition within one year from date of registration in case they do not teach.

FEES AND EXPENSES FOR SHORT-TERM STUDENTS

There will be a fixed charge, payable upon registration, of $1.50 a day for persons registering for the Farm Women's Short Course, and the Boys' and Girls' Short Course. This will include room rent and meals in the College dining hall.

There will be a fixed registration fee of 75 cents a day for all other Short-Course Students who do not get their meals in the dining hall. This is to cover cost of registration, room rent, janitorial and hospital service.

WHAT STUDENTS NEED FOR THEIR ROOMS

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

BOARD AND LODGING

Students will be assigned to rooms upon their arrival at the College. Those who prefer to have their rooms reserved can send in their registration fee of $12.50 and be assigned to rooms in advance. Applicants who find that they will not be able to occupy the rooms assigned to them are required to give notice to the Director five days in advance of the date fixed for occupancy or to forfeit to the Summer School the payment advanced for registration. Those who give notice in time that they cannot attend will have their payments returned to them.

In case it is desired to change the room assignment, permission to do so must first be obtained from the Superintendent of Buildings. In no case may a room be taken until it has been regularly assigned.

SELECTION OF COURSES

The advisers of the different groups will be available at the College during the morning and afternoon of the opening day of the session. All students before registering will consult advisers appointed by the school to assist applicants in arranging their schedules. These are as follows:

College-Credit Courses—E. B. Owen, Registrar.

Vocational Education Courses—Leon E. Cook, Professor of Vocational Education, and E. W. Boshart, Professor of Vocational Education.

Cotton-Classing Courses—W. H. Darst, Professor of Farm Crops.

High School and Administration Courses—J. Henry Highsmith, State High School Supervisor.

Graduate Courses—Carl C. Taylor, Dean of Graduate School.

REGISTRATION

All registrations will be conducted in Holladay Hall, beginning at 9 a. m., on June 13. Students are expected to report in person on Monday, June 13, so that they may begin class work on the morning of Tuesday, June 14, at 8 o'clock.

Section 1. A student may, upon recommendation of his Vocational Adviser and the approval of the Director of the Summer School, register for credits in excess of those prescribed in his curriculum, provided he has attained fifty per cent excess points on his previous terms work.

Teachers and those who are not students during the regular college term will be allowed to take more than eighteen actual hours only on recommendation of the Director of the Summer School.

Section 2. A student having failed a course may, upon recommendation of his Vocational Adviser and the approval of the Director of the Summer School, schedule the same course in addition to the courses prescribed in his curriculum, provided he has satisfactorily completed all of his preceding term's work or has failed on only one course.

There will be a key deposit of twenty-five cents, which amount will be refunded when the key is returned. In some of the classes there will be a small fee to cover cost of materials, which will be designated in the description of the course.

HOURS OF WORK

It is important to notice that teachers are required to take fifteen hours weekly in order to receive credit for one summer session.

In addition to the eighteen hours taken for credit, each student will be allowed a limited number of visiting hours, not to exceed four for any class.

The Summer School authorities reserve the right to cancel any course for which the registration is less than five.

All courses carrying numbers of 100 or above offered in Summer School are college-credit courses.

CREDITS

Summer School credit will not be given to any one whose class attendance, scholarship or deportment is unsatisfactory, or to any one who is indebted to the school, or who takes more than eighteen hours a week of class work, unless permission to take the excess has been given in writing by the Director.

THE ATTRACTIONS OF RALEIGH

Being the capital of one of the original thirteen states, Raleigh is unusually rich in historical collections, fine public buildings, and interesting places and memorials. It is interesting, also, for its churches, its schools, its hotels, and its office buildings, and its growing commercial and industrial activity. Opportunities will be given the students to visit the places of interest.

The various churches welcome all Summer School students to Sunday school and church services, and their pastors have taken a very friendly interest in the morning services at the College auditorium. Raleigh will be found in all respects a delightful place of residence.

THE SOCIAL CENTER

The Y. M. C. A. building will be the social center of the school. This building contains a reading room, an auditorium, several reception rooms, telephone booths, and other conveniences for the promotion of the social life of the students.

THE D. H. HILL LIBRARY

The D. H. Hill Library, one of the most beautiful libraries in the South, will be open for the use of summer school students. Its spacious reading and periodical rooms afford an opportunity for research and study under the most pleasing conditions. The consolidation of the various departmental libraries into the central library, together with the new volumes purchased during the year, have greatly increased the library facilities. The library maintains a competent staff adequate to render every possible library service.

The Olivia Raney Library and the State Library will also be open to Summer School students for reference work.

FRANK THOMPSON GYMNASIUM

The Frank Thompson Gymnasium is without doubt the finest and best equipped gymnasium in the South. The main floor is 130 by 110 feet, with an intercollegiate basketball court of maximum size, and seating capacity for 2,500 spectators without using the gallery. Two maximum sized cross courts make it possible to run off class and tournament games. The auxiliary gymnasium or exercise room is 110 by 40 feet. Both of these rooms are equipped with full gymnasium apparatus and handball courts. The basement is fitted up with 1,000 private steel combination lockers. Team training rooms, equipped with private showers and lockers, a towel service room, an equipment room, and a wrestling and boxing room compose one-half of the basement. The other half is given over to the Armory.

The swimming pool is located in an annex amply lighted both by windows and skylights, and finished with white tile. The pool is 75 by 30 feet, with room sufficient to accommodate several hundred spectators.

REDUCED RATES ON RAILROAD

The Southern Passenger Association has granted reduced rates on account of our Summer School and conferences held in connection with the State College Summer School at one and one-half fare for the round trip, a minimum fare of $1.00 from all stations in North Carolina except stations on the L. and N. Railroad and the Winston-Salem Southbound. These tickets will be sold on the identification certificate plan. All persons interested in securing these reduced rates should write in for a certificate, which will be forwarded on request.

Tickets will be sold June 11-13, inclusive; June 18-20, inclusive; June 25-27, inclusive; July 2-4, inclusive; July 9-11, inclusive; July 16-18 inclusive, and July 24-26, inclusive, final limit of all tickets August 4th; tickets to be validated by the regular ticket agents at Raleigh before return journey is commenced.

COURSES TO BE OFFERED IN THE SUMMER SCHOOL

AGRONOMY

Agron. s1. Cotton Classing. Twenty hours a week for six weeks. Mr. Darst, Mr. Cotner.

The Summer School of Cotton Classing is designed to prepare men to enter the cotton business and to enable producers to become familiar with grades, so that they may handle their cotton more efficiently from the time it opens in the field until it is baled.

Inefficient handling at the present time is causing the State a loss of millions of dollars annually. The business side of cotton transactions as well as the practical grading and stapling will be included in the course.

Experience will not be necessary for taking the course, as the class will work in groups according to previous training. Students may qualify as competent cotton classers at the expiration of this course.

The course will consist of lectures and daily practice in grading and stapling cotton samples, according to the revised U. S. Cotton Standards, including the descriptive grades as well as the official.

The course will be given each day, with the exception of Saturday, for four hours a day.

The first period of each day will be devoted to lectures and discussions, and the remaining time will be used in the actual practice of grading and stapling of cotton. An expert from the United States Department of Agriculture will assist in this course.

Agron. s201. Cereal Crops. Prerequisite: General Field Crops. Five hours a week; three credits. Mr. Darst, Mr. Cotner.

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. Laboratory fee, $2.

Agron. s210. Cotton Production, or s215. Tobacco Production. Five hours a week; three credits. Mr. Cotner.

Lectures and recitations on history, production, adaptation, types and varieties, including cultivation, harvesting, grading, and marketing, will be given. Laboratory consists of variety studies, the classing of cotton, and the grading of tobacco. Laboratory fee, $2.

Agron. s230. Advanced Seed Judging and Grading. Prerequisite: Cereals. Five hours a week; three credits. Mr. Darst, Mr. Cotner.

Lectures and practice in planning, arranging ,and judging field crops exhibits. Study of the Federal grain and hay standards. A course planned to develop experts in the judging of field crop seeds and in the grading of grain and hays. A course designed for agricultural extension workers and vocational teachers. Laboratory fee, $2.

Agron. s251. Advanced Study of Crops Research. Undergraduate credits, 3-9; Graduate credits, 2-6. Elective for graduates and advanced undergraduates. Mr. Darst, Mr. Cotner.

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 upon by the class.

Agron. s206. Seed Judging and Crop Identification. One hour a day for two weeks; one credit. Mr. Darst.

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.

Agron. s207. Fertilizers. One hour a day for two weeks; one credit. Mr._____

This course deals with the characteristics of the important fertilizing materials and their use. Special attention is given to the figuring out of fertilizer formulas and the home mixing of fertilizers. The results of fertilizer experiments on the best farms are considered, and formulas for the important crops on the different soils of the State are considered.

ANIMAL HUSBANDRY AND DAIRYING

A. H. s102. Animal Nutrition. Ten times a week; five term credits. Mr. Ruffner.

A study of the principles of Animal Nutrition, including the physiology of the digestion of feeds, the uses of nutrients in the body, feeding standards as adapted to different classes of farm animals.

A. H. s201. Swine Production. Five times a week; three term credits. Mr. Hostetler.

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.

A. H. s202. Animal Breeding. Eight times a week; four term credits. Mr. Ruffner.

A subject in which detailed attention is given to the causes which 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.

A. H. s203. Advanced Stock Judging. Five times a week; three term credits. Mr. Haig.

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.

A. H. 203a. Stock Judging. Five hours a week; two weeks; one credit. Mr. Ruffner.

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.

A. H. s208. Stock Farm Management. Five times a week; three term credits. Mr. Ruffner.

A subject devoted to the study of successful methods of operating farms devoted chiefly to livestock production. Special reference is made to the best systems as applied to North Carolina conditions.

A. H. s211. Advanced Nutrition. Eight times a week; four term credits. Mr. Ruffner.

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.

A. H. s218. Hygiene and Sanitation of Farm Animals. Five hours a week three term credits. Mr. Koonce.

This course naturally follows the previous course, as it takes up those diseases of our domestic animals that are communicated from one to another, principally by bacteria. In the third term a discussion of external and internal parasites is carried on to acquaint the student with the best known means of combating them.

A. H. s218a. Hygiene and Sanitation of Farm Animals. Five hours a week; two weeks; one credit. Mr. Koonce.

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 anmials and premises for the prevention of disease. This is a coarse for county agents, teachers, and students preparing to teach Vocational Agriculture.

BOTANY

Botany s101. General Botany. Nature of the Higher (Crop) Plants. Two lectures; four recitations; eight hours laboratory; four credits. Equivalent to Freshman and Sophomore course given the first quarter of the regular college year. Fee, $2. Mr. Wells, Mr. Whitford.

This course is offered to meet the needs of the following groups of students:

(1) Teachers of Biology who desire to enhance their knowledge of the higher plants, especially the crop plants.

(2) Agricultural workers who desire a thorough review of the fundamental structure and functions of the crop plants.

(3) College students who, having failed this course in past years, desire to change their record in regard to it.

In the course the fundamental structural and functional facts concerning the crop plant are taken up. Beginning with the flower, the work proceeds to the problems of fruits, seeds and germination of seeds. Then some fundamental biology is given relating to cells and tissues. Following this, the structural and functional data concerning roots, stems, buds, and leaves are presented. Numerous excellent microscope slides are used to present the

minute structural aspects, while the functional aspects are given with the aid of a number of striking demonstration experiments. Fresh crop plant material is used throughout the course for illustrative purposes. The course closes with a thorough review and summary of the whole field studied.

Botany s203. Systematic Botany. Two lectures; sixteen hours of laboratory; five credits. Equivalent to Junior and Senior course given in third quarter of the regular college year. Fee, $1. Prerequisite: Elementary Botany. Mr. Wells, Mr. Whitford.

This course is presented for all students who desire a more intimate outdoor acquaintance with plants, both cultivated and wild. Teachers of biology, agricultural students, and all others interested in natural history will find this course especially desirable.

The basis of the course consists of practice in identification of plants with the aid of the plant manual. Material collected on the field excursions is brought into the laboratory and studied with the aid of binocular microscopes. In the lectures, the fundamental characters of the natural plant families are pointed out and the voluntary relationships of these families are discussed. On the frequent field excursions the class will visit the floristically rich areas about Raleigh. On these excursions a few lectures will be given, dealing with the relation of plants to their environment. By the time the course closes, the student should personally be acquainted with the commoner trees, shrubs, wild flowers, and weeds of the State.

CHEMISTRY

Chem. s101a. General Chemistry. Five hours in classroom and four hours in laboratory each week. Four credits. Equivalent to first term General Chemistry as given in the regular college year. Laboratory fee, $3. Mr. Wilson, Mr. Rice.

Composition and properties of air and water. First principles of Chemistry, such as atomic theory, laws of chemical combination, valence, chemical formulas and equations, oxidation, reduction, behavior of gases and solutions. Study of a few typical elements, such as oxygen, hydrogen, carbon and nitrogen, together with their simpler compounds.

Chem. s101b. General Chemistry. Five hours in classroom and four hours in laboratory each week. Four credits. Equivalent to second term General Chemistry as given in the regular college year. Laboratory fee, $3. Mr. Wilson, Mr. Rice.

Particular attention given to chlorine, sodium, nitrogen, sulfur, fluorine, bromine, and their compounds. Study of such common substances as salt, lye, soda, cardon disulfide, prussic acid, petroleum, coal tar, acetylene; ammonia and its more interesting uses such as in ice machines; sulfur dioxide in household refrigerators and as a bleaching and germicidal agent; compounds of nitrogen in warfare and agriculture. Introduction to acids, bases, salts, ionization, hydrolysis, equilibrium, the periodic law and the new theories of the structure of the atom.

Chem. s101c. General Chemistry. Five hours in classroom and four hours in laboratory each week. Four credits. Equivalent to third term General Chemistry as given in the regular college year. Laboratory fee, $3. Mr. Wilson, Mr. Rice.

Chemistry of clays, ceramics, glass, cement, soils, fertilizers, insecticides, lime, hard water, alloys, paints, storage batteries, photography, flames and explosions. Compounds and properties of phosphorous, arsenic, bismuth,

silicon, boron, potassium, calcium, magnesium, zinc, aluminum, iron, tin, lead, nickel, copper, mercury, silver, gold, platinum and other less common elements. Thermochemistry, colloids and radioactivity.

Chem. s111. Qualitative Analysis. Two hours lecture with four laboratory periods of three hours each, per week. Equivalent to one term of college work. Four hours credit. Prerequisite: General Chemistry. Laboratory fee, $3. Mr. Wilson.

A systematic study and separation of the metallic ions and non-metallic ions into their respective groups, their identification and the chemical reactions involved. The last two weeks will be given over to the complete analysis of mixed salts, compounds, and alloys.

Chem. s112. Quantitative Analysis. Two lectures and twelve hours laboratory. Equivalent to one term of college work. Four hours credit. Prerequisite: Qualitative Analysis. Laboratory fee, $3. Mr. Wilson.

This work will deal with the theory and practice of making up and standardizing acids, bases, di-chromate and permanganate solutions, also the determination of the strength of unknown acids and bases, the analysis for the percent purity of iron ores, oxalates, sulphates, magnesium phosphate rock, etc.

Chem. s141. Organic and Biological Chemistry. Five hours a week; three credits. Prerequisite: General Chemistry. Mr. Rice.

A systematic study of the compounds of carbon with emphasis on those substances of particular importance in the life of man. Such common substances as alcohol, ether, chloroform, glycerin, quinine, carbolic acid, Rochelle salt, saccharin, aspirin and benzoate of soda. Such frequently mentioned compounds as caffeine, nicotine, wood alcohol, mustard gas, nitroglycerine, citric acid, cream of tartar, acetanilide, menthol, salvarsan, mercurochrome, formaldehyde. Such materials as gasoline, kerosene, rubber, collodion, celluloid, rayon, duco, turpentine, soap, glue, linseed oil, ethyl gasoline and such processes as decay, fermentation, rancidity, hardening of oils, tanning of leathers. Particular attention is given to carbohydrates, fats and proteins and their fate in digestion and metabolism.

Chem. s221. Organic Chemistry. Five hours lecture with six hours laboratory. Four credits. Prerequisite: General Chemistry. Laboratory fee, $3.00. Mr. Wilson.

This course is equivalent to the first term of College Organic Chemistry. The aliphatic series alone will be dealt with. The laboratory work involves the identification of the halogens, nitrogen, carbon, etc.; also the melting points of compounds, and preparation of a number of organic substances.

Chem. s241. Chemistry of Life. Five hours a week, three credits. Prerequisite: General Chemistry. Mr. Rice.

Nutrition and growth of the plant. Protection of the plant with insecticides. Plant materials used as food for man. Digestion and nutrition in man and the animal. Promoting the health and comfort of man by fuel, pure water, disposal of waste, clothing and drugs. Glass and pottery; dyes and toilet preparations; paints and varnishes; cleaning agents and stain removal.

Chem. s242. Food, Nutrition and Diet. Five hours a week, three credits. Prerequisite: General Chemistry. Mr. Rice.

The influence of vitamins, minerals, proteins, amino acids, carbohydrates, fat, fiber, flavor, color, enzymes, preservatives and stimulants on the body.

Chemical and physical nature of carbohydrates, fats and proteins. Digestion and metabolism. Study of the proper diet. Flesh-forming and flesh-reducing diets. Diet in disease. Sour milk therapy.

While human feeding is emphasized in this course, principles here discussed are applicable to the feeding of animals as well.

Chem. s317. Michrochemical Analysis. Prerequisite: Chemistry 113. Mr. Wilson.

This course is offered to students desiring a master's or doctor's degree. The aim of this course is to develop skill in the technique of Microchemical methods and the application of the microscope in a qualitative scheme of analysis.

Chem. s341. Three credits. Graduate students may register under this number and receive three credits by taking either Chem. s241 or Chem. s242 and in addition preparing a term paper on work assigned by the instructor. Mr. Rice.

ECONOMICS

Econ. s101. Commercial and Business Geography. (Commercial and Industrial.) Eight times a week. Four credits. Mr. Robertson.

This course is designed to prepare teachers of geography in the high schools as provided for in the plan of High School Reorganization as well as for students in the School of Science and Business. Geographical conditions affecting industries production and commerce of the world; development and relations of commercial areas to location and availability of resources; markets and transportation routes.

Econ. s102. Introduction to Economics. Five hours a week; three credits. Mr. ————

Required of students in the Schools of Engineering and Textiles. Not open to students in Business Administration.

This course is the regular college one term course required of all students in Engineering and is designed for those students who do not feel able to devote more than one term to the study of Economics, and also for teachers preparing to teach Economics in High Schools.

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.

Econ. s.103. General Economics. Five hours a week; three credits. Elective. Mr. Forster.

Required of Sophomores in Business Administration, Agricultural Administration and Industrial Management.

This is the first term of the regular college course in General Economics.

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.

Econ. s105.* Economic Science and the Common Welfare. Five hours a week; three credits. Mr. Forster.

This course is designed to give the student interested in Economic Welfare an understanding of the nature and importance of economic problems. The

* This course cannot be substituted for Economics 103.

various economic problems now confronting the American people will be discussed in an untechnical manner. The course does not presuppose previous training in economics on the part of the student.

Some of the subjects which will be discussed are: competition and the price system, monopoly, money and general price levels, commercial banking, business cycles, domestic and international trade, and taxation.

Econ. s212. Statistical Method. Five hours a week; 3 credits. Elective. Prerequisite: Economics 102. Mr. Forster.

A study of the elements of statistical methods, statistical types, collection and analysis of statistical data.

Econ. s217. Advertising. Five times a week; three credits. Prerequisite: Economics 102. Mr. Robertson.

The practical application of psychological principles to advertising methods, advertising research studies, sales campaigns, with special attention to the preparation and writing of advertising copy.

Econ. s265. Farm Marketing. Five hours a week; three credits. Required of Seniors in Agricultural Administration, Agriculture, and Vocational Education. Prerequisite: Economics 102. Mr. Forster.

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.

Econ. s361. Farm Ogranization and Management. Elective. Five periods a week; three credits. Mr. Forster.

In this course special consideration is given to the application of economic principles and statistical methods to the solution of farm management problems. For this purpose actual farm records on farms from various parts of the State are available. The course is primarily intended for those who had have General Economics and Statistics.

Econ. s366. Marketing Methods and Problems. Elective. Five periods a week; three credits. Mr. Forster.

This course will consist of a study of the major problems in the field of agricultural marketing. The problems related to prices and the marketing mechanism will be given special consideration. The course is designed primarily for those students who have had General Economics and the first course in Farm Marketing.

EDUCATION

Ed. s103. Occupations. Five hours a week; three credits. Mr. Boshart.

A comprehensive view of the field of occupations intended to supply young people with information concerning themselves and 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 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 concerning various occupations. Opportunities for making specific studies in which the student is most interested will be offered. This course is particularly helpful for those who are thinking of teaching occupations in the junior and senior high schools.

Ed. s104. Theory of Industrial Arts in the Elementary School. Five hours a week; three credits. Mr. Boshart.

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 of selecting suitable projects for classroom use. Primarily for teachers and supervisors of the elementary schools.

Ed. s105. Practical Arts Problems. Ten hours a week; three credits. Mr. Boshart.

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.

Ed. s201. Educational Psychology. Five hours a week; three credits. Mr. Mayer.

This course will deal with psychological facts and theory and their application to educational practices. A study will be made of 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.

Ed. s202. Child Psychology. Five times a week; three credits.

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.

Ed. s208. Visual Aids. Five periods; three credits. Mr. Armstrong.

Instruction and practice in the use of blackboards, charts, graphs, maps, slides, stereographs, motion pictures, models, and exhibits in public school teaching. Demonstration lessons; visual aids available. Designed for elementary and high school teachers and grade supervisors.

Ed. s210. Educational Tests and Measurements. Five hours a week; three credits. Mr. Mayer.

This course will give the teacher an insight into the more common achievement, diagnostic, and mentality tests, and their use and interpretation from the standpoint of the teacher, supervisor, and administrator. Errors in teacher's marks, principles of testing, and methods of content examining will be discussed from the standpoint of making the teacher more efficient in examining and grading.

Ed. s216. Problems of the High School Teacher. Five periods; three credits. Mr. Highsmith.

This course will cover the State requirement 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.

Text-books, lectures, readings, and reports.

Ed. s217. Methods of Study. Five periods; three credits. Mr. Cook.

A course for teachers in the methods of study and the technique of supervising study. Considers the factors of study, the chief difficulties, the gen-

eral 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.

Ed. s226. Methods of Teaching Modern Languages. Five hours a week; three credits. Mr. Mumford.

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 text-books, pronunciation, grammar, reading, literature, composition, vocabulary building, dictation, oral drill, examinations, tests, and extra-class activities.

Ed. s227. Teaching of Literature in Secondary Schools. Five hours a week; three credits. Mr. Owen.

The purpose of this course is to discuss various methods of teaching English and American literature in high schools: assigning of lessons, conduct of recitations, reports on outside readings, consideration of literary productions recommended for study by high-school students, survey of textbooks. Special consideration will be given to the books in literature which are listed in the North Carolina manual for secondary schools. Textbook assignments, reports, discussions, collateral readings, practice teaching.

Ed. s228. Methods of Teaching History. Five periods; three credits. Mr. Lefler.

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.

Ed. s229. Teaching of Composition in Secondary Schools. Five hours a week; three credits. Mr. Owen.

The purpose of this course is to discuss various methods of teaching composition and grammar in high schools: lesson assignments, class discussions and recitation, written exercises, grading of papers. A thorough examination will be made of the requirements in composition and grammar for the several years of the high-school course. Text-book assignments, reports, discussions, practice teaching.

Ed. s230. Vocational Guidance. Five times a week; three credits. Mr. Boshart.

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.

Ed. s246. Problems in School Administration. Five periods; three credits. Mr. Highsmith.

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 text-book problems; problems of the course of study and program making; school, home, community problems.

An attempt will be made to bridge the gap between theory and practice in school administration.

Text-books, lectures, readings, and reports.

Ed. s247. Problems in Secondary Education. Five periods; three credits. Mr. Highsmith.

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.

Text-books, lectures, readings, and reports.

Ed. s249. Methods of Teaching Geography. Five hours a week; three credits. Mr. Bowden.

This course is designed to meet the needs of those teachers who will teach geography in the high school as provided for in the plan of High School Reorganization. It will deal with the methods of using visual aids in geography, laboratory materials, and techniques adapted to the teaching of all phases of geography. Teachers of geography in the elementary school will also find this course helpful.

Ed. s250. Methods of Science Teaching. Five hours a week; three credits. Mr. Bowden.

A course for teachers of science in the secondary schools. It will include the aims and values of the various courses in science, organization, and sequence of studies, methods of teaching adapted to the various sciences, and means of measuring results.

Ed. s251. Materials in Science Teaching. Five hours a week; three credits. Mr. Bowden.

A course in the materials needed for the teaching of general science, biology, physics, and chemistry in the junior and senior high schools. Such problems will be considered as arrangement of laboratories, equipment, how and where to secure supplies, use of home-made apparatus, collection and preservation of biological materials, laboratory technique, and adapting the content of courses to the various localities of the State.

Ed. s255. Rural Education. Five hours; three credits. Mr. Mayer.

Objectives and needs of rural education, problems in rural educational advancement, organization for efficient results, prevocational and vocational work.

Ed. s266. Organization and Administration of Part-time and Continuation Schools: Five hours a week; three credits. Mr. Coggin.

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.

Ed. s280. History of Education. Five times a week; three credits.

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.

Ed. s301. Visual Instruction. Five periods; three credits. Mr. Armstrong.

A study of the cost and value of visual aids; place and limits; relation to imagination, interest and effort; equipment needed, where and how to secure it; common errors to be corrected. This course is intended for principals and others having administrative duties.

Ed. s305. Problems in Agricultural Teaching. Five periods; three credits. Prerequisite: Eight credits in education. Mr. Cook.

Investigations, reports, and a critical evaluation of present practices with constructive remedies. The content of the course will vary, according to the problems selected for study.

Ed. s306. Special Problems in Teaching Agriculture. Five hours a week; three credits. Mr. Cook.

This course is for graduates of the Department of 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 arrangements and fixtures, library equipment, gathering specimens and illustrative materials, and the organization of courses of study.

Ed. s308. Supervision—The Improvement of Instruction. Five periods; three credits. Mr. Highsmith.

For principals of Elementary Schools and High Schools, Heads of Departments, Supervisors and Teachers.

This course is offered to meet a growing demand for supervision, especially in the Elementary School and also in the High School. The purpose of Supervision is the improvement of instruction.

The problems involved in the supervision of teachers; the planning and organization of supervision; the functions of supervision; rating of principals, supervisors and teachers; classroom visitation and conferences; the improvement of teachers in the service.

Text-books, lectures, readings, and reports.

Ed. s312. Advanced Methods in Science Teaching. Five hours; three credits. Mr. Bowden.

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. s320. The Administration of Vocational Education. Five times a week; three credits. Staff of the Division of Vocational Education.

This course will deal with legislation which has made possible the Vocational Education program under the Smith-Hughes Act; something of the history of the movements leading up to the passing of the Smith-Hughes Act. It will also deal with the general administration of the act from both the Federal and State standpoint. It will then take up in detail the organization and programs of the four distinct departments, viz., Department of Agricultural Education, Home Economic Education, Trades and Industrial Education, and Vocational Rehabilitation. For these four particular phases of the course, the State Supervisors will be called in to give the instruction.

Ed. s321. Philosophy of Education. Five times a week; three credits.

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.

ENGINEERING

C. E. s105. Mechanics. Five hours per week; three credits. Mr. Foster. Prerequisite: Trigonometry and Analytics. Mathematics 103 and 104.

Statics, including concurrent forces, parallel forces, non-concurrent forces; friction, centroids, moment of inertia, rectilinear motion, curvilinear motion, and rotation.

M. E. s102. Engineering Drawing. Eight or fifteen hours a week; two or four credits. Required of Engineering Freshmen. Mr. Foster.

Drawing-board work, covering lettering, orthographic projection, auxiliary projection, isometric projection, cabinet projection, intersection and development, working drawings, and blue-printing.

M. E. s103. Descriptive Geometry. Four or eight hours per week; one or two credits. Mr. Briggs.

This work covers the representation of geometrical magnitudes, by means of points, lines, planes, and solids, and the solution of problems relating to them.

M. E. s105. Woodshop. Five or ten hours a week; one or two credits. Mr. Wheeler.

Use of bench tools, reading blue-prints, making cabinet joints, operation and care of wood-working machinery. Correct methods of staining, varnishing, filling and gluing.

M. E. s107. Mechanical Drawing. Ten hours per week; three credits. Mr. Briggs.

Drawing-board work, covering machine fastenings, pipe fittings, elementary cams, technical sketching, working drawings, tracing and blue-printing.

M. E. s118. Machine Shop I. Ten hours a week; two credits. Mr. Wheeler.

Required of Seniors in Chemical and Juniors in Ceramic and Mining Engineering.

Instruction in the use of hand and machine tools.

M. E. s130. Metal work. Fifteen hours a week; three credits. Mr. Wheeler.

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 shops where metal work will be a part of the course offered.

M. E. s132. Woodworking for Teachers. Fifteen hours a week; three credits. Mr. Wheeler.

Instruction will be given in bench-work, the use of wood-working machines, and the construction and finishing of projects suitable for wood-working classes in the junior and senior high schools. Special attention will be given to the problems of selecting suitable equipment and its installation.

M. E. s134. Mechanical Drawing for Industrial Arts and Vocational Teachers. Fifteen hours a week; four credits. Mr. Foster.

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.

M. E. s136. Sheet Metal Drawing. Lectures and drawing-room practice, ten hours a week; two credits. Mr. Foster.

Orthographic projection, intersections, developments, and triangulation will be studied. Paper models will be made.

ENGLISH

Eng. s101. Rhetoric and Composition. Five hours a week; three credits. Mr. Harrison.

For credit or to remove condition in first-year college English. A review of grammar in its practical application to writing and to speaking. The study of words: spelling, derivation, and the enlarged vocabulary. The principles of construction of the sentence, the paragraph, and the whole composition. An introduction to the forms of discourse: description, narration, exposition, and argument. Methods and objectives in teaching this subject. Frequent short exercises and one longer paper. Readings in class as drill in accurate interpretation and as models, and some collateral assignments. Individual conferences.

Eng. s150. Elements of Journalism. Five hours a week; three credits. Mr. Robertson.

A course which endeavors to combine the functions of securing, writing, and handling news. Particular attention is given to interviews and the various methods of story presentation. Practice is given in writing different types of newspaper stories.

Eng. s160. Public Speaking. Five hours a week; three credits. Mr. Cunningham.

A practical course for beginning students in extemporaneous speaking and for those who desire to learn how to judge intelligently the effectiveness of a public speech. The fundamentals aimed at are: thought conception, power of analysis, orderly arrangement of ideas, self-control before an audience, and an apt and forceful extempore presentation. Exercises and speeches are prepared and delivered by the students, a textbook is studied, and lectures

and personal suggestions and criticisms are given by the instructor. Some attention is paid to the development of the effective speaking voice.

Eng. s161. Oral English. Five hours a week; three credits. Mr. Owen.

This course is designed to fulfill a two-fold purpose: the attainment by the student of a higher standard of conversational English, including diction, pronunciation, enunciation, and formulation of ideas; and instruction in methods which can be employed in classes in English in secondary schools, including oral reports on lesson assignments, the telling of simple narratives, and oral presentation of descriptive, expository, and argumentative material. A survey will be made of the field of texbooks in Oral English and Public Speaking designed for secondary schools. Special attention will be given to the texts in these fields which are on the North Carolina approved list. Textbook assignments, exercises, discussions, reports on collateral readings.

Eng. s208. The Essay. Five hours a week; three credits. Mr. Harrison.

Primarily, a course in advanced composition using the essay as a model form, and incidentally in appreciation of this important and interesting literary type. The history of tne essay; its structure and content; its variety; formal and informal; literary, social, and scientific. The principles of writing illustrated by the essay, and applicable to all kinds of writing. A book of modern essays as a basis for discussions and as introductory to the more prominent present-day essayists. Some collateral reading. Several short papers and one longer essay. Individual conferences on practice papers.

Eng. s209. The Short Story. Five hours a week; three credits. Mr. Harrison.

Development, structure, types, and style of the short story. The more important writers in this form. The contemporary short story in a collection of representative stories and in current periodicals. A manual on the writing of a short story. Practice in writing narratives of fact and of fiction. Individual conferences.

Eng. s230. Shakespeare. Five hours a week; three credits. Mr. Harrison.

"A Midsummer Night's Dream," "Much Ado About Nothing," and "Othello" for intensive class study. The plays most frequently read in high schools frequently commented upon and difficult passages discussed. Certain additional plays assigned for collateral reading. On a reserve shelf in the library for the use of the class, books to furnish a background in the general history of the Elizabethan period, the drama and the theatre of Shakespeare's time, and the "Variorum" edition of the plays.

Eng. s237. Contemporary Literature. Five hours a week; three credits. Mr. Cunningham.

A survey of the work of American writers since the beginning of the twentieth century. The course serves as an introduction to that literature which, because of its recency, is not included in easily accessible histories and anthologies. Special attention will be paid to the poetry of E. A. Robinson, Robert Frost, Vachel Lindsay, Edgar Lee Masters, Amy Lowell, Edna St. Vincent Millay, Carl Sandburg, John V. A. Weaver, and Lew Sarett; to the prose fiction of Jack London, O. Henry, Hamlin Garland, Theodore Dreiser, Booth Tarkington, Joseph Hergesheimer, James Branch Cabell, Sinclair Lewis, Edith Wharton, Willa Cather, and Sherwood Anderson; to the drama of Augustus Thomas, William Vaughn Moody, and Eugene O'Neill; and to the essays of John Muir, John Burroughs, E. W. Howe, George Santayana, Henry Adams, Randolph Bourne, Henrik Van Loon, and H. L. Mencken. Textbook assignments, lectures, readings, discussions.

Eng. s252. Magazine and Feature Writing. Five hours a week; three credits. Prerequisite: English 150 or equivalent. Mr. Robertson.

Lectures and discussion upon the preparation of articles for magazines and newspapers. Emphasis is placed on originality of ideas, organization of material, and correctness and vigor of expression. The aim of the course is to develop both the creative and the critical ability of the student.

Eng. s261. Argumentation and Debate. Five hours a week; three credits. Mr. Cunningham.

This course is designed especially for teachers who are called upon to coach debate teams and to supervise literary societies. It will also be of value to students who expect to participate in interscholastic and intercollegiate forensics, and to all who are interested in the application of the principles of conviction to informal argument and professional speech. It includes training in the attainment of an effective extemporaneous speech delivery manner, in conduct of a deliberative assembly during the course of formal and informal debate, in the analysis of public questions, in securing speech materials, in defining issues, in the use of evidence, in brief-making, and in refuting arguments of opposing speakers. Textbook assignments, oral and written exercises, lectures, research.

Eng. s271. See Education s227.

Eng. s273. See Education s229.

GEOLOGY AND PHYSICAL GEOGRAPHY

Geol. s101. Earth History. Five hours a week; three credits. Mr. Stuckey.

Open to both college students and teachers who are interested in a better understanding of the world about them.

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. The first half of the course deals with the processes of physical and dynamical forces while the second half deals with the historical development of the earth as it has been affected by those forces and by life processes.

Geol. s105. Physical Geography. Five lectures; six hours laboratory and field work; four credits. Equivalent to the regular course in physical geography given in the third term of the college year. Mr. Stuckey.

The course is intended to give those interested in general science and in teaching a better appreciation of physical geography. It will include an account of the earth as a planet; the atmosphere; the development of winds and rain; changes in the earth's crust; and the development of relief features and physiographic provinces.

The work of running water, ground water, wind, snow and ice, and forces within the earth as they affect the relief features will be taken up in some detail.

The course will also include a brief consideration of the physical geography of North Carolina.

Geol. s291. Geology of North Carolina. Three lectures; four hours laboratory; three credits. Mr. Stuckey.

Elective for students in the Schools of Engineering and Science and Business who have had Geol. 101 or 120.

Also open to teachers who are interested in the geology of North Carolina and who may be interested in helping students to collect and assemble groups of the common rocks and minerals from different sections of the State.

The course will cover the physical geography, general geology, common rocks and minerals, and mine and quarry products of the State.

HISTORY

Hist. s101a. American Economic History. Five times a week; three credits. Mr. Lefler.

Discovery, colonization, economic background of the Revolution, government foundations, wars, presidential administrations, public lands, public finance, agriculture and industry.

Hist. s102. Modern European History. Five times a week; three credits. Mr. Lefler.

Survey of changes following the French Revolution and Napoleonic wars, Congress of Vienna and the reaction following, spread of democracy and nationalism, agriculture, industry, commerce, labor, tariff, expansion of Europe, background of the World War, post-war Europe.

Hist. s105. Methods of Teaching History. Mr. Lefler. (See Ed. s228.)

Hist. s205. Recent U. S. History. Five times a week; three credits. Mr. Lefler.

The Civil War, reconstruction, development of West and South, transportation, rise of big business and organized labor, political parties, movements for reform, the free silver movement, war with Spain, American expansion, rise of the Progressive Party, Roosevelt, Taft and Wilson, the World War and problems of Reconstruction, the Harding-Coolidge administration.

Hist. s209. Government of United States. Five times a week; three credits. Mr. Lefler.

Organization and activities of our local, State, and National governments, party politics; economic social, and legal factors in the functioning of government.

MATHEMATICS

Math. s101. Algebra. Five credits. Prerequisite: Algebra to Quadratics and Plane Geometry. Mr. Williams.

This course includes the progressions, binomial, theorem, undetermined co-efficients, logarithms, compound interest and annuities, permutations, combinations, the general theory of equations, the solution of higher equations, etc.

Math. s102. Solid Geometry. Five credits. Prerequisite: Plane Geometry. Mr. Mock.

The three books of Solid Geometry, including numerous original exercises, are covered in this course.

Math. s103. Plane Trigonometry. Five credits. Prerequisite: Algebra through Quadratics and Plane Geometry. Mr. Fisher.

Definitions of the trigonometric functions, derivation of formulæ, solutions of plane triangles, solutions of many practical problems, etc.

Math. s104. Analytical Geometry. Ten hours a week; five credits. Prerequisite: Mathematics 101, 103. Mr. Williams.

Loci of equations, the straight line, circle, parabola, ellipse, hyperbole, and the general equation of the second degree.

Math. s201. Differential calculus. Ten hours a week. Five credits. Prerequisite: Mathematics 104. Mr. Mock.

An elementary course on the fundamental principles of the Calculus, including the development of the formulæ for differentiation with their applications to problems in rates, maxima and minima, etc.

Math. s202. Integral Calculus. Ten hours a week; five credits. Prerequisite: Mathmetics 201. Mr. Fisher.

Development of formulæ for integration and their application to definite integrals, areas under curves, lengths of curves, volumes of solids, centers of gravity, centers of pressure, and moments of inertia.

* MODERN LANGUAGES

French

Mod. L. s101. French I. Five hours a week; three credits. Mr. Mumford.

This course is intended for students who have had no previous knowledge of French. It consists of reading and translations with the elements of grammar. Practices in the pronunciation and understanding of French is given by means of dictation and oral practice. Text: Olmstead's First Course in French.

Mod. L. s104. French Prose. Five hours a week; three credits. Mr. Hinkle, Mr. Mumford.

This course consists of readings and translations based upon selections from Malot, Hugo, Dumas, Daudet, and De Maupassant. Rapid reading and sight translation are stressed. The class work is supplemented by lectures and reports in such a way as to give a general survey of French literature.

Mod. L. s203. Scientific French. Five times a week; three credits. Mr. Hinkle.

This is an intensive reading course in general scientific literature. A study of scientific terminology is made and attention is given to the acquisition of a scientific vocabulary.

Mod. L. s208. Conversational French. Five hours a week; three credits. Mr. Mumford.

This course is essentially a practice conversational course in French. 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 ordinary, every-day conversation.

Mod. L. s210. French Civilization. Five times a week; three credits. Mr. Hinkle.

This course is primarily a reading course on topics dealing with the development of French civilization and literature. The reading material in the texts used is supplemented by lectures on French manners and customs.

* Courses in this department may be taken for double credit with the consent of the teacher concerned and the approval of the Director of the Summer School.

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 the nature of present-day France.

German

Mod. L. s102. German I. Five times a week; three credits. Mr. Hinkle.

This course is intended for students who have had no previous training in German as well as those who may wish to review the elements of German grammar and pronunciation. It consists of reading and translation with the elements of grammar. Practice in the pronunciation and understanding of German is given by means of dictation and oral practice. Text: Bacon's German Grammar.

Mod. L. s204. Scientific German. Five times a week; three credits. Mr. Hinkle.

This is a reading translation course in scientific German literature. A great deal of attention is give to the study and analysis of German scientific constructions, and a basis is laid for the development of a scientific vocabulary. Open to students who have had two years high school German or one year of college German. Text: To be selected.

Mod. L. s105. German Prose. Five times a week; three credits.

This course consists of readings and translations based upon representative German authors. Reading and sight translations are stressed. The class work is supplemented by lectures and reports in such a way as to give a general survey of German literature.

Spanish

Mod. L. s103. Spanish I. Five times a week; three credits.

This course is intended for students who have had no previous training in Spanish. It consists of reading and translation with the elements of grammar. Practice in the pronunciation and the understanding of Spanish is given by means of dictation and oral practice. Text: Olmsted's *First Course in Spanish.*

Mod. L. s106. Spanish Prose. Five times a week; three credits. Mr. Hinkle or Mr. Mumford.

This course consists of readings and translations based upon representative Spanish authors. Reading and sight translations are stressed. The class work is supplemented by lectures and reports in such a way as to given a general survey of Spanish literature.

Mod. L. s209. Conversational Spanish. Five hours a week; three credits. Mr. Hinkle.

This course is essentially a practice conversational course in Spanish. 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 ordinary every-day conversation.

Mod. L. s215. (See Education s226.)

NOTE.—Students registering for this course with the intention of teaching French are advised to register also for Conversational French and French Prose or French Civilization. Students registering for this course with the intention of teaching Spanish are advised to register also for Conversational Spanish and Spanish Prose.

PHYSICAL EDUCATION

P. E. s4. Group Games. Mr. Miller.

This course will be given without credit one evening each week. All students, both men and women, are urged to participate to make it a success both as an instruction and a recreation hour.

P. E. s112. Football and Baseball Coaching. Five hours a week; three credits. Mr. Miller.

The first half of the term will be devoted to football, the last half to baseball. The course will be a lecture and notebook course with sufficient practice to demonstrate all fundamentals of play. The rules, conditioning, equipment, position play, systems of offense and defense, formations, generalship and strategy will be thoroughly covered.

P. E. s113. Basketball, Track and Field Coaching. Five hours a week; three credits. Mr. Miller.

The first half of the term will be devoted to basketball, the last half to track and field. These sports will be treated in lecture and notebook form with sufficient practice to demonstrate all fundamentals. Fundamentals, position play, offense and defense, formations, conditioning, organization of practice, administration of tournaments will be covered.

P. E. s116. Physical Training in Rural High Schools. Three hours a week; one and a half credits. Mr. Miller.

This course is open to both men and women. It was especially prepared for the State Department of Education to meet the demands for a program of physical education which would reach the entire student body of our schools. This course in a concrete way sets up a program which is within reach of every high school in the State. The Bulletin Number 104, on Physical Education, issued this past year by the State Department, will be used as a text.

NOTE.—Instruction in swimming for both men and women will be provided.

PHYSICS

Physics s110. General Physics. Three or six credits. Four hours class work, one 2½ hours laboratory for three-credit course. Double this for six credits. Mr. Heck.

Since Physics has become a required subject in the high school curriculum there have not been found enough teachers who can teach it and some other science. This course has been designed especially to help supply this demand, giving a teacher a good general survey of the whole field. The course will be given by well demonstrated lectures, text-book study, and laboratory work. Emphasis will be placed on practical elements of the scientific life and activity of today and the general ideas of the nature of things as revealed by recent research. General machines and force action will be the first section, heat and weather phenomena the second, sound and the physical basis of music the third, light and color the fourth, and electricity and its applications the fifth. One may take the class work without the laboratory, but it is recommended that students register for both.

As the course also carries college credit and some may desire to take only the second half, the first lecture each day will be given to the sections of the subject numbered one to three, as indicated above, while the second lecture each day will be devoted to covering sections four and five. One afternoon laboratory will be given to each section each week.

Physics s103. Physics II or III. Five or ten term credits. Mr. Dixon.

An advanced treatment of General Physics. First, second, or third terms work may be taken or any two terms taken simultaneously.

Physics s107. Astronomy. Four hours class work and one evening with the telescope. Three credits. Mr. Heck.

Since the recent discoveries of Astronomy have so enlarged the field of thought and added so much of interest to science, the summer school this year has introduced this course in shorter form as given in the college year. It is non-mathematical and gives one a descriptive view of the whole field of Astronomy. Emphasis is put on the meaning of the recent discoveries to scientific thought as well as the effect these ideas must have on our interpretation of the universe and its history.

Physics s202. Electricity and Magnetism. Three or six credits. Prerequisite: Physics 103 or 104, and Calculus. Mr. Dixon.

This course will be devoted to a study of magnetism, electric current, electrostatics, electrolysis, thermo-electricity, magnetic properties of materials, varying currents, and alternating currents.

Physics s215. Modern Physics. Three credits. Prerequisite: Physics 103 or 104. Mr. Dixon.

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.

Physics s301. Theoretical Mechanics. Three to six credits. Prerequisite: Physics 103 or 104, and Mathematics 202. Mr. Derieux.

A treatment of moment of inertia, gyroscopic motion, motion in spiral orbits, simple harmonic motion, coupled systems, damped and forced oscilations.

Physics s304. Physical Optics. Three or six credits. Mr. Derieux.

Wave theory of light, spectra, absorption, dispersions, interference, diffraction, polarization. Laboratory work with the spectrometer, gratings, Fresnel by-prism and mirrors, polarimeter, saccharimeter, and interferometer may be taken if desired.

Physics s103. Advanced General Physics. Five or ten credits. Mr. Derieux.

An advanced treatment of General Physics. First term work may be taken or the second term, or the two simultaneously.

Physics s203. Advanced Heat and Thermodynamics. Three or six credits. Prerequisite: Physics 103 or 104, and Mathematics 202. Mr. Derieux.

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 same, internal work on expansion, electrical instruments for heat measurement, and radiation.

Physics s310. Crystal Structure and X-Rays. Three credits. Prerequisite: Physics 102 or 103. Mr. Derieux.

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 latices-cube, cube-centered,

face-centered, oblique crystals, on-uniform spacing, arrangement of atoms, scattering of X-rays, intensity of X-ray reflectic, absorption of X-rays.

Physics s311. Research. Three to six hours credit. Mr. Heck.

For students equipped to do research in Physics work will be offered in amount and on subjects as desired.

POULTRY SCIENCE

Poul. s101. General Poultry. Five hours a week for six weeks; three credits. Dr. Kaupp, Mr. Armstrong.

Three one-hour recitations two labatory periods of two hours each. Scope of the poultry industry and its possibilities; first, from the farm department standpoint and, second, as a separate business. Includes general problems, as sanitation, location of poultry houses, principles of poultry house construction, and general problems of small flock production.

Poul. s105. Advanced Poultry Production. Five hours a week for two weeks; one credit. Mr. Armstrong.

Three one-hour recitations and two two-hour laboratory periods a week. Taught from the job analysis standpoint.

The newer thoughts in feeding, hatching, rearing, growing, fattening, preparing for market and marketing, sanitation, hygiene, poultry house construction, selection, mating and production. The care of poultry products from the flush season to the season of scarcity. Size of flock to establish, coöperative organization, selling, buying; starting the flock by buying and incubating eggs, baby chicks, or by buying mature fowls. Laboratory exercises include caponizing, grading and packing eggs, dressing, grading, scoring, and packing dressed poultry, shipping live poultry, trap-nesting flock, keeping the records.

Poul. s204. Poultry Diseases. Five hours a week for six weeks; three credits. Dr. Kaupp, Mr. Dearstyne.

Three one-hour recitations and two two-hour laboratory periods a week. Medical parasitology, poultry plant problems and control. Systematic study of non-contagious and contagious diseases and practical means of control. Serotherapy, vaccination and agglutination tests as applied in poultry disease control work. Autopsies and means of recognition of disease and laboratory technique on the detection of the presence of contagious diseases.

Drawings, museum specimens, cases from the poultry hospital, and autopsies from the disease research laboratory.

Poul. s207. Special Poultry Marketing. Five hours a week for six weeks; three credits. Mr. Kaupp.

Three one-hour recitations and two two-hour laboratory periods. Detailed study from the production standpoint of grading, packing, handling, storing, preserving, pickling, refrigerating, storing, and shipping of eggs. Graphing of the storage holdings of dried, frozen, and shell eggs each month of the year and the poultry production problems associated with it. Similar studies are made with live and dressed poultry and the fattening, shrinkage, and storage in dressed and live poultry shipments.

Poul. s209. Poultry Diseases. Five hours a week for two weeks; one credit. Mr. Kaupp, Mr. Dearstyne.

Three one-hour recitations and two two-hour periods a week. A discussion of conditions influencing the health of fowls; disease conditions with illustra-

tions, preserved specimens from the poultry pathology museum, and by cases in the poultry hospital, autopsies from the disease research laboratory.

How to recognize and treat diseases, preparation of vaccine, how to vaccinate against fowl cholera and fowl typhoid. How to cope with outbreaks of contagious diseases, and the aid which the poultry disease research laboratory can give the poultry keepers of North Carolina.

Poul. s210. Poultry Judging. Five hours a week for two weeks; one credit. Mr. Armstrong.

This course is designed for the agricultural high school teacher that he may be better fitted to teach poultry judging, both standard and utility, and to train judging teams. It is the basis for proper breeding. Emphasis laid on Rhode Island Reds, Leghorns, Plymouth Rocks, and Wyandottes, both from the standpoint of standard qualities and egg production.

Poul. s211. Operation of Commercial and Community Hatcheries. Two or six weeks course; one or three credits. Mr. Kaupp, Mr. Dearstyne, Mr. Armstrong.

Organization of community for hatchery work. The theory of operation of the mammoth incubators of various types; handling of breeding flocks, care of eggs, operation of machine; care of chicks; boxes and methods of shipping of the baby chicks; cost factors as hatching, shipping and other overhead. The relation of bacillary white diarrhea to the commercial hatcheries.

Poul. 301. Laboratory Diagnosis. Two or six weeks course; one or three credits. Mr. Dearstyne, Mr. Kaupp.

Poultry diseases; autopsies studied in gross pathological changes produced by disease. Identification by 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.

Poul. 202. Poultry Nutrition. Two or six weeks course; one or three credits. Mr. Kaupp, Mr. Armstrong.

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 feed stuffs, digestibility and nutritive ratio for different feeding purposes, a discussion of grains and mill by-products, animal feeds, green feeds, mineral supplements, feed stuffs 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.

SOCIOLOGY

Soc. s102. Social Problems. Five times a week; three credits. Mr. Brown, Mr. Hunt.

This course offers an inductive introduction to the field of Sociology by taking up a number of social problems which are already somewhat familiar to every one. These are problems confronting every community and our general citizenry. The outstanding problems to be considered are: poverty,

crime, divorce, immigration, population and race problems. This course, therefore, is a natural introduction to the Sociology Courses, which deal more directly with social theory.

Soc. s103. Social Principles. Five times a week; three credits. Mr. Brown, Mr. Hunt.

This is a course in the general principles of Sociology. It deals with all the biological, geographical, economic, and psychological bases of our social like; takes up the problem of social origins, social progress. social forces, and social change. At the end of the course will be woven in considerable social psychology.

Soc. s202. Rural Sociology. Five times a week; three credits. Mr. Brown, Mr. Hunt.

This course deals with the social aspects of rural life. It gives consideration to a number of specific rural social problems, such as rural recreation, rural health, rural schools, rural churches, the farm home, rural art, and similar problems. It spends considerable time in discussing rural community organization and community life, and concludes with the consideration of the psychology of rural life and the farmer's place in civilization.

TEXTILES

Tex. s1. Yarn Manufacture. Special course for Mill Men. Credits assigned according to time given to study. Mr. Hilton.

This subject will be divided into picking, carding, and spinning. It has been designed to meet the needs of young men working in cotton mills. The course will consist of lectures and practical work on machines in order that a man may specialize on any one or all the subjects and spend his whole time in the Textile School. Lectures will be given at specified hours, and the remaining time will be spent with practical demonstration.

Tex. s2. Loom Fixing, Designing, Fabric Analysis, and Calculations. Mr. Nelson, Mr. Hart.

The subjects taught will be plain, drop box and fancy loom fixing. Elementary designing will be given as well as designing for special fabrics, such as lenos. Starting up warps and fixing looms for fine and fancy fabrics will be demonstrated in connection with the operation of the looms. Lectures will be given to coördinate the theoretical with the practical. Any or all subjects may be studied. A mill man desiring to spend his whole time in the Textile School will be permitted to do so.

Tex. s102. Yarn Manufacture I. Two credits. Mr. Hilton.

Study of physical properties of cotton fibers. 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. Setting and weighting of rolls; 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.

Tex. s104. Fabric Structure. Two credits. Mr. Hart.

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. Relations 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.

Tex. s107. Fabric Design. Two credits. Mr. Nelson, Mr. Hart.

Construction of fancy weaves, such as broken twills, curved twills, entwining twills, granite weaves, sateen and other figures striped on plain ground. Imitation leno; honeycomb weaves; fabric backed with warp or filling; fabric ornamented with extra warp of filling; combining weaves together to produce new patterns.

Tex. s108. Fabric Analysis II. Two credits. Mr. Nelson, Mr. Hart.

Analyzing samples of fancy fabrics for design, drawing in draft, reed and chain plan. Calculating particulars to reproduce fabric from date obtained from sample.

Tex. s110. Dyeing I. Two credits. Mr. Grimshaw.

Study of direct cotton colors, 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. The various colors and methods of application.

Tex. s115. Textiles for Teachers. Five hours a week; three credits. Mr. Grimshaw.

This course is designed to give a fundamental knowledge of fabrics. It will include a study of various fabrics and their selection and adaptability to different uses. Various methods of distinguishing fabrics made from different materials such as cotton and rayon, cotton and wool, wool and silk, and other combination of yarns will be given and analysis made of the fabrics. Methods of bleaching, dyeing and laundering fabrics containing rayon and other fibers. In addition, a general survey of the various processes through which cotton passes in its transition from the raw material to the finished product will be studied.

Tex. s202. Dobby Weaving. Two credits. Mr. Nelson, Mr. Hart.

Preparation of warps for weaving fancy patterns on dobby looms; drawing warps in harness; starting up warps in looms; construction and fixing single and double index dobby, also dobby for weaving border patterns; springs and spring boxes for harness; pattern chain building; calculations for heddles, weight of fabric, loom production.

SCHEDULE SUMMER SCHOOL, 1927

ABBREVIATIONS FOR BUILDINGS

A. H.—Animal Husbandry
G.—Gymnasium
H.—Holladay
O. M.—Old Mechanical
P.—Page
P. & E.—Physics and Electrical Engineering Building
Pk.—Polk Hall
Pt.—Patterson
R.—Ricks
T.—Textile
Pl.—Pullen Hall
W.—Winston

Name of Course	Number	Teacher	Hours per Week		Time of Recitation		Room
			Clock	Credit	Hours	Days	
AGRONOMY—							
Cotton Classing	Agron. S1	Darst Cotner	20	none	9-1	M. T. W. Th. F.	Pt. 41-42-43
Cereal Crops	Agron. S201	Darst	7	3	11	M. W. F.	Pt. 28
		Cotner			11-1	T. Th.	Pt. 26
Cotton or Tobacco	Agron. S210 or 215	Cotner	5	3	8	M. T. W. Th. F.	Pt. 26
Seed Judging	Agron. 230	Cotner	7	3	12	M. W. F.	Pt. 28
		Darst			2-4	T. Th.	Pt. 26
Advanced Study of Crops Research	Agron. S251	Darst Cotner		3-9	By	arrangement	Office
ANIMAL HUSBANDRY—							
Animal Nutrition	A. H. S102	Ruffner	10	5	8-10	M. T. W. Th. F.	Pk. 109
Swine Production	A. H. S201	Hostetler	7	3	10	M. W. F.	Pk. 108
					2-6	T.	Pk. 108
Animal Breeding	A. H. S202	Ruffner	8	4	11-1	M. T. W. Th.	Pk. 109
Advanced Stock Judging	A. H. S203	Haig	8	3	8	T. Th.	Pk. 110
					8-10	M. W. F.	Pk. 110
Stock Farm Management	A. H. S208	Ruffner	5	3	10	M. T. W. Th. F.	Pk. 109
Adv. Nutrition	A. H. S211	Ruffner	8	4	2-4	M. T. W. Th.	Pk. 109
Hygiene-Sanitation of Farm Animals	A. H. S218	Koonce	7	3	8	M. W. F.	Pk. 108
					2-4	T. Th.	Pk. 108
BOTANY—							
General Botany	Bot. S101	Wells	12	4	8	M. T. W. Th.	Pt. 38
					2-4	M. T. W. Th.	Pt. 38
Systematic Botany	Bot. S203	Wells	17	5	9	T. Th.	Pt. 38
					2-5	M. T. W. Th. F.	Pt. 38
CHEMISTRY—							
General Chemistry	Chem. S101a	Wilson	9	4	8	M. T. W. Th. F.	W. 208
		Rice			11-1	M. F.	W. 208
General Chemistry	Chem. S101b	Wilson	9	4	9	M. T. W. Th. F.	W. 208
		Rice			11-1	T. Th.	W. 208
General Chemistry	Chem. S101c	Wilson	9	4	1	M. T. W. Th. F.	W. 208
		Rice			Lab.	by arrangement	
Qual. Analysis	Chem. S111	Wilson	17	4	11	T. Th.	W. 208
					8-11	M. T. W. Th. F.	W. 204A
Quan. Analysis	Chem. S112	Wilson	17	4	10	M. W.	
					2-5	M. T. W. Th.	W. 214
Organic and Biological Chemistry	Chem. S141	Rice	5	3	By	arrangement	
Organic Chemistry	Chem. S221	Wilson	14	5	12	M. T. W. Th. F.	W. 205
					2-5	M. W.	W. 204
Chemistry of Life	Chem. S241	Rice	5	3	By	arrangement	
Food, Nutrition, and Diet	Chem. S242	Rice	5	3	By	arrangement	
Microchemical Analysis	Chem. S317	Wilson			By	arrangement	

SCHEDULE SUMMER SCHOOL, 1927—(*Continued*)

Name of Course	Number	Teacher	Hours per Week		Time of Recitation		Room
			Clock	Credit	Hours	Days	
ECONOMICS—							
Commercial Geography	Econ. S101	Robertson	8	4	8-10	M. T. W. Th.	Pl. C
Introduction to Economics	Econ. S102		5	3	11	M. T. W. Th. F.	R. 1
General Economics	Econ. S103	Forster	5	3	8	M. T. W. Th. F.	R. 19
Economic Science, etc.	Econ. S105	Forster	5	3	1	M. T. W. Th. F.	R. 19
Statistical Methods	Econ. S212	Forster	5	3	10	W. T. W. Th. F.	R. 19
Advertising	Econ. S217	Robertson	5	3	10	M. T. W. Th. F.	Pl. C
Farm Marketing	Econ. S265	Forster	5	3	9	M. T. W. Th. F.	R. 205
Farm Org. and Manage.	Econ. S361	Forster	5	3	12	M. T. W. Th. F.	R. 19
Marketing Methods and Problems	Econ. S366	Forster			By	arrangement	
EDUCATION—							
Occupations	Ed. S103	Boshart	5	3	10	M. T. W. Th. F.	Pt. 49
Theory of Industrial Arts	Ed. S104	Boshart	5	3	8	M. T. W. Th. F.	Pt. 49
Practical Arts Problems	Ed. S105	Boshart	10	3	11-1	M. T. W. Th. F.	Pt. 49
Educational Psychology	Ed. S201	Mayer	5	3	9	M. T. W. Th. F.	Pt. 47
Child Psychology	Ed. S202	Crowell	5	3	9	M. T. W. Th. F.	R. 21
Visual Aids	Ed. S208	Armstrong	7	3	9	M. W. F.	R. 302
					8-10	T. Th.	R. 302
Tests and Measurements	Ed. S210	Mayer	5	3	8	M. T. W. Th. F.	Pt. 47
Problems of the High School Teacher	Ed. S 16	Highsmith	5	3	12	M. T. W. Th. F.	R. 203
Methods of Study	Ed. S217	Cook	5	3	10	M. T. W. Th. F.	R. 302
Teaching Modern Languages	Ed. S226	Mumford	5	3	10	M. T. W. Th. F.	H. 31
Teaching of Literature in Secondary Schools	Ed. S227	Owen	5	3	8	M. T. W. Th. F.	Pl. A
Teaching History	Ed. S228	Lefler	5	3	10	M. T. W. Th. F.	R. 1
Teaching of Composition	Ed. S 29	Owen	5	3	10	M. T. W. Th. F.	Pl. A
Vocational Guidance	Ed. S230	Boshart	5	3	9	M. T. W. Th. F.	Pt. 49
School Administration	Ed. S246	Highsmith	5	3	9	M. T. W. Th. F.	R. 203
Problems in Secondary Education	Ed. S247	Highsmith	5	3	10	M. T. W. Th. F.	R. 203
Methods of Teaching Geography	Ed. S249	Bowden	5	3	9	M. T. W. Th. F.	P. 100
Methods of Science Teaching	Ed. S250	Bowden	5	3	10	M. T. W. Th. F.	P. 100
Materials of Science Teaching	Ed. S251	Bowden	5	3	12	M. T. W. Th. F.	P. 100
Rural Education	Ed. S255	Mayer	5	3	11	M. T. W. Th. F.	Pt. 47
Org. and Admin. of Part-time and Continuation Schools	Ed. S266	Coggin	5	3	8	M. T. W. Th. F.	Pt. 16
History of Education	Ed. S280	Crowell	5	3	11	M. T. W. Th. F.	R. 21
Visual Instruction	Ed. S301	Armstrong	7	3	8	M. W. F.	R. 302
					11-1	T. Th.	
Problems in Agriculture Teaching	Ed. S305	Cook	5	3	12	M. T. W. Th. F.	R. 302
Special Problems in Teaching Agriculture	Ed. S306	Cook	5	3	9	M. T. W. Th. F.	R. 302
Supervision	Ed. S308	Highsmith	5	3	11	M. T. W. Th. F.	R. 203
Adv. Methods in Science Teaching	Ed. S312	Bowden	5	3	8	M. T. W. Th. F.	P. 100
Admin. of Vocational Education	Ed. S320	Staff		3	By	arrangement	R. 301
Philosophy of Education	Ed. S321	Crowell	5	3	1	M. T. W. Th. F.	R. 21

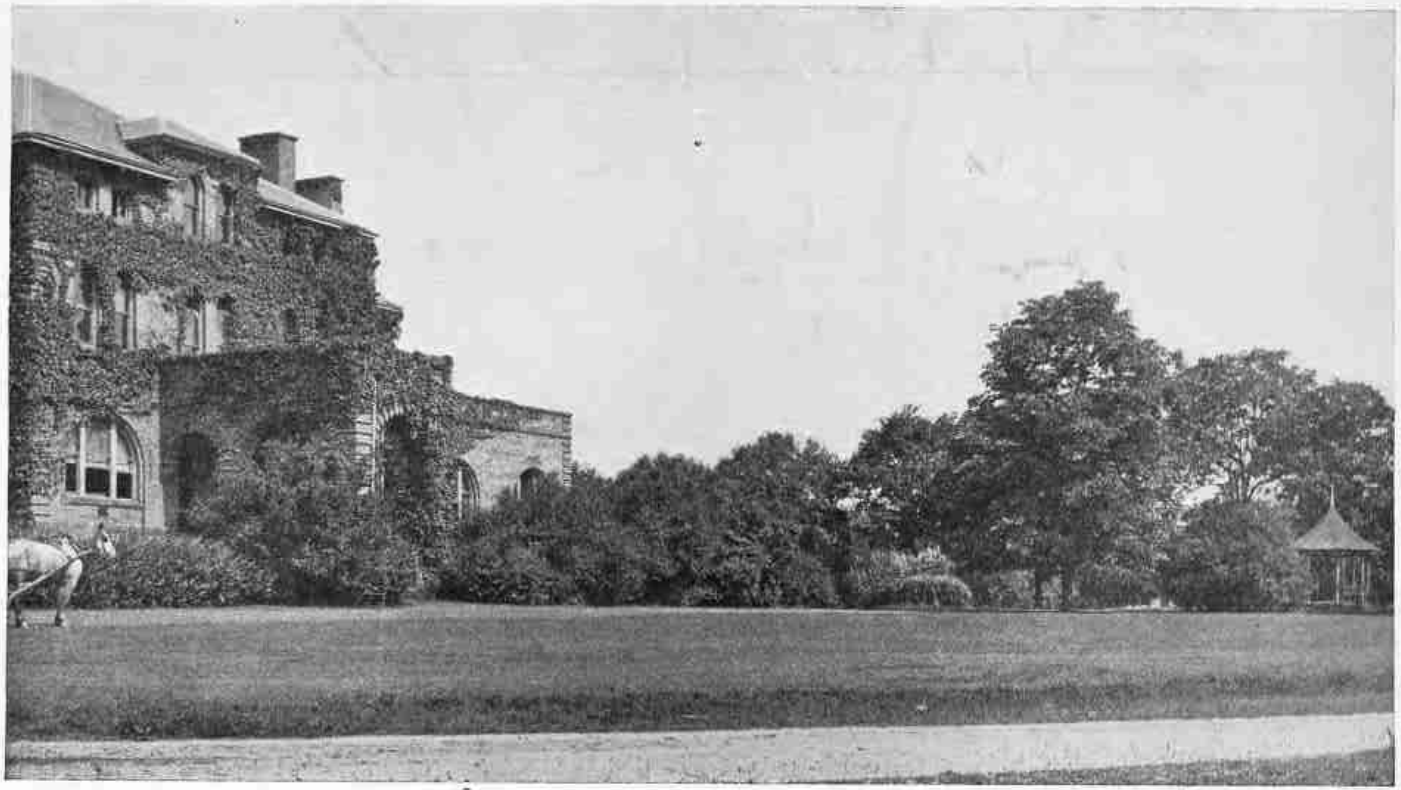
SCHEDULE SUMMER SCHOOL, 1927—(*Continued*)

Name of Course	Number	Teacher	Hours per Week		Time of Recitation		Room
			Clock	Credit	Hours	Days	
ENGINEERING—							
Mechanics	C. E. S105	Foster	a5	3	8	M. T. W. Th. F.	P. 104
			b5	3	9	M. T. W. Th. F.	P. 104
Eng. Drawing*	M. E. S102	Foster	15	4	10-1	M. T. W. Th. F.	P. 106
Descriptive Geometry*	M. E. S103	Briggs	8	2	11-1	M. T. W. Th.	P. 106
Woodshop*	M. E. S105	Wheeler	10	2	2-4	M. T. W. Th. F.	Woodshop
Mechanical Drawing	M. E. S107	Briggs	10	3	2-4	M. T. W. Th. F.	P. 206
Machine Shop Work	M. E. S118	Wheeler	10	2	9-11	M. T. W. Th. F.	Mch. Shop
Metal Work	M. E. S130	Wheeler	15	3	9-12	M. T. W. Th. F.	Mch. Shop
Woodworking for Teachers	M. E. S132	Wheeler	15	3	2-5	M. T. W. Th. F.	Woodshop
Mechanical Drawing for Teachers	M. E. S134	Foster	15	4	By	arrangement	P. 106
ENGLISH—							
Rhetoric and Composition	Eng. S101	Harrison	5	3	10	M. T. W. Th. F.	H. 25
Journalism	Eng. S150	Robertson	5	3	12	M. T. W. Th. F.	Pl. C
Public Speaking	Eng. S160	Cunningham	5	3	9	M. T. W. Th. F.	Pl. D
Oral English	Eng. S161	Owen	5	3	12	M. T. W. Th. F.	Pl. A
The Essay	Eng. S208	Harrison	5	3	11	M. T. W. Th. F.	H. 25
The Short Story	Eng. S209	Harrison	5	3	1	M. T. W. Th. F.	H. 25
Shakespeare	Eng. S230	Harrison	5	3	9	M. T. W. Th. F.	H. 25
Magazine Writing	Eng. S252	Robertson	5	3	11	M. T. W. Th. F.	Pl. C
Contemporary Literature	Eng. S237	Cunningham	5	3	8	M. T. W. Th. F.	Pl. D
Argumentation and Debate	Eng. S261	Cunningham	5	3	11	M. T. W. Th. F.	Pl. D
GEOLOGY—							
Earth History	Geol. S101	Stuckey	5	3	9	M. T. W. Th. F.	Pt. 16
Physical Geography	Geol. S105	Stuckey	11	4	10	M. T. W. Th. F.	Pt. 16
					2-4	M. W. F.	
Geology of North Carolina	Geol. S291	Stuckey	7	3	12	M. W. F.	Pt. 16
					2-4	T. Th.	
HISTORY—							
American Economic History	Hist. S101a	Lefler	5	3	8	M. T. W. Th. F.	R. 1
European History	Hist. S102	Lefler	5	3	9	M. T. W. Th. F.	R. 1
Methods of Teaching History	Hist. S105	Lefler	See Ed.	S228			
Recent United States History	Hist. S205	Lefler	5	3	11	M. T. W. Th. F.	R. 1
Government of United States	Hist. S209	Lefler	5	3	1	M. T. W. Th. F.	R. 1
MATHEMATICS—							
Algebra	Math. S101	Williams	10	5	8-10	M. T. W. Th. F.	O. M. 43
Solid Geometry	Math. S102	Mock	10	5	11-1	M. T. W. Th. F.	O. M. 40
Plane Trigonometry	Math. S103	Fisher	10	5	8-10	M. T. W. Th. F.	O. M. 40
Analytical Geometry	Math. S104	Williams	10	5	11-1	M. T. W. Th. F.	O. M. 43
Differential Calculus	Math. S201	Mock	10	5	11-1	M. T. W. Th. F.	O. M. 41
Integral Calculus	Math. S202	Fisher	10	5	8-10	M. T. W. Th. F.	O. M. 41
MODERN LANGUAGES—							
French I	Mod. L. S101	Mumford	5	3	8	M. T. W. Th. F.	H. 31
French Prose	Mod. L. S104	Hinkle / Mumford	5	3	9	M. T. W. Th. F.	H. 31
Scientific French	Mod. L. S203	Hinkle	5	3	12	M. T. W. Th. F.	H. 29
Conversational French	Mod. L. S208	Mumford	5	3	11	M. T. W. Th. F.	H. 31
French Civilization	Mod. L. S210	Hinkle	5	3	9	M. T. W. Th. F.	H. 29
German I	Mod. L. S102	Hinkle	5	3	10	M. T. W. Th. F.	H. 29
Scientific German	Mod. L. S204	Hinkle	5	3	11	M. T. W. Th. F.	H. 29
German Prose	Mod. L. S105		5	3	1	M. T. W. Th. F.	H. 31

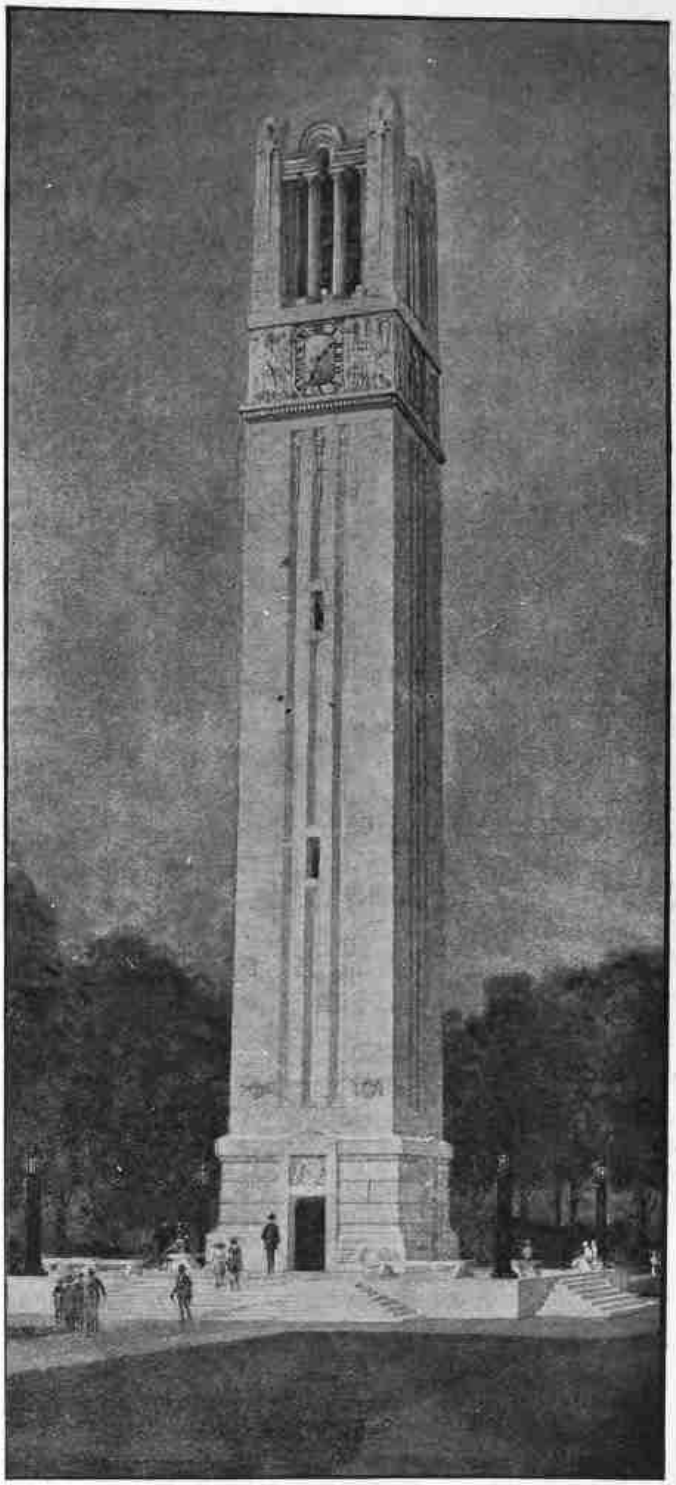
*May be taken half time for half credit.

SCHEDULE SUMMER SCHOOL, 1927—(*Continued*)

Name of Course	Number	Teacher	Hours per Week		Time of Recitation		Room
			Clock	Credit	Hours	Days	
MODERN LANGUAGES—*Con.*							
Spanish I	Mod. L. S103		5	3	9	M. T. W. Th. F.	H. 29
Spanish Prose	Mod. L. S106	Hinkle Mumford	5	3	12	M. T. W. Th. F.	H. 29
Conversational Spanish	Mod. L. S209		5	3	1	M. T. W. Th. F.	H. 29
Methods of Teaching Modern Languages	See Ed. S226						
PHYSICAL EDUCATION—							
Group Games	Phy. Ed. S4	Miller			By	arrangement	
Football and Baseball	Phy. Ed. S112	Miller	5	3	8	M. T. W. Th. F.	Gym.
Basketball, Track, and Field Coaching	Phy. Ed. S113	Miller	5	3	9	M. T. W. Th. F.	Gym.
Physical Training in Rural High Schools	Phy. Ed. S116	Miller	3	1½	11	M. W. F.	Gym.
PHYSICS—							
General Physics	Phys. S110	Heck	7	3	9	M. T. W. Th.	P. & E.
					11–1	T.	P. & E.
General Physics	Phys. S110	Heck	14	6	9–11	M. T. W. Th.	P. & E.
					11–1	T. Th.	P. & E.
Physics II or III	Phys. S103	Dixon	11	5	8	M. T. W. Th. F.	P. & E.
					2–4	M. W.	P. & E.
Physics II or III	Phys. S103	Dixon	20	10	8–10	M. T. W. Th. F.	P. & E.
					2–4	M. T. W. Th. F.	P. & E.
Astronomy	Phys. S107	Heck	5	3	8	M. T. W. Th. F.	P. & E.
Electricity and Magnetism	Phys. S202	Dixon	5	3	11	M. T. W. Th. F.	P. & E.
Modern Physics	Phys. S215	Dixon	5	3	12	M. T. W. Th. F.	P. & E.
Theoretical Mechanics	Phys. S301	Derieux	5	3	8	M. T. W. Th. F.	P. & E.
Physical Optics	Phys. S304	Derieux	5	3	9	M. T. W. Th. F.	P. & E.
Research	Phys. S311	Heck		3 or 6	By	arrangement	P. & E.
POULTRY—							
General Poultry	Poul. S101	Kaupp	7	3	11	M. W. F.	R. 207
					2–4	T. Th.	R. 207
Poultry Diseases	Poul. S204	Kaupp	7	3	10	M. W. F.	R. 207
					2–4	M. W.	R. 207
Poultry Marketing	Poul. S207	Kaupp	7	3	12	T. Th. F.	R. 207
					11–1	M. W.	R. 207
SOCIOLOGY—							
Social Problems	Soc. S102	Brown Hunt	5	3	10	M. T. W. Th. F.	R. 1
Social Principles	Soc. S103	Brown Hunt	5	3	9	M. T. W. Th. F.	R. 1
Rural Sociology	Soc. S202	Brown Hunt	5	3	12	M. T. W. Th. F.	R. 1
TEXTILE—							
Loom Fixing	Tex. S2	Nelson Hart		none	By	arrangement	Tex. Bldg.
Yarn Manufacture I	Tex. S102	Hilton		2	By	arrangement	Tex. Bldg.
Fabric Structure	Tex. S104	Hart		2	By	arrangement	Tex. Bldg.
Fabric Design	Tex. S107	Nelson Hart		2	By	arrangement	Tex. Bldg.
Fabric Analysis II	Tex. S108	Nelson Hart		2	By	arrangement	Tex. Bldg.
Dyeing I	Tex. S110	Grimshaw		2	By	arrangement	Tex. Bldg.
Textile for Teachers	Tex. S115	Grimshaw	5	3	8	M. T. W. Th. F.	Tex. Bldg.
Dobby Weaving	Tex. S202	Nelson Hart		2	By	arrangement	Tex. Bldg.



HOLLADAY HALL, CAMPUS SCENE



MEMORIAL TOWER AS IT WILL APPEAR WHEN COMPLETED