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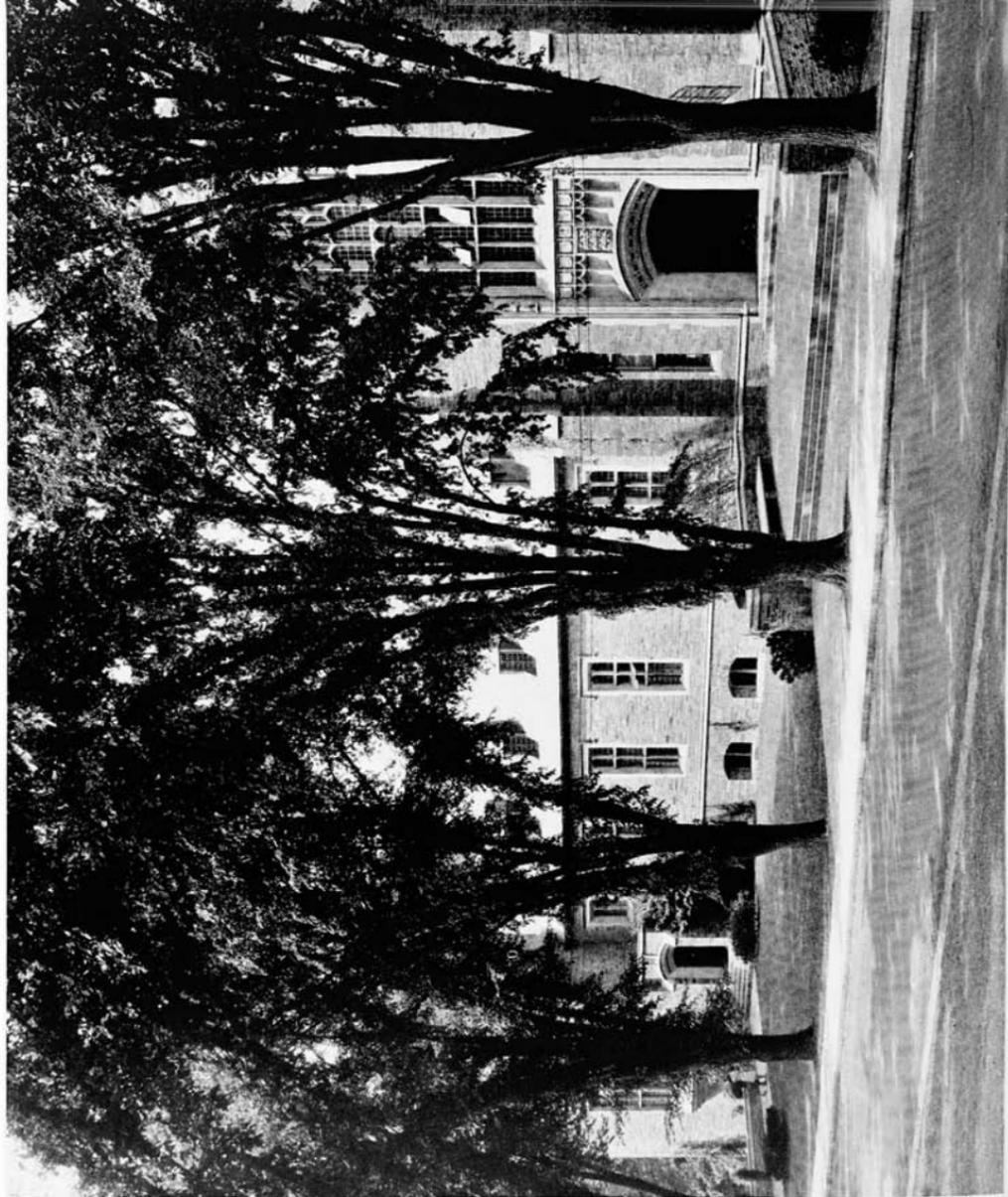


Announcement of the

SUMMER SESSION

UNIVERSITY AND STATE SUMMER SCHOOLS

1938



Willard Straight Hall, built in 1925 as a memorial, is the social center of the University.

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ITHACA, NEW YORK

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CALENDAR

- July 5, Tuesday Registration, 8 a.m.-5 p.m., *Drill Hall*. Fees are due for payment at the Treasurer's office, *Morrill Hall*.
- July 6, Wednesday Instruction begins at time and place announced for each course. Registration is continued at the Registrar's office, *Morrill Hall*.
- July 8, Friday Last day for payment of fees at the Treasurer's office, which closes at 4 p.m., *Morrill Hall*.
- July 9, Saturday Instruction continues on this Saturday.
- Aug. 12, Friday Final examinations begin.
- Aug. 13, Saturday Summer Session ends, 4 p.m.

SPECIAL EVENTS

- June 20, Monday Summer Field Course in Geology begins, *Spruce Creek, Pennsylvania*.
- June 27, Monday First unit course in Hotel Administration begins, 9 a.m., *Martha Van Rensselaer Hall*.

THE SUMMER SESSION CALENDAR

THE SUMMER SESSION CALENDAR is issued on each Saturday of the Summer Session. It carries announcements of all public exercises held in connection with the Session; copies are posted in all bulletin boards. Copies may also be obtained at the Summer Session office, at the desk of Willard Straight Hall, and at other University offices.

THE SUMMER SESSION OFFICE

The Summer Session office is located during July and August in Room 245 Goldwin Smith Hall. The office will be open from 8:30 A.M. to 4:30 P.M., daily except Saturday; on Saturday the office will close at 12:30 P.M.

During the rest of the year the Summer Session office is located in Room 249 Plant Science Building.

GENERAL INFORMATION

The SUMMER SESSION carries on the work of the several Schools and Colleges of the University during the summer vacation period. By doing this it provides the opportunity for almost uninterrupted work throughout the year to graduate and undergraduate students regularly enrolled in the University, and at the same time places the facilities of the University at the disposal of many persons who would otherwise be unable to use them. Instruction in the Summer Session is accordingly arranged to meet the particular needs of several groups of students: graduate and undergraduate students enrolled in the regular year who wish to continue their work during the summer; teachers, principals and superintendents in public and private schools who wish to continue their professional training; professors and instructors in colleges, and teachers in schools who wish to carry on specialized work in their particular fields; students planning to enter the University who wish to complete entrance requirements, or obtain advanced credit at entrance; and other persons who may wish to take advantage of the summer months to further their education.

ADMISSION TO THE SUMMER SESSION

Except as stated in the next paragraph, the Summer Session is open to all persons qualified to do the work of any of the courses offered. Each person must be able to satisfy the instructor in each course he plans to take that he is qualified to do the work of that course. No examinations or applications on special forms are required for admission to the Summer Session.

Admission of undergraduates. The following special requirements for admission are made in the case of students registered as undergraduates in Cornell University or in other institutions. Any undergraduate student in Cornell University who has been dropped or is on probation may be admitted only on the recommendation of the authorities of his college. An undergraduate student registered in an institution other than Cornell University must submit a certificate of good standing, signed by the dean or other authority of his college, before admission is granted. Certificate forms may be had upon application to the Director of the Summer Session. Students whose names have been removed from the rolls, and students on probation, are regarded as not in good standing and cannot be admitted.

Admission to the Graduate School. For admission to the Graduate School, two requirements are made: (1) the applicant must have received a baccalaureate degree from a college or university of recognized standing, or must have done work equivalent to that required for such a degree; (2) as judged by his scholastic record, or otherwise,

the applicant must show promise of ability to pursue advanced study and research.

A student who wishes to enter the Graduate School should file application for admission in the Office of the Dean of the Graduate School by June 25. Application must be made on the formal blanks obtainable from the office of the Graduate School, and must be accompanied by complete and official transcripts of the student's previous training.

Students whose applications for admission to the Graduate School are received after June 25 will not be able to register in the Graduate School on registration day, July 5. They will register with the University Registrar on that day, and will register in the Graduate School on July 6 and 7.

Students planning to apply for admission to the Graduate School should read the section on Credit in the Graduate School beginning on page 9. Further information is given in the Announcement of the Graduate School, which will be sent by the Secretary of the University upon request.

REGISTRATION

Registration for the Session of 1938 will take place on Tuesday, July 5, in the Drill Hall; the hours for registration will be from 8 a.m. to 12:30 p.m. and from 1:30 p.m. to 5 p.m. Students are urged to register on this day. Advance registration, either in person or by mail, cannot be arranged.

Registration with the University Registrar is required for admission to any of the exercises of the Summer Session. In addition, students who wish to obtain credit for graduate work done during the Summer Session must also register with the Dean of the Graduate School. All women students must also register with the Dean of Women. Registration of automobiles to be driven in and about Ithaca by Summer Session students is also required.

Except by permission of the Director, all students are required to register for courses amounting to four credit hours as a minimum schedule. The normal schedule is six credit hours, and students are advised against registering for more.

Under certain circumstances teachers and other mature students, not candidates for degrees, may receive permission to register for some or all of their courses for attendance only. Students so registered are required to attend regularly and to perform the class work of the courses, but they will not be permitted to take the final examinations. They will receive no credit for these courses but may secure certificates of attendance at courses so registered for.

Admission to classrooms during the Summer Session is restricted to students registered for the session. A student thus duly registered may occasionally visit any class; but if he wishes to attend regularly at classes for which he is not registered, he must secure an auditor's

permit at the Summer Session office. Such permits will be granted whenever the student can show a serious purpose in such attendance. Auditors are not required to take part in the work of the courses which they visit, and certificates of attendance cannot be issued to them.

Students planning to take work in the Graduate School under personal direction, but not to attend classes, are required to register with the Registrar and the Dean of the Graduate School.

Late registration. Students reaching Ithaca on July 6 or later will register at the following times and places: all students, with the Registrar, at his office in *Morrill Hall*, between 9 a.m. and 4 p.m.; graduate students, also with the Dean of the Graduate School at his office in *Morrill Hall*, at the same hours; all women students, also with the Dean of Women, at 1 *Sage Avenue*, between 9 a.m. and 4 p.m.; owners and drivers of automobiles, also with the Committee on Traffic Control, in *Sage College*, south-east entrance, between 8:30 a.m. and 4:30 p.m. Graduate students who expect to receive residence credit toward an advanced degree for Summer Session work must register with the Dean of the Graduate School within three days of the opening of the session. The latest date for such registration in 1938 is July 7.

Changes of registration. All changes of registration after Tuesday, July 5, must be made in the Summer Session office, 245 Goldwin Smith Hall. Except by permission of the Director, no changes of registration may be made after Friday, July 8.

WITHDRAWAL FROM THE SUMMER SESSION

A student may arrange for withdrawal at any time by cancelling his registration at the Summer Session office, 245 Goldwin Smith Hall. In such cases, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal is stated in writing and is satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal, **unless the withdrawal is made before noon on Thursday, July 7.**

CERTIFICATES FOR WORK DONE

Students in the Summer Session may receive certificates of attendance and of work performed, with grades. Application for them should be made before August 8, and the applicant must leave at the office of the Registrar a large-sized envelope stamped and directed to his home address. The certificate will then be forwarded by mail.

ACADEMIC CREDIT

All courses offered in the Summer Session, excepting some of the unit courses of one or two weeks in length, are accepted for credit in one or more of the Schools and Colleges of the University, when taken by matriculated students in those Schools and Colleges. No student may receive credit for more than eight semester hours for work done in a single Summer Session.

College of Arts and Sciences. To obtain credit towards the Cornell A.B. for work done in a Cornell Summer Session, a student must previously have filed with the University Director of Admissions credentials covering the entrance requirements of the College of Arts and Sciences. He should then, in advance of Summer Session registration, secure the Dean's approval of his selection of courses. For work completed in a single Summer Session credit of not less than four nor more than eight hours will be allowed, but a total of not more than thirty hours of credit may be allowed towards the degree for all Summer Session work whether done at Cornell or elsewhere. The academic requirements for the degree of Bachelor of Arts are explained in detail in the Announcement of the College of Arts and Sciences.

The Summer Session records of students registered in the College of Arts and Sciences are reviewed by the usual standing committees of the College, and poor records in the Summer Session are liable to the same penalties as in the regular University session.

College of Engineering. Students in the College of Engineering who desire to offer work done in the Summer Session toward requirements for graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Students not yet matriculated in the College of Engineering, but planning to enter it, may obtain information about its requirements by applying to the Secretary of the College of Engineering.

College of Architecture. Students in the College of Architecture who desire to offer work done in the Summer Session toward requirements for graduation should consult the Dean of the College of Architecture before registering in the Summer Session.

State Colleges of Agriculture and Home Economics. Students in the State Colleges of Agriculture and Home Economics must consult with an adviser and secure his approval to the proposed schedule of courses if credit in those Colleges is to be secured. Advisers will be in the Drill Hall on registration day, July 5, and may be consulted at their offices on July 6 or later.

Department of Hotel Administration. Students in the Department of Hotel Administration who desire to offer work done in the Summer Session towards requirements for graduation should consult Professor Meek of that department before registering in the Summer Session.

Institutions other than Cornell University. The foregoing regulations apply to undergraduate students matriculated at Cornell University. Undergraduates enrolled in other institutions and wishing to have credits earned in the Summer Session applied on their work at such other institutions should, before coming to Ithaca, consult their own college authorities and make all arrangements by them deemed necessary. The Cornell Summer Session can assume no responsibility for the use to be made of credits earned by students thus coming from other places of study. The certificates mentioned above will show what courses have been taken, the amount of credit in terms of Cornell "hours," and the grades.

CREDIT IN THE GRADUATE SCHOOL

Classes of graduate students. Students are admitted to the Graduate School in one of three classes: (1) candidates for degrees; (2) non-candidates; (3) resident doctors.

Candidates for degrees. Each student, upon admission to candidacy for an advanced degree, chooses within his general field of study a major subject to which he plans to devote the greater part of his time. He also selects one or more minor subjects, properly related to the major subject. One minor subject is chosen by candidates for the Master's degree: two minor subjects are required for the Doctor's degree.

The candidate for an advanced degree then selects from the faculty of the Graduate School a member to represent each of his subjects; these constitute his special committee. The representative of the major subject acts as chairman of the special committee. The candidate then files with the Dean of the Graduate School a statement of his major and minor subjects approved by the members of his special committee. This statement must be filed within two weeks after admission to candidacy for a degree. The candidate then and from time to time thereafter confers with his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn.

The requirements for a graduate degree consist of four parts: (1) a minimum period of residence; (2) completion of such courses and other work as may be specified by the student's special committee; (3) achievement in independent investigation, supported by a thesis acceptable to the student's special committee; (4) competence in scholarship tested by a final comprehensive examination. For the degree of Master of Science in Education and under some circumstances for other Master's degrees, other requirements may be substituted for the thesis. For the Doctor's degree a reading knowledge of French and German, tested by a special examination, is also required.

It is to be noted that the requirements for a graduate degree do not consist primarily of a prescribed number of courses or of a fixed

period of residence, but of actual achievement in scholarship and research in the fields of the major and minor subjects. Consequently only advanced work in each subject or field will be acceptable to the special committees. It may occasionally be desirable for a graduate student to take a course of an elementary character, and this is permitted with the approval of his special committee; but such courses are not considered to be part of a graduate program.

The minimum residence requirement for a Master's degree is two semesters of residence at Cornell University. This minimum requirement may be satisfied by four Summer Sessions of six weeks, or one semester and two Summer Sessions of six weeks, at Cornell University. Candidates for this degree who are in residence during Summer Sessions only are also required to continue their studies during the year under the direction of the chairman of the special committee in charge of their work.

The residence requirement for the Doctor's degree may, upon recommendation of the student's special committee, be fulfilled in part by attendance during the Summer Session. For this purpose, two Summer Sessions will be regarded as the equivalent of one semester, and four Summer Sessions as the equivalent of one year. However, no more than two semesters of residence credit toward the Doctor's degree may be earned by Summer Session work at Cornell or elsewhere. The last year of required residence must be spent in study during regular sessions at Cornell University.

To obtain residence credit in the Graduate School for Summer Session work the student must register both in the Summer Session and in the Graduate School; and such registration should be completed not later than the third day of the session—in the session of 1938, not later than July 7.

A student planning to apply for admission to the Graduate School as a candidate for a degree should write at once to the Dean of the Graduate School for the blanks required for applications for admission: these applications should be filed not later than June 25. After admission to candidacy for a degree, the student may write in advance of the opening of the Summer Session to the professors whose courses he plans to take. In this way it is possible to secure advice with regard to major and minor subjects, and information about course requirements in specific fields, and to avoid delay and interruption of work at the opening of the session.

Candidates in the Graduate School of Education. The Graduate School of Education in its administration of graduate work functions as a division of the Graduate School of the University, with the same requirements for admission save as to foreign languages. Work for the degree of Master of Science in Education, which is offered in this School, is conducted in the way described above for other Master's degrees, but by a special committee of three members. This degree is designed for school executives and teachers who do not wish to enter upon the more restricted program of study involv-

ing extensive research, or who wish to supplement previous training to meet advanced professional requirements for certification. For further information about the requirements for this degree, address the Director of the Graduate School of Education, Stone Hall, Cornell University, Ithaca, N. Y.

Work under personal direction in the Graduate School. A candidate for the Doctor's degree who has completed a year of acceptable work in the Graduate School of Cornell University or in another graduate school, may with the approval of his special committee carry on work during the summer under the personal direction of the Faculty of the Graduate School. If residence credit is to be earned, tuition and administration fees must be paid; if no residence or other credit is to be earned, an administration fee of \$6.25 is charged.

The privilege of taking work under personal direction during the summer without the payment of tuition is restricted to candidates for a degree in Cornell University.

Non-candidates. A student admitted to the Graduate School as a non-candidate selects one or more advisers to direct his work. He then files with the Dean of the Graduate School not later than two weeks after registration in each term a statement of the studies he plans to pursue, with the approval of his advisers and of the members of the Graduate Faculty under whom the work is done.

Resident Doctors. Persons who hold a Doctor's degree or have equivalent standing may, subject to permission from the Dean of the Graduate School, register as resident doctors to carry on advanced work in their special fields of study. Upon recommendation of the Dean of the Graduate School resident doctors are exempt from the payment of tuition and all other fees except laboratory fees.

FEES

All fees are due and payable at the Treasurer's office in Morrill Hall on registration day, July 5. The last day for payment of fees without penalty is Friday, July 8.

Tuition fees. The tuition fee for the Summer Session is \$55. Students who were registered as candidates for a degree in the Graduate School prior to April 1, 1935, may pay fees at the rate in effect on that date. To secure this privilege they must make application in writing to the Dean of the Graduate School. This is the only exception to the uniform tuition fee of \$55.

Students taking unit courses for less than six weeks will pay tuition at the rate of \$11 a week. If unit courses extending through six weeks are taken, the tuition fee will be \$55.

For private instruction in organ, piano or violin, a special fee of \$2 a lesson of thirty minutes is charged. For individual instruction in tennis or swimming, a special fee of \$10 is charged.

Tuition Fee for Work under Personal Direction. Graduate students registered under personal direction during the summer who desire residence credit for their work must pay tuition for the credit desired pro rata at the rate of \$75 a term. In order to be admitted to Summer Session classes, a graduate student registered under personal direction must pay a minimum tuition fee of \$55 unless he was registered as a candidate for a degree prior to April 1, 1935. If registered in the Graduate School prior to that date, he may be admitted to Summer Session classes upon payment of fees at the rate in effect on that date. To secure this privilege he must make application in writing to the Dean of the Graduate School.

Administration Fee. This fee of \$6.25 is paid by two groups of graduate students in the Summer Session and by no others. These are: (1) students registered as candidates for a degree in the Graduate School prior to April 1, 1935, who apply for and are granted the privilege of paying fees at the rate in effect on that date; (2) graduate students registered under personal direction in the summer, either for credit or without credit.

Matriculation fee. A matriculation fee of \$10 and an examination book fee of \$1 are charged if the student is registering for the first time in the Graduate School of Cornell University, unless the student, as an undergraduate in Cornell University, has already paid these fees. A student registering in the Summer Session but not in the Graduate School does not pay these fees unless he is at the same time registering for the first time as a candidate for a degree from one of the other Schools or Colleges of the University. For further information about these fees, the General Information Number, which may be obtained from the Secretary of the University upon request, should be consulted.

Other fees and deposits. A fee of \$1 is charged to those students who receive from the Committee on Traffic Control the privilege of parking motor vehicles on the campus.

A deposit of \$5, refundable when all books have been returned, is required for the withdrawal of books from the University library.

Laboratory, shop, field-trip and incidental fees are charged for materials used and for other expenses in certain courses. The amounts of these fees are specified in the descriptions of the courses in which they are charged.

Deposits refundable upon return of apparatus, etc., are required in certain courses. The amounts of these deposits are specified in the descriptions of the courses in which they are charged.

Fees are charged for the use of pianos in the Music building and the organ in Sage Chapel for practice. For the amounts of these fees, see under the description of courses in music.

A fee of \$.10 per period is charged for the use of the University tennis courts and of the University swimming pool in Beebe Lake, adjacent to the campus.

Other regulations concerning fees. If a student withdraws from the Summer Session, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal be stated in writing and be satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal **unless the withdrawal is made before noon on Thursday, July 7.**

Students registering at any time during the last five weeks of the Summer Session are required to pay for the remainder of the term at the rate of twenty per cent of the term's tuition for each week or fraction of a week between the date of registration and the last examination day of the term.

Any student, graduate or undergraduate, except as hereinafter provided, who fails to pay his tuition, fees and other indebtedness, or if entitled to free tuition fails to claim the same at the Treasurer's office and pay his fees, within the time prescribed by the University is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such extension, the student will be assessed a fee of two dollars. A reinstatement fee of five dollars will be assessed in the case of any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Comptroller and the Registrar, which must be presented in writing, the above assessment may be waived in any individual case.

Any tuition fee or other fee may be changed by the Trustees to take effect at any time without previous notice.

SPECIAL REGULATIONS

Conduct and scholarship. The Summer Session is conducted under the general regulations governing conduct and scholarship which apply to all sessions of the University. Students are requested to familiarize themselves with dormitory and other rules and to abide by them.

The University rules governing student conduct are:

"A student is expected to show both within and without the University unflinching respect for order, morality, personal honor, and the rights of others. The authority to administer this rule and to impose penalties for its violation is vested in the University Committee on Student Conduct. The rule is construed as applicable at all times, in all places, to all students of the University."

"A student may at any time be removed from the University if, in the opinion of the Committee on Student Conduct, his presence is not conducive to the University's best interests."

The officers of the University also reserve the right to cancel the registration of any student at any time for neglect of scholastic duties.

Automobile registration and parking. Because of local traffic and parking conditions it is necessary to require registration of both motor vehicles and their drivers during the Summer Session, as well as during the academic year. Each student who maintains or operates a motor vehicle in or about Ithaca during the Summer Session must register with the Committee on Traffic Control at the time of registration for courses. He will at the same time register the motor vehicle which he proposes to drive.

Because of limited parking facilities, it is necessary to restrict the privilege of parking motor vehicles on the campus to those students who apply for and receive special permits. These permits are issued by the Committee on Traffic Control to those students whose need for them is greatest, and application for them should be made at the time of registration. The fee for a parking permit is \$1.

Cashing of checks. The Treasurer of the University accepts checks in settlement of charges payable at his office, but a rule of the Board of Trustees forbids him to cash any credit instrument, even to the extent of accepting a check or draft in amount greater than the sum due and returning the excess in cash. Students are therefore advised to open an account in an Ithaca bank as soon as they arrive in town, or else provide themselves with travelers' checks, drafts on New York City banks, money orders, or other form of credit instrument such as a bank will cash in the ordinary course of business.

RESIDENTIAL HALLS: ROOMS: BOARD

For women. The University has two groups of residential halls for women in which board and room can be obtained during the Summer Session by registered students only. They are:

Sage College, which accommodates 175 persons. Here the charge for room and a specified amount of laundry, for the session, is from \$24 to \$39, according to the size and location of the room. The dining room will not be open. Board may be obtained at Willard Straight Hall, across the green from Sage College, or at the cafeteria in the Martha Van Rensselaer Hall.

Balch Hall, which accommodates 318 persons. Here the charge for room, board, and a specified amount of laundry, for the session, is from \$80 to \$95, according to the size and location of the room.

All women students who are twenty-one years of age and under are required to live in the University dormitories or sorority houses. This regulation applies to any students who are undergraduates at Cornell University or other colleges. Graduate women students may also secure rooms in the same residences or in other houses approved by the Dean of Women. The list of approved houses will be available after June 1 on application to the Manager of Residential Halls.

In the residential halls for women the charge for room and board includes dinner and lodging Sunday night, July 3 (not earlier), and all meals to and including breakfast Sunday, August 14.

Members of the Summer Session who lodge outside Balch Hall may obtain table board at that hall for \$9 a week (or \$48 for the six weeks of the session).

The Head Residents in charge of the halls are glad to know the students, to advise them in illness or other emergency, and to give them whatever information they wish about the University or the town. It is understood that persons living in the halls will conform to the house regulations made for the convenience and comfort of all.

Rooms for men. Men regularly enrolled in the Summer Session can obtain comfortable rooms in the *Residential Halls for Men*, which are thoroughly modern and of fireproof construction.

In the *Residential Halls* the charge for furnished room, including care of the room and laundry of bed linen, is from \$18 to \$30 for the session. There are a few suites at a higher rate, and a few rooms on the top floor may be had for less.

A list of private houses offering desirable rooms for men for the session can be obtained after June 1 by application to the Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.

Applications for rooms. Applications for rooms in any of the residential halls, either for women or for men, and for rooms in the approved houses for women, should be made to the *Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.*

Floor plans of the residential halls and other information about the rooms may be obtained, before making applications, by addressing the Manager. The same office will also furnish, after June 1, lists of rooms for women in private houses, similar lists of rooms for men, and information about private houses and apartments for rent.

Deposits with applications. *A deposit of five dollars* must accompany each application for a room in any of the residential halls; otherwise the application will not be entertained. The rooms are reserved in the order of application. If a room assigned is occupied by the applicant, the amount of the deposit is held until the end of the session to cover the return of keys and any damage to building or furniture other than ordinary wear and tear, and to insure the completion of the lease. The deposit will be refunded if the applicant gives formal notice to the Manager on or before June 15 that the applicant wishes to withdraw the application.

Checks should be drawn to the order of Cornell University.

Board, dining rooms, cafeterias. Women who are members of the Summer Session and who reside outside Balch Hall may obtain table board at that hall for \$9 per week or \$48 for the six weeks of the session. The dining rooms and cafeteria of Willard Straight Hall and the cafeteria in Martha Van Rensselaer Hall are open to both men

and women students. Board may be obtained at these places and at cafeterias, dining rooms and restaurants near the campus at \$1.00 to \$1.25 per day.

Cost of living. An estimate of the cost of living in Ithaca in the summer can be made by consulting the figures given above. In a private house rentals vary according to the location. Rooms are rented with the understanding that they will be occupied for the entire session unless both parties agree otherwise. Table board is generally engaged by the week.

Means of self-support. Men who wish to earn part of their expenses during the Summer Session are invited to correspond in advance with the Director of the Employment Agency of the Cornell United Religious Work, *Mrs. L. A. Fuertes, Barnes Hall, Ithaca, N. Y.* Opportunities of this kind for women students are limited, but information about such opportunities may be obtained by addressing *Miss R. L. Fitch, Dean of Women, Cornell University, Ithaca, N. Y.*

STUDENT HEALTH SERVICE

A health service is provided for students of the Summer Session as well as for those of the regular academic year. Students may consult the physicians of this service in regard to all matters that concern their health.

Those indisposed but still able to attend classes should consult the medical advisers immediately in order that advice may be given and that diagnosis of incipient diseases may be made promptly. For the protection of the University community, it is required that contagious and infectious diseases shall be reported immediately to the medical adviser.

A medical examination is not required of students in the Summer Session, but upon request such routine physical examination will be made for the certification of teachers and for other special purposes.

When the condition of a student's health is such that in the opinion of the University authorities it is unwise for him to remain in the University he may be requested to withdraw.

Summer Session students are not required to offer a vaccination certificate at registration time unless they are also matriculating in one of the Schools or Colleges of the University. Students entering the Graduate School for the first time matriculate when they register in that School and must present a satisfactory certificate of vaccination.

The Health Service staff for the Summer Session includes men and women physicians with nursing, laboratory, and clerical assistants. The offices of the Medical Advisers are in the Old Armory opposite Myron Taylor Hall; the office of the Medical Adviser of Women in Sage College is closed during the Summer Session. The medical advisers will keep the following office hours during the Summer Session: Dr. D. F. Smiley, medical adviser of men, *daily except Sunday, 9 a.m. to 11 a.m., and 12 m. to 1 p.m.*; Dr. Jennette Evans,

medical adviser of women, *daily except Sunday, 10 a.m. to 1 p.m.*; Miss Edna Carter, registered nurse, *daily except Sunday, 9 a.m. to 1 p.m. and 2 p.m. to 4 p.m.*

On Sundays the medical adviser's office will be open for one hour only, *10 a.m. to 11 a.m.*, and only one of the doctors will be on duty.

No charge is made for the services of the medical advisers or of the nurse.

University Infirmary. The University Infirmary will not be open during the Summer Session. Students requiring hospital care will be admitted to the Tompkins County Memorial Hospital under the usual regulations of that hospital.

THE LIBRARIES

The University Library is open on week days from 7:50 A.M. to 10:30 P.M. In this building are the main library, containing about 500,000 volumes, and most of the seminary and special libraries. The main reading room affords accommodations for more than two hundred readers, and contains a selected library of about 8,000 volumes of reference works. Below stairs is the periodical room in which are kept the current numbers of about 500 journals in various fields of knowledge. These rooms are open to all students. Students properly qualified are allowed the use of the seminary rooms and the books in them. The main collection is primarily a library of reference for use in the building. Students are, however, to a limited extent, allowed to take out books for home use. Persons wishing this privilege must make a deposit of \$5, which will be refunded upon the return of all books taken out.

The Library of the College of Agriculture, in Stone Hall, is open on week days from 9 A.M. till 5 P.M., except Saturday when it is closed at 1 P.M. In it will be found a large collection of bulletins and reports of experiment stations, reference books on agriculture and country life, agricultural periodicals, and the like. The entomological library in Comstock Hall is one of the most complete of its kind in the United States. Nearly all of the departments in which instruction is given have well-selected departmental libraries.

A large library of phonograph and piano recordings, and musical scores to parallel these recordings, is available in the Music Building for the use of the general student body. This library may be used in the Music Building only, during the hours 9 A.M. to 5 P.M. and 7 P.M. to 10 P.M. daily except Sunday, and on Sunday afternoons from 2:00 P.M. to 5:00 P.M.

RECREATION AND PUBLIC EVENTS

Willard Straight Hall is the social center of the University. The Memorial Room is in constant use for reading and study or for relaxation and talk. The recreation rooms are utilized for games and for classes in folk dancing. Receptions held in the lounges bring stu-

dents and members of the faculty into relationships less formal than those of the class rooms. Dances open to all members of the Summer Session are held each week.

Concerts. Organ recitals will be given on Sunday evenings of the session in Bailey Hall or in Sage Chapel by Luther M. Noss, University Organist and Assistant Professor of Music. A series of concerts will be given on Thursday evenings at 8:15 P.M. in Bailey Hall under the auspices of the Department of Music; details will be announced in the Summer Session Calendar. Both the organ recitals and the Thursday evening concerts are free to all students.

Summer Session Chorus. All members of the Summer Session who are interested in singing in a chorus of mixed men's and women's voices, are asked to meet in the choir loft of the Sage Chapel on Thursday afternoon, July 7, at five o'clock. At this time a schedule of rehearsals will be arranged in accordance with the desires of those interested. The chorus will be directed by Luther M. Noss, University Organist and Assistant Professor of Music.

Summer Theatre. During the Summer Session weekly performances are given by the Summer Theatre Company on Friday and Saturday evenings, beginning July 8. The performances are given in the theatre of Willard Straight Hall; an admission charge is made. The plays to be produced will be announced each week in the Summer Session Calendar.

The plays of the Summer Theatre Company are directed by Professors Drummond and Stainton, assisted by other members of the Direction Staff. Regularly enrolled members of the courses in Dramatic Production, and no others, may compete for places in the casts and production staffs; detailed announcements will be made in the various classes.

Museum of Modern Art Films will be presented weekly by the Summer Theatre to subscription audiences. Tickets for the series will be on sale at Willard Straight Hall.

Sage Chapel. Religious services are conducted in Sage Chapel throughout the academic year by clergymen of various religious denominations. There will be services in the Chapel on five Sundays during the Summer Session, July 10 to August 7 inclusive.

Lectures. In addition to the regular classroom work there will be general public lectures on Monday evenings, and also lectures of general interest each Wednesday evening in connection with the work of various departments. They will be announced in the Summer Session Calendar.

Demonstrations at the Observatory. A series of demonstration lectures, illustrated by observations with the 12-inch telescope when the weather permits, will be given on Monday, Wednesday and Friday evenings throughout the session at the Fuertes Observatory. During the first week of the session these lectures will be open to all registered

students; admission after the first week will be by tickets which may be obtained without charge at the Summer Session office.

Excursions. Excursions in connection with the work of certain departments are made to many points of interest. Some of them are open to all members of the Summer Session. Especially noteworthy are the excursions conducted by the Department of Geography and Geology to Enfield Glen, to Watkins Glen, and to Lake Ontario. Details of the plans for these are given on page 54.

Certain field trips conducted by members of the Department of Botany are open to interested persons upon application. Further information may be obtained at the Summer Session office.

OTHER INFORMATION

Routes to Ithaca. Ithaca can be reached from New York City by either the Delaware, Lackawanna & Western Railroad or the Lehigh Valley Railroad. On both roads there are good trains carrying Pullman cars, on the Lackawanna by day, on the Lehigh Valley by day and by night. Passengers from the west reach Ithaca by way of the Lehigh Valley Railroad from Buffalo. From stations on the Boston & Albany Railroad, the shortest route to Ithaca is by way of Syracuse and Auburn. From Philadelphia, and from Baltimore, Washington, and the south by way of the Baltimore & Ohio, the Philadelphia & Reading connects with the Lehigh Valley at Bethlehem. From stations on the Erie, connections with Ithaca can be made by the Lackawanna at Owego. Ithaca has connections with the New York Central at Geneva, Auburn and Canastota.

Several of the more important bus lines either run through Ithaca or connect at nearby towns with lines into Ithaca. Further information about routes can best be secured at local bus terminals.

Summer Session Calendar. A weekly calendar is issued on each Saturday of the Summer Session. This carries all official notices and gives details of all public events, such as concerts, lectures, excursions, etc. Copies are posted on all bulletin boards and students are advised to consult them for further information about such events. Copies of the Calendar may be obtained upon request at the Summer Session office, at the desk of Willard Straight Hall, and at other University offices.

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 M. LOVELL HULSE, Ph.D., Assistant Professor of Education.
 HELEN L. HULTZ, M.A., Teacher in the Fox Meadow School, Scarsdale, N. Y.

- LEE SISSEN HULTZÉN, Ph.D., Lecturer in Public Speaking, University of California at Los Angeles, Los Angeles, Calif.
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- WALLIE ABRAHAM HURWITZ, Ph.D., Professor of Mathematics.
- MARGARET HUTCHINS, M. A., Instructor in Rural Education.
- JAMES HUTTON, Ph.D., Assistant Professor of Classics.
- ERICH HYLLE, Formerly Ministerialrat in the Prussian Ministry of Education and Professor of Education in the Pedagogical Academy in Halle, Germany.
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- JOSEPH ALMSTEAD JEFFREY, M.E., Assistant Professor of Experimental Engineering.
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- LEMO D. ROCKWOOD, Ph.D., Professor of Home Economics.
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- FORREST BLYTHE WRIGHT, Ph.D., Assistant Professor of Agricultural Engineering.
- BENJAMIN PERCY YOUNG, Ph.D., Assistant Professor of Zoology.

COURSES OF INSTRUCTION

ARRANGEMENT OF SUBJECTS

Subjects of instruction are grouped into twelve divisions as given in the Table of Contents on page 3.

In each division subjects of instruction are arranged alphabetically.

The index at the end of this Announcement includes all subjects of instruction; it should be referred to for subjects not readily found by reference to the Table of Contents.

CLASS SCHEDULES

In most courses of instruction, classes will meet five times a week, on each week day except Saturday. Such classes will meet on July 10, the first Saturday of the Session, but on no other Saturdays. Class periods begin on the hour unless otherwise indicated and are fifty minutes in length. Laboratory periods are of various lengths, as indicated in the description of courses which include laboratory work. The meeting place of each course is given in the description of the course. Goldwin Smith Hall is indicated by the symbol *GS*: all other buildings are named.

UNDERGRADUATE AND GRADUATE COURSES

There is, in general, no sharp distinction at Cornell University between graduate and undergraduate courses. In this Announcement courses are marked in three ways:

***Courses marked with an asterisk are intended primarily for undergraduates.** Students registering for these courses will not receive credit toward a graduate degree of Cornell University unless such credit is specifically recommended in writing by the special committee in charge of their work at the time of registration.

****Courses marked with two asterisks are intended primarily for students who are candidates for advanced degrees.** Undergraduates with adequate preparation may register for these courses only after receiving permission from the instructors in charge.

Courses not marked are open to advanced undergraduates and graduates. Graduate students registering for these courses must inform the instructors in charge that they are candidates for advanced degrees and must be prepared to do any additional work that may be required of students taking these courses on a graduate level.

FINE ARTS

AESTHETICS

S 1. The Psychology of Art. Credit two hours. Daily except Sat., 2. *GS, Museum of Casts.* Professor OGDEN.

A study of the aesthetic experience as criterion of art and skill. Special topics: music, poetry, painting, and sculpture. Designed for students interested in the fine arts.

DRAWING AND PAINTING

The following courses correspond generally to those of the regular session of the University. Classes are small enough to permit individual instruction adapted to the students' needs. The advanced student is given work and criticism according to his ability. All materials needed may be obtained in Ithaca.

An illustrated folder describing the work of this department in detail, and especially as it is conducted in the regular session, will be sent upon application to the College of Architecture, Cornell University, Ithaca, New York.

*S 1. **Elementary Drawing.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor BRAUGHT.

This course for beginners in drawing embraces freehand perspective, drawing of geometrical objects and simple casts. The course will begin with pencil work and continue with light and shade in charcoal.

*S 2. **Antique.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor BRAUGHT.

Prerequisite for this course is a knowledge of the elements of drawing. Instruction will be given in charcoal from casts.

*S 3. **Drawing from the Human Figure.** Credit two hours. Daily except Sat., 10-12. *Third floor, Franklin.* Assistant Professor BRAUGHT.

Study from living model in charcoal. Course S 1 or its equivalent is prerequisite to this course. A studio fee of \$10 is charged.

*S 4. **Elementary Color.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor STONE.

Instruction for beginners in color. Students work from simple groups. Talks will be given on the theory of color.

*S 5. **Advanced Color.** Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor STONE.

As in course S 4, students in this course work from groups (vases, fruit, flowers) in oil or in water color. Those who have not had course S 4 or its equivalent may enter this course on submission of examples of original work. Copies of others' work will not be sufficient for entrance.

*S 6. **Outdoor Sketching in Color.** Credit two hours. Daily except Sat., 2-4. *Third floor, Franklin.* Assistant Professor STONE.

A knowledge of the elements of drawing and the elements of color is a prerequisite to this course. Instruction is given in oil from landscape.

The unusual variety and charm of the natural environment of Cornell give an abundance of subject-matter from which to work. There are woodland, open farming country, lakes and streams, broad panoramic views, and rugged gorges within easy walking distance of the campus.

MUSIC

*S 1. **Theory and Practice of Music.** Credit two hours. Daily except Sat., 9. Open to all students who have had little or no training in music. Students offering music for entrance credit may not take this course for credit. *Music Building, 320 Wait Avenue.* Assistant Professor NOSS.

An elementary course in the theory of music, including notation and terminology, scale, interval, and chord structure, melody writing, ear training, sight singing, and the elements of musical design.

S 5b. **The Art of Music.** Credit two hours. Daily except Sat., 10. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

An approach to the rational understanding and enjoyment of the art of music. This part of the course considers especially the principal forms employed by composers of the classic and romantic schools, as illustrated by various types of orchestral, chamber, violin, piano and vocal music. The course is taught from the appreciative standpoint.

S 8. **The Orchestra.** Credit two hours. Daily except Sat., 11. Open to all students. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

A study of the instruments of the orchestra, their characteristics and capacities, their functions singly and in combinations; and of the orchestra as a whole, and various aspects of orchestral music. A non-technical course, requiring no ability to play these instruments and taught from the appreciative standpoint.

S 10b. History of Music. Credit two hours. Daily except Sat., 12. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

A survey of the evolution of the art of music, with particular reference to questions of style and to the place of music in the artistic and social life of nations. This part of the course covers the period from approximately 1700 to the present day, including the classic, romantic, and current schools of musical thought.

S 34. Historical Survey of Chamber Music. Credit two hours. Prerequisite Music 10 or its equivalent. Daily except Sat., 12. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

An illustrated course giving a survey of chamber music from its beginning to the present time.

Chorus. No credit. All men and women interested in singing in a summer session chorus will meet at 5 p.m. on Thursday, July 7, in the choir loft of the *Sage Chapel*, for discussion of plans and decision on a suitable schedule of rehearsals. Assistant Professor NOSS will conduct the chorus.

Applied Music. Individual instruction in organ, piano and violin. Credit two hours for students majoring in music; for other students, no credit. Hours to be arranged. *Music Building, 320 Wait Avenue.* Assistant Professors INGALLS and NOSS, and Mr. STAHL.

Individual instruction in applied music is offered primarily for students wishing to major in music, and in the case of such students the work of the course is correlated with the theoretical courses being pursued by the student. Whenever the facilities of the department permit (1) other students and, during this session, (2) non-students, may register for this instruction. In each case, permission to register should be obtained from Professor Weaver. In the case of students majoring in music, four terms of instruction are available, and the individual student is assigned to the course for which his previous training qualifies him.

Individual instruction is offered in organ under Assistant Professor NOSS, in piano under Mr. STAHL, and in violin under Assistant Professor INGALLS. The normal registration involves two half-hour lessons a week at a special fee of \$2 a period. Practice facilities are available for each instrument; the fee for a daily hour for the term is \$3 in the case of a piano practice room in the Music Building, and \$11 in the case of the organ in the Sage Chapel. After obtaining permission to register for this instruction, students should consult the instructor about lesson hours, and the secretary of the department about practice hours.

LANGUAGES AND LITERATURES, PUBLIC SPEAKING AND DRAMA

ENGLISH

Courses S 1 and S 2 taken together will be accepted as the equivalent of either the first term or the second term of English 2 in the regular University session, but not of both.

***S 1. Composition.** Credit two hours. Daily except Sat., 8. *GS 124.* Dr. WILSON.

A study of the principles of composition, intended to teach the habit of clear and effective expression; reading of models, frequent writing of themes, class discussions; conferences at hours to be appointed.

***S 2. Introductory Course in Literature.** Credit two hours. Daily except Sat., 9. *GS 124.* Dr. MAURER.

A study of selections from Chaucer, Shakespeare, and Browning, intended to acquaint the student with a few English masterpieces, and to inculcate habits of careful reading.

***S 4. Advanced Composition.** Credit two hours. Daily except Sat., 8. *GS 164.* Assistant Professor FRENCH.

Open to those who have passed S 1 or the equivalent. A study of the technique of exposition, including the reading of several recent essays; and frequent practice in writing, with criticisms in personal conferences.

S 7. Nineteenth Century Poetry. Credit two hours. Daily except Sat., 9. GS 162. Professor MONROE.

A study and discussion of the most important poems of Byron, Shelley, and Keats. Texts: *Byron*, ed. Chew and Bredvold, 2 vols; Modern Library *Keats and Shelley*.

S 8. Modern American Poetry. Credit two hours. Daily except Sat., 10. GS 142. Professor THOMPSON.

The leading poets from Emily Dickinson to the present. Text: Untermeyer, *Modern American Poetry*, fifth revised edition.

S 9. The Modern Novel in Europe. Credit two hours. Daily except Sat., 10. GS 162. Dr. GUSTAFSON.

Lectures on the general background of the European novel from 1850 to the present day. An intensive examination, including classroom discussions, of certain representative novels of the period such as Flaubert's *Madame Bovary*, Tolstoi's *Anna Karénina*, Thomas Mann's *Buddenbrooks*, Sigrid Undset's *Kristin Lavransdatter*, and Hamsun's *Growth of the Soil*.

S 11. American Literature to the Civil War. Credit two hours. Daily except Sat., 8. GS 156. Professor THOMPSON.

A study of literary, social, and political ideals of America as reflected in the writings of Irving, Bryant, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Longfellow, Whittier, Holmes, and Lowell. Text: Quinn, Baugh, and Howe, *The Literature of America*, Vol. 1.

S 12. American Literature. Romanticism, 1830-1860. Credit two hours. Daily except Sat., 9. GS 156. Assistant Professor MYERS.

Introductory lectures on the backgrounds of American romanticism and transcendentalism in French and German thought and in colonial life and Calvinist theology; careful reading of Emerson's *Essays* and *Representative Men*, Hawthorne's *Tales* and *The Scarlet Letter*, Melville's *Typee* and *Moby Dick*, Thoreau's *Journal* and *Walden*, and Whitman's *Leaves of Grass*, *Specimen Days*, and *Democratic Vistas*; concluding lectures on style and discussions of subjects for dissertations.

S 16. The English Language. Credit two hours. Daily except Sat., 11. GS 162. Professor MONROE.

A study of some significant features in the growth and development of the mother tongue: language and grammar in general; some misconceptions about the life of language; the relationships of English; phonetics; the English vocabulary; inflections; native resources and foreign influences; disputed usages; the bearing of historical grammar on present forms and usages, spoken and written.

Baugh's *History of the English Language* is used as a basis for recitations, lectures, and collateral reading. The course does not require previous knowledge of Old or Middle English. Extra work is required for credit in the Graduate School.

S 17. Modern Drama. Credit two hours. Daily except Sat., 9. GS 190. Professor THOMAS.

A study of the drama in the nineteenth and twentieth centuries. The course is designed to broaden and deepen the student's knowledge of dramatic impulses and to discuss the ways in which dramatic practices have developed.

The course will trace the development of the theater and the drama in Europe and America from Ibsen down to the present time. It will examine the relationship between drama and the other arts. It will attempt to give some appraisal of the poetic drama, particularly the recent successors of Maxwell Anderson and T. S. Eliot. The basic text will be Whitman's *Representative Modern Drama*.

S 18. The Victorian Novel. Credit two hours. Daily except Sat., 10. GS 124. Dr. MAURER.

A study of representative works of Dickens, Thackeray, George Eliot, Trollope, Meredith, and Hardy. Lectures and class discussions.

S 19. Victorian Poets. Credit two hours. Daily except Sat., 9. GS 164. Dr. WILSON.

A study of significant shorter poems by Tennyson, Browning, Arnold, Swinburne, Morris, Rossetti, and others. Some attention to the social and cultural as well as the literary history of the nineteenth century. Lectures, classroom discussions, and conferences; term report. Opportunity for study of special problems. Text: G. B. Woods, *Poetry of the Victorian Period*.

****S 20. Shakespeare.** Credit two hours. Daily except Sat., 11. GS 156. Assistant Professor NUNGEZER.

A study of the dramatic art of Shakespeare as illustrated by *Hamlet*, *Macbeth*, *King Lear*, and *Antony and Cleopatra*; with supplementary readings.

****S 24. Chaucer.** Credit two hours. Daily except Sat., 12. GS 164. Assistant Professor FRENCH.

A seminary, for graduate students, on the *Prologue* and several of the *Canterbury Tales*, with special attention to their literary and social background and to scholarly problems connected with them. Text: F. N. Robinson, *Chaucer's Complete Works*.

****S 31. Dramatic Literature.** Credit two hours. First meeting, T 2:30; subsequent hours to be arranged. GS 183. Assistant Professor MYERS.

A study of comedy based on thirty examples from the drama of Greece and France (in translation) and Elizabethan and Restoration England. Lectures on theories of laughter and comedy will accompany the reading of the plays; discussions and papers will provide opportunities to search for and test standards of appreciation and judgment.

****S 33. Teachers' Course.** (Education S 33). Credit two hours. Daily except Sat., 12. GS 156. Professor THOMAS.

This course is designed to present the basic principles that determine growth in expressional skill and the maturing ability to interpret the printed page. Emphasis is thrown upon the way language skill manifests itself in academic, social, and industrial relations. The basic principles thus studied will provide the direction for considering the practical machinery of the work in English in the junior and senior high school.

Topics included are: the articulation of high school English with grammar school English; the demands of the Board of Regents and College Entrance Examination Board; the educational values of examinations and objective tests in an English curriculum; the teaching of lyric poetry, the drama, the novel, the short story, and the essay; the relationship of grammar, composition, and literature, with particular attention to composition—oral and written.

Such supplementary aids as tests and measures, periodicals, dramatics, literary clubs, motion and sound films, the school paper, precis-practice, debating, the symposium, prize speaking, the speaking choir, and library work will receive attention. Suggestions will be offered for adjusting the English course to the needs of pupils in the commercial, trade, and industrial departments. Textbooks: Thomas's *The Teaching of English in the Secondary School* (1927 edition); Shakespeare's *Coriolanus*—any edition; *Selected Lyrics* (Wordsworth, Shelley, Keats); *The Atlantic Book of Junior Plays*; Hardy's *The Return of the Native*—any edition; and others.

****S 34. Elizabethan Literature.** Credit two hours. Daily except Sat., 12. GS 160. Assistant Professor NUNGEZER.

A continuation of last summer's course (S 32); Lord Vaux, Thomas Tusser, Richard Edwards, Thomas Sackville, George Gascoigne, The Elizabethan miscellanies, John Lyly, Sir Philip Sidney, the Earl of Oxford, Nicholas Breton, Sir Edward Dyer, Fulke Greville, and Sir Walter Raleigh.

****S 36. The Romantic Movement.** Credit two hours. First meeting W 2:30; subsequent hours to be arranged. GS 164. Dr. GUSTAFSON.

A rapid survey of characteristic pre-romantic ideas and moods in the eighteenth century, followed by a more intensive examination of certain typical romantic poets and essayists, such as Wordsworth, Coleridge, Lamb, Hazlitt, and DeQuincey. Some attention given to the relations between English romantic tendencies and romanticism on the continent.

FRENCH

*S 1. **Elementary Course.** Credit four hours. Daily except Sat., 8 and 12. GS 290. Mr. SHORTLIFFE. Entrance credit, one unit.

A course for beginners, offering intensive drill in the fundamentals of French grammar. Reading of simple texts.

*S 3. **Intermediate Course.** Credit four hours. Daily except Sat., 8 and 12. GS 281. Mr. THÉNAUD. Entrance credit, one unit.

Prerequisite, one year of college French or two years of high school French. A general review of the main principles of French grammar. Translation of short stories and plays.

*S 4. **Advanced Translation.** Credit two hours. Daily except Sat., 10. GS 281. Dr. RIDEOUT.

Prerequisite, two years of college French or three years of high school French. Rapid reading of standard French authors. Designed primarily for those seeking a reading knowledge.

*S 5. **Intermediate Composition and Conversation.** Credit two hours. Daily except Sat., 9. GS 283. Mr. SHORTLIFFE.

Prerequisite, two years of college French or three years of high school French. Intensive practice in oral and written French.

S 9. **Advanced Composition and Conversation.** Credit two hours. Daily except Sat., 12. GS 283. Dr. RIDEOUT.

Prerequisite, course S 5 or its equivalent. Especially recommended to candidates for the examination for the approval of Oral Credit in New York State. Designed primarily for teachers and prospective teachers. Translation from standard English texts into French; discussion of important points of syntax; theme writing; oral exercise. This course is conducted in French.

S 29. **The Novel in France since 1900.** Credit two hours. Daily except Sat., 11. GS 290. Professor MASON.

S 30. **The Teaching of French.** Credit two hours. Daily except Sat., 8. GS 283. Dr. RIDEOUT.

Lectures and practical exercises dealing with the following subjects: methods (direct, eclectic, reading, grammar-translation); new-type tests (placement, prognostic, standardized, vocabulary, etc.); realia; grammar and reading texts; investigations of the Modern Foreign Language Study, etc.

S 31. **Elementary Phonetics.** Credit two hours. Hour and room to be arranged. Mr. SHORTLIFFE.

Scientific training in French pronunciation. Comparison of French and English sounds. Oral and ear training with special attention to individual pronunciation.

S 37. **Rousseau and Romanticism.** Credit two hours. M W F 10. GS 283. Mr. THÉNAUD.

Lectures and readings in Rousseau and his contemporaries.

S 47. **French Seminary. Credit two hours. Daily except Sat., 9. *French Seminary Room, Library.* Professor MASON.

Discussion of special topics in the field of modern French literature. This course is especially for graduate students and candidates for the degree of Master of Arts.

Lectures. A series of lectures in French dealing with French national life will be given by the members of the instructing staff on Wednesday evenings at 8 o'clock in *Goldwin Smith Hall, Room 290.*

French Conversation. In *Balch Hall* special tables are arranged under competent supervision for conversation in French.

GERMAN

*S 1. **First Year German.** Credit four hours. Daily except Sat., 8 and 12. GS 183. Professor ANDREWS. Entrance credit, one unit.

Grammar, composition, reading, oral training. After successfully completing this course, students can, by supplementary reading during the summer, prepare themselves for the College Board entrance examination in second year German.

*S 3. **Third Year German.** Credit four hours. Daily except Sat., 8 and 12. GS 190. Professor FAUST. Entrance credit, one unit (third unit).

Reading, grammar, composition, oral training. Prerequisite, two years of high school German or the equivalent.

S 8. **Readings from Grillparzer.** Credit two hours. Daily except Sat., 9. GS 183. Professor ANDREWS.

A general consideration of Grillparzer's life and works, with detailed study of two or more of his dramas. Prerequisite, reading knowledge of German.

S 10. **Contemporary German Literature.** Credit two hours. Daily except Sat., 10. GS 190. Professor FAUST.

Lectures in English on German literature, 1880-1930. Foreign influences; naturalism, impressionism, expressionism. Collateral reading.

German Lectures. Lectures or interpretative readings in German will be given by members of the department on Wednesday evenings at 8 o'clock in GS 190.

GREEK

S 1. **Introduction to Greek and to the Reading of Homer.** Credit two hours. Daily except Sat., 11. GS 124. Assistant Professor HUTTON.

This course is intended (a) for graduate students who have had no Greek; (b) for high-school teachers of Latin who have had no direct acquaintance with Greek and are therefore deprived of one of the chief sources of understanding and appreciating the content of the Latin authors they present in class; (c) for students of literature who desire by intensive work during a Summer Session to lay the foundation for a first-hand appreciation of the literary masterpieces of Greece. Beginning with the alphabet, the course will give a thorough grounding in necessary forms, flexions, and syntax, and will proceed to the reading of a portion of the first book of Homer's *Iliad*.

S 2. **Advanced Greek.** Credit two hours. Daily except Sat., 12. GS 124. Assistant Professor HUTTON.

For students who have mastered the elements and wish to enlarge their knowledge of Greek. Readings will be chosen to suit the needs of those who enter the course.

LATIN

The work of the Summer Session in the field of Latin study is intended primarily for actual and prospective teachers of the subject in the secondary schools.

A series of advanced courses is offered for those who by their undergraduate training are qualified to enter the Graduate School, or to continue their work therein, as candidates for the degree Master of Arts with Latin as a major or a minor subject.

Other courses are offered, theoretical and practical, for those high-school Latin teachers who either desire a clearer comprehension of the aims and of the technique of classical teaching in secondary schools, or require specific training in the content of their school courses.

Prospective students in the 1938 Summer Session are invited to correspond with Professor CHARLES L. DURHAM, Goldwin Smith Hall, Ithaca, N. Y., concerning the nature and the scope of the work in Latin. Those who wish to begin their candidacy for the degree Master of Arts should forward to the office of the

Graduate School, on or before June 25, such credentials of undergraduate work leading to the degree of A.B. as will entitle them to admission to the Graduate School.

****S 1. Methods, Materials, and Background for the Second Year of High School Latin.** Credit two hours. Daily except Sat., 9. GS 128. Professor DURHAM.

Caesar's Gallic War in the second year of Latin study, the critical year of the Latin program in the high school, and the significance of the *Commentaries* in the history and culture of Europe. Primarily for those who have an acquaintance with the field, and are actual or prospective teachers of Latin. Lectures, discussions, conferences.

The credit of two hours carried by this course is countable toward the group of six semester hours in General and Special Methods required by the New York State Department of Education as part of the prerequisite for the Professional Certificate for high school teaching. Similar credit in an elective group will be recognized by the State of Pennsylvania. Students from states where other requirements for teachers' certificates are in force are advised to secure in advance from their own school authorities an indication that this course will be counted towards the satisfaction of their particular professional requirements.

****S 2. Problems and Methods of Graduate Work in Latin.** A general survey of the various fields of advanced Latin Study, with direction of work and training in method in accordance with the needs and qualifications of the individual students. Phonetics, Sounds and Flexions of Latin, Vulgar Latin and the development of the Romance languages, Epigraphy, Historical Syntax, Metrics, Palaeography and Textual Criticism, etc. For graduate students.

Credit two hours. Daily except Sat., 10. GS 128. Professor DURHAM.

****S 4. Theses and Informal Work.** Direction in the preparation of theses by candidates for the Master's degree, and in the investigation of special problems which arise in connection with the work of the individual teacher. Hours a week and credit by arrangement. Professor DURHAM and Assistant Professor HUTTON.

Special attention is called to the courses in Greek.

PUBLIC SPEAKING, DRAMA AND THE THEATRE

PUBLIC SPEAKING

The courses in Public Speaking represent the following fields: Oral Interpretation; Speech Training; and Oral English. All courses are planned to meet the special needs of teachers. Either S 28 or S 30 (not both) may be counted as a course in methods approved by the New York State Department of Education for the teachers' certificate.

Students may confer either with the departmental representatives in the Drill Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For information about advanced work in Speech Training and Phonetics, consult Mr. HULTZÉN, GS 23; in Rhetoric and Public Speaking, Mr. WAGNER, GS 237.

***S 1. Public Speaking.** Credit two hours. Daily except Sat., 11. GS 21. Assistant Professor HOWELL.

Practice in speech-making, on topics of current interest. Methods of preparation and delivery studied in relation to practice; class discussions; conferences. Regular students passing the course are admitted to Public Speaking 2 and 12. High School teachers will find the methods applicable to their work in public speaking and oral English.

S 2. Discussion. Credit two hours. Daily except Sat., 10. GS 234. Assistant Professors WAGNER and HOWELL.

Practice in discussion of current public questions as a member of various kinds of groups: committee, panel, symposium, forum, etc. Study of principles and types; conferences. Opportunity will be offered to plan and conduct discussions.

*S 10. **Oral Interpretation of Literature.** Credit two hours. Daily except Sat., 12. GS 21. Assistant Professor HULTZÉN.

Training in interpretative reading of prose and poetry; study of principles; constant practice; conferences.

S 21. **Theories of Public Address. Credit two hours. Daily except Sat., 12. GS 234. Assistant Professor HOWELL.

Lectures and discussions. A survey: social function of speech-making; purposes and forms of public address; speech preparation; structure; style; delivery; theories of persuasion.

S 22. **Rhetorical Criticism. Credit two hours. Hours as arranged. Assistant Professor WAGNER.

The principles of criticism, as applied to public address; the speeches studied will be mainly British and American.

S 28. **Teachers' Course in Oral English and Public Speaking.** Credit two hours. Daily except Sat., 9. GS 234. Assistant Professor WAGNER.

Designed for secondary school teachers whose work includes oral English or public speaking. Aims and standards; organization of courses; methods and materials; planning and conduct of speech programs and activities. Examination of reports and syllabuses on oral English and speech in secondary schools. Individual conferences for special problems.

S 30. **Teachers' Course in Phonetics and Speech Training.** Credit two hours. Daily except Sat., 9. GS 21. Assistant Professor HULTZÉN.

A study of English phonetics, pronunciation and the improvement of speech; primarily for secondary and elementary school teachers.

S 35. **Advanced Phonetics.** Credit one hour. Hours as arranged. Assistant Professor HULTZÉN.

Open to students who are familiar with routine phonetic transcription (or who can handle routine phonetic transcription without difficulty). Study of American intonation; phonetic analysis of phonograph recordings; the development of present-day American English sounds.

S 200. **Theses and Special Problems. Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be done must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in public speaking, rhetoric, or phonetics.

For further information consult Dr. WAGNER.

Debate Round Table. Informal discussion of the methods and problems of conducting debate. For coaches and others interested. First meeting W, July 6, 4. GS 236. Assistant Professor HOWELL.

DRAMA AND THE THEATRE

Students may confer either with the departmental representatives in the Drill Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For further information about registration, or advanced work, consult Mr. STAINTON, GS 239, or Mr. DRUMMOND, GS 244.

Phonetics and Speech Training are listed above under Public Speaking.

S 41. **Dramatic Production.** Credit two hours. Daily except Sat., 10. *Stage Laboratory, Morse.* Assistant Professor STAINTON.

For upperclassmen and graduates. Theory of stage direction; fundamentals of theatrical mounting; survey of practical phases of production. Prerequisite for further graduate work in Dramatic Production.

S 42. **Dramatic Interpretation and Acting.** Credit two hours. M W F, 2-4. GS B. Assistant Professors WOELL and HEWITT.

A practice course in oral interpretation, pantomime, acting, and group rehearsal.

S 43. Choosing and Directing School and Community Plays. Credit two hours. Daily except Sat., 10. *GS B.* Assistant Professor HEWITT.

The time of the course is divided between a survey of play lists, with reading of typical plays; and a study of methods of presentation, with practice in direction and rehearsal.

S 45. Stage Craft and Elementary Stage Design. Credit two hours. Daily except Sat., 12, with additional laboratory hours to be arranged. *Stage Laboratory, Morse.* Assistant Professor STANTON.

Planning of small theatres; stage arrangement; problems and practice in construction and scene design; assignments will vary with the needs of the individual. Laboratory fee, \$5.

S 45a. Stage Lighting. Credit two hours. Hours to be arranged. Assistant Professor STANTON.

Theory and technique of stage lighting; with laboratory practice in connection with the productions of the Summer Theatre.

Register with Dr. STANTON in *GS 239.*

S 47. The History of Stage Costuming. Credit two hours. Hours to be arranged. Miss WORMAN.

An historical survey of theatrical costuming, and of related period costumes, modes and manners.

Register with Miss WORMAN in *GS 244.*

S 49. Playwriting. Credit two hours. T Th, 2-4. *GS 242.* Assistant Professor WOELL.

Theory of the drama and dramatic composition. Each student will write three one-act plays during the session.

S 66. Dramatic Art. Credit two hours. Daily except Sat., 12. *GS 242.* Professor DRUMMOND.

For upperclassmen and graduates having sufficient preparation for somewhat advanced work in the theory of the theatre. Readings, reports, and lectures.

S 90. Technical Theatre Practice. Credit one hour. Hours to be arranged. Open by consent of instructor. Mr. LEWIS, assisted by members of the Summer Theatre Staff. Register in *GS 25.*

Technical practice coordinated with the regular productions of the Summer Theatre, with readings on the techniques involved.

S 95. Stage Make-up. Credit two hours. Hours to be arranged. Assistant Professor CURVIN.

Laboratory in make-up coordinated with the productions of the Summer Theatre; readings and lectures on history of make-up, masks, and on period ornament and dressing.

Register with Mr. CURVIN in *GS 25.*

****S 300. Special Problems and Theses.** Credit two or more hours. Hours to be arranged. On registering for this course the name of the professor with whom the work is to be taken must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in the field of drama and the theatre.

For further information consult Professor DRUMMOND.

Dramatics Round Table. Informal discussion of the methods, problems and organization of school and community dramatics. First meeting Th, 4. *GS 236.* Assistant Professor HEWITT.

Modern Drama. See *English, S 17.*

Dramatic Literature. For graduates. See *English, S 31.*

Shakespeare. See *English, S 20.*

SPANISH

****S 50. Theses Supervision.** By appointment with Professor DALE. *GS 271.*

HISTORY, GOVERNMENT, ECONOMICS,
AND SOCIOLOGY

ECONOMICS: AGRICULTURAL ECONOMICS

The following courses are designed to meet the needs of three classes of students in the Summer Session: (1) those desiring regular college credit for general economics; (2) students with special interests in economic subjects; (3) students seeking broad preparation for the teaching of economics in the secondary schools. For the first group, course S 1 covers the subject matter usually included under elementary economics. For Cornell students, course S 1 satisfies the economics requirement in the College of Engineering and will also serve in lieu of Course 1 as a prerequisite for admission to various advanced courses in economics. Graduate students wishing to pursue special investigations will be afforded assistance by members of the Department of Economics who may be in residence in Ithaca during the summer.

***S 1. Introduction to Economics.** Credit four hours. Twice daily except Sat., 11 and 12. *GS 264.* Mr. ARLT.

An introductory course dealing with the general functioning of a price economy. The pricing process, money and credit, and the forms of business organization will be examined in some detail.

S 11. Money and Banking. Credit two hours. Daily except Sat., 9. *GS 256.* Professor REED.

A survey of the development of the American monetary system and banking institutions, followed by a discussion of the loan problems of the commercial bank, and of such current questions as the future goal of monetary policies, the sterilization of gold inflows, the control of stabilization funds, the recapitalization program of the Reconstruction Finance Corporation, and the present strength of our banking structure.

This course will satisfy all requirements which otherwise would necessitate taking Economics 11 in the regular session.

S 12. Business Cycles. Credit two hours. Daily except Sat., 11. *GS 256.* Professor REED.

The main purpose of this course will be to examine critically the leading explanations of fluctuations in the general volume of business activity. Especial effort will be made to determine the principal causes of the 1929-1932 depression. Methods of forecasting will receive some attention, as will also analyses of the current economic situation.

***S 21a. Elementary Accounting.** Credit three hours. Daily except Sat., 10. Two practice periods per week to be arranged. *West Sibley 2.* Professor BANGS and Assistant Professor HANSELMAN.

Theory of debit and credit: the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables, bond valuation, sinking funds.

S 31. Corporation Finance. Credit two hours. Daily except Sat., 8. *GS 256.* Professor O'LEARY.

A study of the financial practices of business corporations in the United States: types of corporate securities, the exchange of such securities for capital funds, determination and administration of corporate incomes, financial difficulties and corporate reorganizations, and the relation of corporate practices to the functioning of the American economic system.

S 32. Public Control of Business. Credit two hours. Daily except Sat., 10. *GS 256.* Professor O'LEARY.

An examination of the problems raised by actual and proposed attempts to regulate business in a private enterprise economy, and of regulation by such agencies as the Interstate Commerce Commission, the Federal Trade Commission, and the Securities and Exchange Commission. Proposals for public economic "planning" will be examined.

A 115. Prices. Credit three hours. Lectures, daily except Sat., 8. *Agricultural Economics 125.* Laboratory, W., 1:40-4. *Agricultural Economics 140.* Dr. LEWIS.

A study of agricultural and other price movements and their causes, in the United States and other countries. Fee for materials, \$2.

A 138. **Taxation.** Credit two hours. Lectures, daily except Sat., 10. *Agricultural Economics* 225. Assistant Professor KENDRICK.

A study of the principles and practices of public finance with emphasis on taxation. Among the topics examined are: the growth of public expenditures; the changing pattern of federal, state and local taxation; general property, personal income, inheritance, business, commodity, and motor vehicle taxation; the incidence of taxation; relations among taxing units; and the problem of developing a system of taxation. Fee for materials supplied, \$2.

A 139. **Problems in Taxation.** Credit two hours. Prerequisite, *Agricultural Economics* 36 or 138, or equivalent. Lectures, daily except Sat., 9. *Agricultural Economics* 125. Assistant Professor KENDRICK.

Among the topics considered are: the tax system in relation to requirements for revenue; taxable capacity; the use of taxation for social control; justice in taxation; tax administration; conflicts among governmental units; and some conclusions respecting needed adjustments.

GOVERNMENT

S 10. **Recent Political Theories.** Credit two hours. Daily except Sat., 11. *Boardman* B. Assistant Professor SHEPARD.

A survey of some of the more important recent political theories, including liberalistic, democratic, pluralistic, socialistic, communistic, and fascistic doctrines.

S 40. **Current Problems of National Government.** Credit two hours. Daily except Sat., 9. *Boardman* B. Assistant Professor SHEPARD.

Present-day issues and aspects of American national government, including such subjects as judicial review and the constitution, administration and bureaucracy, pressure groups in national politics, and governmental regulation of our economic order.

HISTORY

*S 1. **The Greek World from 594 to 338 B.C.** Credit two hours. Daily except Sat., 9. *Boardman* E. Professor LAISTNER.

A survey of the political, economic, and cultural history of the Greek City-States from the time of Solon to the triumph of Philip of Macedon.

S 2. **The Economic and Social History of the Roman Empire.** Credit two hours. Daily except Sat., 10. *Boardman* E. Professor LAISTNER.

A study of the various aspects of the economic and social organization of the Roman Empire during the first three centuries of the Christian era. Among the topics to be treated will be agriculture and land-tenure, communications, industry and commerce, municipal life, and trade-gilds. Prerequisites, some previous work, of college or university standard, in Roman history or in Latin; correspondence or consultation with the instructor before registering.

S 6. **England under the Stuarts.** Credit two hours. Daily except Sat., 9. *Boardman* D. Professor MARCHAM.

A study of English civilization in the 17th century, with special attention to the state of politics, government, and religion, the relation of literature to the public life, and the development of the arts, notably architecture and engraving.

S 9. **The British Empire and World Affairs.** 1830 to the Present. Credit two hours. Daily except Sat., 11. *Boardman* D. Professor MARCHAM.

The chief topics considered will be British Imperial policy in the 19th century, British imperialism and its rivals from 1880 to 1914, the British empire and the World War, the British empire and the League of Nations, the transition from dominion status to the commonwealth of nations, the British empire and its rivals since the World War.

S 16 **Recent History of the United States.** Credit two hours. Daily except Sat., 8. *Boardman D.* PROFESSOR PELZER.

A study of the new social, economic, and political basis of American life since the Civil War.

S 19. **History of the West.** Credit two hours. Daily except Sat., 10. *Boardman D.* PROFESSOR PELZER.

The exploration and colonization of the river and lake regions: fur trade; land policies; the Old Northwest; exploration and trade routes to the Far West; territorial acquisitions; the West and slavery.

S 21b. **The Later Middle Ages and the Italian Renaissance.** Credit two hours. Daily except Sat., 8. *Boardman C.* PROFESSOR STEPHENSON.

A general sketch of the political and cultural history of Europe from 1250 to 1500. Among the topics discussed will be the following: the decline of the Church and the background of the Protestant Reformation, the decay of feudalism and the manorial system, the growth of industry and the new trade routes, scholastic education and the Italian humanists, the new vernacular literatures and new styles in the arts, constitutional monarchy in England and the absolutisms of the Continent.

S 22. **The Rise of the Universities.** Credit two hours. Daily except Sat., 9. *Boardman C.* PROFESSOR STEPHENSON. Prerequisite, an introductory course in mediaeval history or consent of the instructor.

An advanced course on the history of learning and education from the eighth to the thirteenth century. Assigned reading in Laistner, *Thought and Letters in Western Europe, A.D. 500-900.*, and Haskins, *Renaissance of the Twelfth Century.* Important writings of the period will be analyzed.

S 45. **Europe, 1815-1878.** Credit two hours. Daily except Sat., 11. *Boardman C.* PROFESSOR ANDERSON.

This course treats the revision of the peace settlement sponsored by the Congress of Vienna and the rise of nationalism in Europe. Special emphasis is given to the roles played by certain great personages such as Metternich, Palmerston, Cavour, Napoleon III and Bismarck.

SOCIOLOGY: RURAL SOCIOLOGY

*A I. **General Sociology.** Credit two hours. Daily except Sat., 8. *GS 225.* PROFESSOR MATHER.

An introduction to the study of the structure and processes of human group life.

A III. **Rural Community Organization.** Credit two hours. Daily except Sat., 11. *Agricultural Economics 302.* Extension Assistant Professor POLSON.

A consideration of the structure and functioning of rural community organizations; the organization of the rural community; and a review of group work techniques, such as local leadership development, program planning, use of group activities for informal teaching, the use of committees, and interorganization cooperation. A course for extension workers and school teachers. Fee for materials, \$2.

A 121. **The Family.** Credit two hours. Daily except Sat., 10. *Agricultural Economics 340.* Assistant Professor COTTRELL.

This course considers the family as a social institution with a history and with contrasting forms and functions in different cultures. Attempt is made to understand the effects of contemporary social change on the modern family and in turn the results in society of a changing family. As a basis for understanding the central importance of the family, considerable attention is devoted to the social psychology of marriage and family relations.

A 122. **Social Problems.** Credit two hours. Daily except Sat., 9. *GS 225.* PROFESSOR MATHER.

The maladjustments and problems of society, such as crime and criminals, poverty and dependency, sickness and old age, accident, degeneracy, insanity,

class and racial struggles, and consideration of methods by which society attempts to deal with these problems.

A 124. **The School and the Community.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 302. Professor ANDERSON.

The course considers the sociological background of community life and its relation to education. Problems of social living that effect the school program will be given major emphasis. The course is designed especially for school principals and other educators.

A 131. **The Social Psychology of Rural Life.** Credit two hours. Daily except Sat., 11. *Agricultural Economics* 340. Assistant Professor COTRELL.

A study of (1) the organization and functioning of personality regarded as a product of social interaction; and (2) the dynamics of interaction of persons in intra-group and inter-group relations. An attempt is made to develop an integrated social psychological theory which is relevant to both personal and group behavior. Special application is made to the study of the social psychology of rural life.

EDUCATION

EDUCATION: RURAL EDUCATION

THE GRADUATE SCHOOL OF EDUCATION

The GRADUATE SCHOOL OF EDUCATION, by integrating the work in the Departments of Education and Rural Education, offers courses that prepare for the more important types of teaching, supervisory, and administrative positions.

TYPES OF PROFESSIONAL PROGRAMS LEADING TO STATE CERTIFICATION

For several types of professional workers, programs have been so planned that it is possible for the student to secure a Master's degree at the same time the requirements for a state certificate in New York or elsewhere are met. Among the professional positions for which programs have been prepared are these:

1. Teacher of English, social studies, science or any other academic subject usually taught in a secondary school.
2. Teacher of agriculture, homemaking or industrial education.
3. Supervisor of agriculture, homemaking or industrial education.
4. Teacher of industrial arts.
5. Supervisor of industrial arts.
6. Guidance counsellor.
7. Supervisor of elementary schools.
8. Principal of an elementary or a secondary school.
9. Principal of a vocational or a technical high school.
10. Director of vocational education.
11. Supervising principal of a central, a consolidated, or a small village school.
12. Superintendent of a large village or city school system.
13. District superintendent, county superintendent or similar leader in rural education.

For information regarding any of these programs the student who is already matriculated in the Graduate School of Cornell University should consult the Chairman of his Special Committee. Others should write to the Director of the Graduate School of Education.

Opportunities for specialization in the various phases of Education are, of course, offered for those not concerned with certification.

SPECIAL CONFERENCES

On August 4-6 a **Conference on Youth Problems in America** will be held under the joint auspices of the Graduate School of Education and of the New York State Department of Education. A detailed program will be issued about June 1.

From July 5 to July 15 a two-week **Study Conference for City Supervisors of Home Economics** will be conducted by the Graduate School of Education in cooperation with the New York State Department of Education. The Study Conference program will be available on or after April 1.

EDUCATIONAL PSYCHOLOGY, MEASUREMENT, AND STATISTICS

****S 7. Mental Measurements.** Credit two or three hours. With consent of the instructor, this course may be taken without observations for two hours credit. Daily except Sat., 9. *GS 142.* Professor FREEMAN.

Lectures, readings, and observations of testing. Individual and group tests of intelligence; principles underlying their construction; uses of tests in schools and other fields; concepts of intelligence.

****A 12. The Exceptional Child.** Credit two hours. Daily except Sat., 11. *GS 242.* Professor FREEMAN.

A study of atypical children. Implications for education. Lectures, readings, case studies. Students who have not had or are not now taking a course in mental measurements may be admitted only on approval of the instructor.

***A 111a. Psychology for Students of Education.** Credit two hours. Daily except Sat., 11. *East Roberts 223.* Dr. GARDNER.

A point of view in psychology for students of education. The nature of man with emphasis on the tendencies to behavior basic to learning. The learning process; individual differences.

***A 116. Child Psychology.** Credit two hours. Daily except Sat., 10. *Plant Science 37.* Dr. GARDNER.

Students who have not had a course in educational psychology admitted only on approval of instructor.

****S 212. Psychology of Learning.** Credit two hours. Daily except Sat., 11. *GS 221.* Professor OGDEN.

For students who have had at least an elementary course in psychology and want to extend their study of the learning process.

A 215. Psychology of Adolescence. Credit two hours. Daily except Sat., 10. *Agricultural Economics 125.* Professor WINSOR.

A study of the behavior of children during the adolescent stage of development. An elementary course in psychology is prerequisite.

****A 251. Educational Measurement.** Credit two hours. Daily except Sat., 8. *Agricultural Economics 101.* Assistant Professor BAYNE.

The use and interpretation of tests by teachers and school officers as aids in the improvement of instruction.

****A 253. Educational Statistics.** Credit two hours. Daily except Sat., 10. *Agricultural Economics 302.* Assistant Professor BAYNE.

The use of statistical methods in the study of current problems of administrative and supervisory officers and teachers. The work of the course will be related to the individual problems of the members of the class.

EDUCATIONAL METHOD

S 4. Secondary School Methods. Credit two hours. Daily except Sat., 10. *GS 264.* Assistant Professor HULSE.

A critical study of the theory of method, through an analysis of teaching objectives, types of subject-matter and basic teaching procedures. Current plans and techniques of teaching will receive considerable attention in order to determine their characteristic values. Familiarity with the secondary school pupil through experience is assumed.

S 30. The Teaching of the Social Studies in Secondary Schools. Credit two hours. Daily except Sat., 12. *GS 225.* Assistant Professor H. R. ANDERSON.

This course plans special emphasis on the organization of materials for teaching purposes. Among the topics treated are aims and values, criteria for selecting

textbooks, directed study procedures, recitation techniques, motivation of extensive reading, and tests and measurements.

S 33. The Teaching of English in Secondary Schools. (English S 33.) Credit two hours. Daily except Sat., 12. *GS* 156. Professor THOMAS.

This course is designed to present the basic principles that determine growth in expressional skill and the maturing ability to interpret the printed page. Emphasis is thrown upon the way language skill manifests itself in academic, social, and industrial relations. The basic principles thus studied will provide the direction for considering the practical machinery of the work in English in the junior and senior high school.

Topics included are: the articulation of high school English with grammar school English; the demands of the Board of Regents and College Entrance Examination Board; the educational values of examinations and objective tests in an English curriculum; the teaching of lyric poetry, the drama, the novel, the short story, and the essay; the relationship of grammar, composition, and literature, with particular attention to composition—oral and written.

*A 122a. **Observation of Child Activity Education.** No credit. Daily except Sat., 9-11:30, and group conferences each Thursday from 2-3:30. *Comstock* 17 and 245. Professor SODERQUIST, Professor FERRISS, Professor MOORE, Miss HULTZ, Mrs. COGSWELL, Mr. PAINTER, and Mr. WILLMOTT.

Two teachers will give demonstration work in grades one and two, and five and six during the summer session period. These demonstrations will illustrate two conceptions of an activity program in the elementary school. So far as facilities permit, summer session students will be allowed to observe these classes. The group conferences will be held for the purpose of discussing and interpreting the teaching observed. Students especially interested in preparing an elementary school program of the activity type should register in course A 276a, Practicum in the Elementary School Curriculum.

In connection with the demonstration work offered in grades five and six there will be two periods of instruction in industrial arts.

A 128. **The Teaching of Natural History in the Field. Credit three hours. Lecture, M, 12. *Fernow* 8. Field work F, 1:40 p.m. to Sat., 8 p.m. Professors PALMER, WRIGHT, ALLEN, PETRY, VON ENGELN, WHETZEL, MOTTLEY, and JOHNSON; Dr. KELLOGG, Miss VAN DUZER, and Mr. TRAINER.

This course is designed primarily to acquaint experienced science teachers with methods of field studies suitable for use in public school teaching and in teacher-training institutions. Trips will combine a variety of ecological sites with the observation of methods used by leaders in botany, zoology, general ecology, entomology, forestry, astronomy, and field physical science. Practice will be given in field teaching under supervision. Students will live in the field from Friday noon to Saturday night. The privilege of advance registration is extended. Enrollment is limited to twenty. Membership of the class will be fixed tentatively June first. Provision can be made for all women students to live in the same house if registration is made before June first. Applicants should file with Professor E. L. Palmer detailed records of their teaching experience and training in science. Students will furnish their own bedding, pup tents, or sleeping bags. Meals and transportation will be supplied at cost, which for the six weeks will be \$20. This is to be paid in advance. Open only to those taking work for credit.

A 134a. **Special Education for Out-of-School Youth and Adults.** Credit two hours. Daily except Sat., 11. *Agricultural Economics* 101. Assistant Professor HOSKINS.

Designed for teachers of vocational agriculture and other leaders of older youth and adults in rural areas. The consideration of the development, trends and objectives of out-of-school groups. For 1938 the emphasis will be placed upon out-of-school youth.

A 134b. **Adult Homemaking Education.** (Home Economics E 120: Leadership in Home Economics.) Credit three hours. For extension workers, home

economics teachers, and others interested in leadership in homemaking education. Discussion, M W F, 10-12. *Martha Van Rensselaer* 121. Miss HENDERSON.

*A 142a. **Organization and Method of Teaching Industrial Arts.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 325. Mr. WILLMOTT.

Designed for students of vocational education. Deals with points of view, aims and objectives, organization of materials and courses for small high schools; also with related subject matter, the management of the shop, including shop equipment, shop procedures, and State Education Department regulations.

A 143. **The Organization and Teaching of Technical Subjects.** Credit two hours for each unit.

a. Curriculum construction in technical high school courses and in the related technical subjects in industrial high schools. Each student should provide himself with at least one course of study. Daily except Sat., 8. *Agricultural Economics* 340. Mr. PABST.

b. Organization of content into units, topics and lessons; preparation of drawings, lesson plans, instruction sheets, and other aids to instruction. Each student should provide himself with drawing equipment. M W F, 1:30-3:00. *Agricultural Economics* 340. Mr. PABST.

c. Special methods applicable to teaching technical and related subjects in drawing, shop, laboratory and classroom. Daily except Sat., 9. *Rockefeller* 106. Mr. GRAY.

*A 146. **Problems in the Teaching of Distributive Occupations.** Credit two or four hours. Daily except Sat., 8. For four hours credit, additional hours must be arranged. *Plant Science* 141. Mr. DAVISON.

Problems in the organization, development and administration of courses in distributive occupational subjects offered under the provisions of the George-Deen Act, including objectives, types of courses, materials and methods in instruction. Primarily for directors of business and vocational education, department chairmen, teachers of merchandising courses and persons employed in distributive occupations who expect to teach distributive occupational subjects in day, part-time, cooperative and evening schools.

A 202. **Nature Literature. Credit two hours. Daily except Sat., 9. *Fernow* 8. Professor PALMER.

Acquaintance with prose, poetry, and fiction useful in enriching science courses in elementary and in secondary schools with critical examination of nature and science texts for these grade levels.

A 222. **Principles of Method. Credit two hours. Daily except Sat., 10. *Agricultural Economics* 140. Professor STEWART.

Designed primarily for graduate students in vocational education and related sciences who have had at least one year of teaching experience and who have completed a fundamental course in educational psychology.

Typical situations in teaching agriculture, home economics, industrial education and related sciences to discover the fundamental principles underlying efficient teaching. The special forms of teaching appropriate to these fields, such as the project, the survey and the laboratory will receive special attention.

A 226. **The Teaching of General Science in Secondary Schools.** Credit two hours. Daily except Sat., 8. *Fernow* 8. Assistant Professor JOHNSON.

The aims and objectives of general science developed as bases for the selection and organization of subject-matter suitable for junior and senior high schools. A study and demonstration of effective plans for the presentation of science lessons in secondary schools, together with consideration of problems associated with materials and equipment.

S 226a. **The Teaching of Chemistry in Secondary Schools.** (Chemistry S 950.) Credit two hours. Daily except Sat., 12. *Baker* 107. Dr. MOOSE.

Prerequisites, 18 hours of chemistry including courses in inorganic, analytical, organic and physical; or by special permission. Conference hours will be arranged for the discussion of the individual teacher's problems.

S 226b. **The Teaching of Physics in Secondary Schools.** (Physics S 90.) Credit two hours. Lectures and discussions. Daily except Sat., 9. *Rockefeller* 220. Assistant Professor HOWE and Dr. MOOSE.

Prerequisites, 12 hours of college physics or permission of the instructor.

A critical review of subject matter used by the high school teacher; organization and presentation of subject matter; the application of mathematics in elementary problem analysis; the selection of apparatus for demonstration and laboratory work. Personal conferences will be arranged for the discussion of the individual teacher's problems. Teachers of physics are advised to bring with them a copy of the textbook they are using.

A 236. **Creative Procedures in the Teaching of Home Economics in the Secondary School. Credit two hours. Daily except Sat., 12. *Plant Science* 143. Miss HUTCHINS.

Designed for graduate students who desire to evaluate the Home Economics Program and its place in secondary education. The course includes an evaluation of objectives used and the outcomes in terms of pupil activities and changes; of teaching procedures and aids. For 1938 the emphasis will be on the Junior High School Program.

A 250. **Seminar in Agricultural Education. Credit two hours. Daily except Sat., 8. *Stone* 309. Assistant Professor HOSKINS.

The location, definition and discussion of problems of research involved in planning programs for vocational teachers.

ADMINISTRATION, SUPERVISION, AND CURRICULUM

S 5. **High School Administration.** Credit two hours. Daily except Sat., 10. *GS* 225. Dr. POWER.

Problems in the administration of the school building as a unit, in contrast to the administration of an entire school system. Particular attention will be given to village and central rural schools.

S 10. **Problems in High School Administration. Credit two hours. T Th, 1:40-4. *GS* 221. Professor JORDAN.

An advanced course in high school administration, dealing with problems peculiar to the administration of secondary schools. The course presupposes preliminary courses including administration, curriculum, and supervision. The materials are arranged in a three-year cycle so as to give graduate students a continuous three-year course. The cycle is: II. The Teaching Staff, 1938; III. The Pupil and the Public, 1939; I. Organization and Management of the Building, 1940.

Students may enroll in any unit of this course; and particular attention is given to the needs of the group. Permission of the instructor must be obtained before enrollment. Papers and reports required.

S 11. **Extra-Classroom Activities.** Credit two hours. Daily except Sat., 8. *GS* 264. Professor JORDAN.

A study of the place extra-classroom activities should assume in the school program. General principles involved, with special attention to athletics, dramatics, publications, school finance, music, debate, and school clubs. Individual problems of the class will have special attention.

A 169a. **Administrative Problems of the Homemaking Teacher.** Credit two hours. Daily except Sat., 9. *Plant Science* 143. Miss HUTCHINS.

Designed to help teachers solve major administrative and organization problems of the homemaking program in school and community. Consideration will be given to the teacher's responsibility to local and state administration; the state program of Home Economics; adjustments of courses to individual situations; the budget; location and types of centers; the school lunch; methods of securing the interest of the community in the Home Economics program.

A 242c. **The Organization and Development of Instructional Material for Industrial Arts.** Credit two hours. M W F, 1:30-3:00. *Agricultural Economics* 302. Mr. WILLMOTT.

The determination of the content of instruction and its organization into units of instruction. In connection with the demonstration work offered in grades five and six there will be two periods of instruction in industrial arts. See course A 122a.

A 242d. **Industrial Arts Education in the United States.** Credit two hours. Daily except Sat., 9. *East Roberts* 223. Mr. EBELING.

A study of prominent leaders, outstanding centers, types of work, and courses of study of industrial arts groups.

A 243. **Problems in the Administration of Industrial and Technical Education. Credit two hours. Daily except Sat., 11. *Plant Science* 141. Professor EMERSON.

A study of the administrative responsibilities of the principal and other administrative assistants in industrial and technical high schools, together with a study of the industrial and technical education problems of the city director of vocational education.

A 243a. **Supervision of Industrial and Technical Education. Credit two hours. Daily except Sat., 10. *Rockefeller* 106. Mr. GRAY.

Principles and practices in the improvement of instruction in all phases of technical and industrial high school courses. This course is correlated with 143c.

A 243b. **Seminar in Vocational Industrial and Technical Education. Credit two hours. Daily except Sat., 9. *Agricultural Economics* 302. Professor EMERSON.

A critical study of researches in vocational industrial education with particular reference to the following problems: development of better procedures in dealing with groups; vocational school organization; courses of study; surveys of vocational and educational opportunities; a more functional content; better methods of teaching; selection of students; apprenticeship training; evaluating the vocational program.

A 249. **Seminar in Home Economics Education. Credit two hours for each sub-unit. Designed primarily for graduate students majoring or minoring in Home Economics Education, who may take two, four or six credit hours.

a. Curriculum development and construction in Home Economics Education. Daily except Sat., 11. *Plant Science* 143. Acting Professor THURSTON.

b. Service and research studies. Daily except Sat., 10. *East Roberts* 223. Acting Professor THURSTON.

c. Evaluation of Home Economics Education. (Given in 1939.)

A 261. **The Administration of Rural Schools. Credit two hours. Daily except Sat., 8. *Agricultural Economics* 225. Professor BUTTERWORTH.

A general course in school administration dealing especially with the problems of village and central schools. Individual attention will be given to those who are working in larger schools.

A 262b. **The School Plant. Credit two hours. Daily except Sat., 8. *East Roberts* 223. Dr. POWER.

Problems covering the planning, construction, measurement, and utilization of school buildings and their constituent units. Major emphasis will be on the building problems in village and central rural school districts.

A 263. **Procedures and Techniques in Supervision. Credit two hours. Daily except Sat., 11. *Agricultural Economics* 140. Professor MOORE.

Designed for superintendents, supervisors, and principals. Inexperienced students admitted only by permission. A consideration of the nature and purpose of supervision; the improvement of the learning-teaching process; skill in observation; analysis of methods; relationships between general and specific objectives; selection, analysis, and organization of subject-matter; measuring and testing results; assisting teachers in professional growth.

A 266. **The Supervision of Elementary School Subjects. Credit two hours. Daily except Sat., 9. *Agricultural Economics* 140. Professor MOORE.

Designed for supervisors, elementary school principals, and superintendents. A consideration of important research studies which have a direct bearing upon the teaching and supervision of the elementary school subjects.

****A 267b. The Supervision of Vocational Agriculture in the Secondary School.** Credit two hours. Daily except Sat., 9. *Agricultural Economics* 340. Acting Assistant Professor SMITH.

Designed for teachers, supervisors, itinerant teacher trainers, and other educational leaders responsible for supervision in this field.

A consideration of the supervisory and professional-improvement needs of teachers of vocational agriculture and the procedures and techniques appropriate to supervision and itinerant teacher training.

****A 276. Principles of Curriculum Building.** Credit two hours. Daily except Sat., 12. *Agricultural Economics* 125. Dr. SODERQUIST.

A consideration of major problems, principles and techniques in determining educational objectives and curriculum content and organization in elementary and secondary schools in the light of modern educational theory and practice. Selected examples of recent curriculums and courses of study will be critically examined.

****A 276a. Practicum in the Elementary School Curriculum.** Credit two hours. Daily except Sat., 1:30-3:00. *Plant Science* 107. Dr. SODERQUIST.

Designed to give principals and supervisors insight into the theory of newer curriculum developments in elementary education, primarily through actual practice in planning and organizing activity programs, constructing units of work, and in critically evaluating examples of progressive school practice. Open only to students who have taken course 276 or its equivalent.

****S 279. Newer Curriculum Developments and Trends.** Credit two hours. Daily except Sat., 11. *GS* 234. Professor FERRISS.

A critical consideration and appraisal of recent curriculum theory, practices, and trends. Class and individual study will be made of selected topics and problems bearing upon the historical, psychological, and social backgrounds and forces influencing the character of present-day curriculums. Special attention will be given to specific examples. Some opportunity for observation will be offered.

Students must have had previously course 276 or an equivalent or be taking such a course. Enrollment limited to thirty. Admission on the approval of the instructor.

GUIDANCE

A 28. Introduction to Educational and Vocational Guidance. Daily except Sat., 11. *Agricultural Economics* 225. Dr. DUNSMOOR.

A study of the principles and methods of guidance, with special emphasis upon educational and vocational guidance in secondary schools; analysis of the needs, meaning and purposes, basic assumptions, and requisites of effective guidance; consideration of the functions of guidance—information about educational and vocational opportunities, securing and recording information about individuals, and counseling; organization and administration of the guidance service in different types of schools and at the various school levels; group guidance through classes, the homeroom, school subjects, and activities; use of outside-of-school agencies for guidance.

****A 32. Practicum in Guidance.** Credit two hours. M W F, 1:30-3:00. *East Roberts* 223. Dr. DUNSMOOR.

A study of the practical aspects of guidance; methods of interpreting guidance to administrators, etc.; organization of guidance for effective use of the various agencies in the comprehensive program of guidance; organization of the counseling service, techniques of counseling, duties and in-service training of counselors; the use of tests, cumulative records, and other means of securing information about counselees; the place, methods, and interpretation of case studies. Special consideration will be given to guidance problems of class members, with ample opportunity for individual study, discussion, and research.

****A 217. Use and Interpretation of Tests in Guidance.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 140. Professor WINSOR.

This course deals with the development, use, interpretation and significance of psychological measuring devices as a basis for analyzing the capacities, interests and abilities of individuals seeking vocational guidance. A course in measurement is prerequisite.

PRINCIPLES AND HISTORY OF EDUCATION

S 14. History of Educational Thought. Credit two hours. Daily except Sat., 8. *GS* 142. Mr. HYLLE.

A survey of the development of educational thought, based on a study of outstanding systems of educational ideas from the Greeks to modern times. Reading of selected source material.

A 194. Philosophy of Vocational Education. Credit two or three hours. Daily except Sat., 11. For three hours credit, additional assignments by arrangement. *Plant Science* 336. Acting Assistant Professor SMITH.

A study of vocational education in the light of a democratic conception of education. Open to graduate students and to senior undergraduates who have completed satisfactorily college courses in educational psychology and in one or more phases of economics or of sociology.

****A 281. Secondary Education in Rural and Village Communities.** Daily except Sat., 9. *Plant Science* 114. Professor FERRISS.

A consideration of some of the more basic problems of providing secondary school education adapted to the needs of rural and village communities. Among the problems dealt with are those relating to functions, organization, curriculum, pupil activities, and the extended services of the school.

****A 295. Comparative Education.** Credit two hours. Daily except Sat., 10. *Agricultural Economics* 325. Mr. HYLLE.

An introduction to a comparative study of the principal problems of education, based on a discussion of the educational institutions, tendencies and their underlying ideas in Western Europe and the United States, in relation to the various phases of intellectual and cultural life in these countries.

GENERAL

A 124. The School and the Community. (Rural Sociology A 124.) Credit two hours. Daily except Sat., 8. *Agricultural Economics* 302. Professor W. A. ANDERSON.

The course considers the sociological background of community life and its relation to education. Problems of social living that effect the school program will be given major emphasis. The course is designed especially for school principals and other educators.

****B 300. Research.** Credit as arranged. Members of the staff of the Graduate School of Education.

Students working on theses or other research projects may register for this course. The staff members concerned must be consulted before registration.

For Teachers' Courses in other subjects, see the index.

HEALTH EDUCATION

S 1. The School Health Program. Credit two hours. Daily except Sat., 11. *Stimson* Dr. SMILEY.

Problems in the organization, administration and operation of a modern school health program including: healthful school living; medical and dental supervision; health instruction; physical training.

S 2. Mental and Physical Health Problems of the School Child. Credit two hours. Daily except Sat., 9. *Stimson*. Dr. EVANS.

A discussion of the common mental and physical disorders of the school child with suggestions for prevention and management.

PHYSICAL EDUCATION

*S 14. **Folk and Tap Dancing.** Credit one hour. Daily except Sat., 2 and hours to be arranged, first four weeks. *Sage Gymnasium.* Miss THORIN.

Simple singing games, more advanced folk dances and tap dancing. Sources of material.

*S 15a. **Modern Dance Technique.** For beginners. Credit one hour. Daily except Sat., 11. *Sage Gymnasium.* Miss ATHERTON.

This course is intended to orient the student in fundamental movement techniques. It will stress a direct approach to swinging, sustained and percussive movement, and will present an analysis of the elements of rhythm and musical pattern.

*S 15b. **Modern Dance Technique.** Advanced course. Credit one hour. Daily except Sat., 12. *Sage Gymnasium.* Miss ATHERTON.

This course will present basic techniques of movement as the medium of the Dance. It will include application of swinging, sustained and percussive movement with patterns of contrasting movement. Open only to students who have had the Beginners course in Modern Dance Technique or its equivalent.

*S 21. **Modern Dance Composition; Survey and Criticism of Dance.** Credit two hours. W 3; T F, 3-5. *Sage Gymnasium.* Miss ATHERTON.

Open to students taking one of the courses in Modern Dance Technique, or, by permission of the instructor, to students who have had equivalent training or experience.

Study in Composition will present an approach to Dance through the use of technical devices viewed from the aspects of force, space, and time; and an analysis of simple forms. Attention will be focused upon the use of music in the Dance. Survey and Criticism of Dance will present a brief historical background of Dance as it has appeared under social conditions of former times; and a critical study of Dance as it exists today.

*S 22. **The Teaching of Rhythms.** Credit one hour. M Th, 3. *Sage Gymnasium.* Miss ATHERTON.

This course is designed for teachers of children's classes in dancing. It will present selective material for guidance in a creative program of Rhythms for children. Opportunity will be provided for practical application with groups of children and with criticism of methods of teaching.

*S 16. **Teaching Methods in Aquatics.** Credit one hour. M W F, 3. *Old Armory.* Mr. LITTLE.

Tested methods of teaching beginners to swim and dive. Coaching methods in competitive swimming. Life saving. Theory and practice.

*S 16a. **Swimming.** No credit. Hours to be arranged. The new pool in the *Old Armory.* Mr. LITTLE and Miss THORIN.

Instruction in beginning, intermediate, and advanced swimming and diving. Red Cross life saving.

A special fee of ten dollars is charged for 18 hours of class instruction. Private lessons one dollar.

*S 18. **Tennis.** (Men and Women). No credit. Hours to be arranged. *Sage Courts.* Mr. MURRAY.

A special fee is charged, ten dollars for ten lessons.

Recreational Folk Dancing. Arranged by the Department of Physical Education and Willard Straight Hall. For men and women among the faculty and students. W, 5. *Recreation Room, Willard Straight Hall*; Th, 5. *Risley Court.*

Instruction in Social Dancing. A recreational activity arranged by the Department of Physical Education and Willard Straight Hall. T F, 7:15 p.m., *Recreation Room, Willard Straight Hall.*

Lectures on body mechanics and sports, such as swimming, canoeing, sailing, golf, archery, and walking, and their techniques, illustrated by moving pictures, will be given each week. No credit. Hour and place will be announced in the Summer Session Calendar. Miss THORIN.

Other Recreational Activities. Instruction in badminton, deck tennis, and volley ball. Tournaments will be arranged. No credit. Further information will be given in the Summer Session Calendar; or, inquire at Sage Gymnasium office.

A nominal fee of ten cents per period will be charged for the use of the tennis courts. (Twelve play periods for \$1.)

PSYCHOLOGY AND BIOLOGICAL SCIENCES

BACTERIOLOGY

A 1. General Bacteriology. Credit two or four hours. Lectures, daily except Sat., 1:40. Laboratory, daily except Sat., 2:30-4:30. *Dairy 119.* Professor STARK and Mrs. STARK.

An introductory course giving a general survey of the field of bacteriology, together with the fundamentals essential to further work in the subject. The morphology, physiology, and classification of bacteria; the culture of microorganisms, simple and differential staining, and general bacteriological technique; the bacteriology of soil, air, water, sewage, milk, and foods; the principles of immunity and the microbiology of disease.

Laboratory fee, \$10, for those seeking four credit hours.

A 220. Special Problems. Credit and hours by arrangement. Professors SHERMAN and STARK.

Special problems in bacteriology may be elected by qualified students with the permission of the instructors.

BIOLOGY

***A 1. General Biology.** Credit two or three hours. Lectures and demonstrations, two hours; laboratory, one hour. Lectures, daily except Sat., 11. *Roberts 392.* Laboratory and field work, M W F, 1:40-4. *Roberts 302.* Assistant Professor MOTTLEY.

Designed for the general student seeking a cultural background as well as for the prospective teacher; deals with the nature of life, life processes and the activities of living organisms. Lectures, demonstrations and laboratory work cover the principles of nutrition, growth, reproduction, behavior and the evolution of typical forms of plant and animal life, including man. The relations of organisms to other living things and to physical factors in the environment are studied in field trips. Laboratory fee, \$2.50.

BOTANY

***A 1a. General Botany—Anatomy and Physiology.** Credit three hours. Equivalent to Botany 1, first term. Lectures, daily except Sat., 2. Laboratory and conferences, daily except Sat., 3-4:30. *Plant Science 141, 242.* Dr. ABBE.

The structures and life processes of the higher plants are examined in detail, with considerable attention to information necessary for more advanced or practical work with plants. Students taking this course may attend the field trips offered in connection with Botany S 1b. Laboratory fee, \$3.50.

***S 1b. General Botany—Morphology and Taxonomy.** Credit three hours. Equivalent to Botany 1, second term. May be taken in conjunction with Botany A 1a, or independently. Lectures, daily except Sat., 10. Laboratory, daily except Sat., 11-12:30. Three half-day field trips on Saturdays to be arranged. *Plant Science 141, 262.* Professor PETRY and Mr. PALMATIER.

Representatives of the principal groups of plants are studied with a view to acquainting the student with the plant kingdom as a whole. The principal families of ferns and flowering plants are examined and practice in identification is given.

The field work is intended to afford to teachers and others first-hand knowledge of the commoner plants of all the great groups. Facilities for collecting plant materials for teaching or other purposes will be provided. Laboratory fee, \$3.50.

A 13. **Trees and Shrubs.** Credit two hours. Lectures and laboratory, T Th 1:40-5:30. Registration limited to twenty students; permission to register must be obtained from the instructor before registration is made. *Plant Science* 353. Professor MUENSCHER.

Intended for those who wish to know the woody plants in the field. The aim is to familiarize the student with the trees and shrubs of Central New York and to teach the main facts of structure, growth, habit, and distribution concerning them. An all day trip to the McLean Wild Life Preserve will be taken on Saturday, July 30. Other trips will be arranged. Laboratory fee, \$1.50; deposit, \$3.

A 31. **Plant Physiology.** Credit four hours. Prerequisite, course A 1 or its equivalent and elementary chemistry. Lectures, daily except Sat., 12. *Plant Science* 141. Laboratory, T W Th F, 9-12. *Plant Science* 227. Professor O. F. CURTIS.

This course is designed to acquaint the student with the important life processes of plants. Topics such as water-relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, and growth relations are studied in some detail and particular emphasis is placed both in laboratory and in classroom on discussion of the principles and their applications to growing plants. Laboratory fee, \$4; deposit, \$3.

A 115. **Fresh-water Algae.** Credit two hours. Prerequisite, one year of general botany. Lectures and laboratory, M W F, 2-5. *Plant Science* 353. Professor MUENSCHER.

A general course designed to acquaint the student with the principal groups of fresh-water algae. Field trips will afford opportunity for collecting living material. Laboratory fee, \$3; deposit, \$3.

A 117. **Taxonomy of Vascular Plants.** Credit four hours. Prerequisite, course A 1 or its equivalent. Lectures, M T W Th, 2. Laboratory, M T W Th, 3-6, F, 2-5. Several all-day field trips will be arranged. *Plant Science* 211. Professor WIEGAND.

A study of the kinds of seed plants and ferns; their classification into genera, families, and orders; and field work on the local flora. Emphasis will be placed on wild plants, but the more common cultivated plants will have some attention. The course is planned to follow course A 1 and to furnish an introduction to the knowledge of field botany and to the classification of the higher plants, in preparation for special work in various departments and as an aid in teaching. Instruction will be given in herbarium methods. Laboratory fee, \$4; deposit, \$5.

A 121. **Comparative Morphology of Fungi.** Credit four hours. Equivalent to Plant Pathology 121. Prerequisite, course in general botany and permission to register. Lectures, M W F, 9. *Plant Science* 336. Laboratory, fifteen actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An elementary synoptical course designed to acquaint the student with the general field of mycology. Emphasis is placed on morphology and phylogeny, rather than on taxonomy, but abundant opportunity is given for field work. Laboratory fee, \$6; deposit, \$3.

A 123. **Plant Anatomy.** Credit four hours. Prerequisite, course A 1 or an equivalent and permission to register. Laboratory, M T Th F, 8-11:30. Hours for lectures to be arranged within these periods. *Plant Science* 228. Professor EAMES.

A course in the descriptive anatomy of vascular plants with emphasis on practice in interpretation and determination of material. Laboratory fee, \$5.

A 222. **Mycology.** Credit four hours. Prerequisite, a course in general botany, course A 121, and permission to register. Lectures or conferences, T Th, 9. Laboratory, fifteen actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An advanced course designed for students who wish to specialize in botany or plant pathology. An intensive study of the morphology, taxonomy, cytology, and phylogeny of the fungi. Emphasis is placed on field work, with extensive practice in determination of material.

The groups of the fungi are studied in successive summers, usually in the following order: (1) Phycomycetes, (2) Ascomycetes, (3) Basidiomycetes, (4) Uredinales, Ustilaginales, and Fungi Imperfecti. By repeating the course, the student may obtain in four summers the equivalent of Plant Pathology 221 and Plant Pathology 222. He may begin with any one of the four groups and need not take them in unbroken sequence. Correspondence in advance of arrival in Ithaca is urged. In the 1938 Summer Session, group (4) will be given. Laboratory fee, \$6; deposit, \$3.

A 145. **Special Problems with Plants.** Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the fields of general or taxonomic botany, anatomy, comparative morphology, mycology, cytology, plant physiology, paleobotany, plant pathology, or genetics. A member of the staff must supervise the work.

ENTOMOLOGY

A 12. **General Entomology.** Credit three hours. Prerequisite, Biology I or Zoology I or its equivalent. Lectures, daily except Sat., 10. *Comstock 200.* Practical exercises, M W F, 1:40-4. *Comstock 200.* Professor MATHESON.

This course includes lectures and demonstrations on the characteristics of the orders and families of insects with the study of their habits, life-histories, and relations to other animals and to plants. The laboratory work consists of the study of the structure, ecology, metamorphosis, and classification of insects. Field trips to study insects in their natural habitats are an important feature. Each student is required to collect and prepare a typical collection of insects. Opportunities are given for the rearing of insects in the Insectary, and special work is offered to suit the needs of individual students. Textbook: *Comstock's Manual for the Study of Insects* (1936 edition). Equipment: a good hand lens, several insect cases, insect pins, and labels. These can all be purchased in Ithaca. Laboratory fee, \$2.50.

A 21. **Elementary Morphology of Insects.** Credit three hours. Twenty actual hours a week, by appointment. *Comstock 270.* Professor READIO.

This course deals with the external and internal anatomy of several representative insects, such as the locust, roach, cicada, honeybee, crane-fly, etc. Laboratory fee, \$2.50.

A 32. **Elementary Systematic Entomology.** Credit two hours. Prerequisite, courses A 12, A 21, or equivalent.

(a) The principles of wing venation and the classification of the orders and families. Credit two hours. Fifteen actual hours a week, by appointment. Laboratory fee, \$2. *Comstock 270.* Professor READIO.

[(b) Field work including methods of collecting insects and preparing them for study. One hour credit. Two periods of three and one half hours per week to be arranged. Laboratory fee, \$1. *Comstock 265.* Professors MATHESON and READIO.] Not given in 1938.

Courses A 31 and A 32 are required of all students who plan to take advanced work in Entomology.

A 41. **Elementary Economic Entomology.** Credit three hours. Lectures, daily except Sat., 9. *Comstock 145.* Practical exercises, M W F, 1:40-4. *Comstock 100.* Professor READIO.

This course includes lectures, conferences, and discussions on the life histories and habits of injurious insects, together with methods of control. The practical exercises include a study of the more important insecticides and of as many of the

common pests as time permits. There will be a number of field trips. Laboratory fee, \$2.

B 99. **Special Problems with Animals.** Credit two or more hours. For description, see under **Zoology**.

GENETICS

A 101. **General Genetics.** Credit four hours. Prerequisite, a beginning biological science, a course in physiology and permission to register. Courses in cytology and in taxonomic botany or zoology will be found helpful. Lectures, daily except Sat., 8. Laboratory, M W F, 1:40-4. Conferences to be arranged. *Plant Science* 146. Professor FRASER.

An introductory course designed to acquaint the student with the fundamental principles of heredity and variation. Discussions of simpler cases of inheritance, gene interaction, inheritance of sex, sex and gene linkage, quantitative inheritance, the genetics of inbreeding and outbreeding, cytoplasmic inheritance and mutation, with suggestions as to the relation of genetical principles to eugenics. Laboratory studies of hybrid material in plants and breeding experiments with the vinegar fly, *Drosophila*. Laboratory fee, \$3.

HISTOLOGY AND EMBRYOLOGY

The courses in histology and embryology are given in the histological laboratories in *Stimson Hall*. The department is well equipped for instruction in both subjects, having a large and adequate supply of modern microscopical instruments and an extensive collection of demonstration material for both histology and embryology. Microscopes are furnished by the department. Consultation with the instructors previous to registration is advised.

S 101. **Histology.** Credit four hours. No prerequisite, but previous work in biology, zoology, and botany or physiology is recommended. Lectures, daily except Sat., 12. Laboratory, three hours every morning except Saturday. *Stimson*. Assistant Professor SNOOK and assistants.

For students of biology or those preparing for medicine. The cell and cellular origin of the body; the structure and development of its component tissues. Each student will prepare or receive a series of typical microscopic preparations. Laboratory fee, \$6.

S 102. **The Organs.** Credit four hours. Opportunity will be afforded a limited number of students for a laboratory study of the histology of the organs. Laboratory, 2-5 every afternoon except Sat., and conferences at hours to be arranged. *Stimson*. Professor ADELMANN and Mr. BATES. Laboratory fee, \$6.

S 104. **Embryology of Vertebrates.** Credit four hours. Prerequisite, a course in the histology of the tissues or a satisfactory equivalent in other biological work involving training in the use of the microscope. Lectures, daily except Sat., 9. Laboratory, three hours every morning except Sat. *Stimson*. Professor ADELMANN and assistants.

For students of biology or those preparing for medicine. Preparation and study of embryological specimens from all the chief groups of vertebrates. Emphasis is placed on the embryology of the chick. The student also acquires a knowledge of special methods useful in embryological work. Laboratory fee, \$6.

ORNITHOLOGY

*A 11. **Ornithology.** Credit three hours. Lectures, M W F, 11. *Fernow* 122. Laboratory, M W, 1:40-4:30, or T Th, 1:40-4:30. *Fernow* 210. Field work, M W or T Th, 5:30-8 a.m. Professor A. A. ALLEN, Dr. E. G. ALLEN, and Dr. KELLOGG.

This course provides an introduction to the study of birds and familiarity with the local species. The lectures cover such subjects as classification, migration, coloration, song, nest-building, eggs, care of young, methods of attracting birds, and their economic importance. The laboratory work with bird skins, nests and

eggs gives an intimate knowledge of the birds of eastern North America, their life histories and distribution, and familiarity with the use of manuals. The aim of the field work is the identification of birds by their songs and habits as well as by their plumage. Each student should be provided with field or opera glasses. Laboratory fee, \$3.

A 111. Advanced Ornithology. Credit two hours. Lectures, M W, 9. *Fernow 122.* Laboratory, M W, 1:40-5. *Fernow 212.* Professor A. A. ALLEN, Dr. E. G. ALLEN, and Dr. KELLOGG. Registration limited to 15 students. Prerequisite, Ornithology A 11 or its equivalent. With special permission may be taken with A 11.

The structure and classification of the birds of the world; geographical distribution; the literature and institutions of ornithology. Laboratory fee, \$3.

A 211. Applied Ornithology. Credit two hours. Lectures, T Th, 9. *Fernow 212.* Laboratory, T Th, 10-1. *Fernow 212.* Professor A. A. ALLEN, Dr. E. G. ALLEN, and Dr. KELLOGG. Registration limited to 15 students. Prerequisite, A 11 or its equivalent (may be taken at the same time).

This course is intended primarily for students planning to teach biological science or to engage in professional work in ornithology. Field collecting, preparation of specimens, and natural history photography are emphasized together with the food and feeding habits of birds; class room, museum and biological survey methods and the principles of game management. Students are expected to provide their own cameras. Laboratory fee, \$3.

PLANT PATHOLOGY

A 1. Diseases of Plants and their Control. Credit one to four hours. Prerequisite, permission to register. Lectures, three times a week and other times by arrangement. *Plant Science 336.* Laboratory, the completion of a minimum of five exercises for each credit hour, with personal conferences. Conferences by arrangement. Laboratory at the student's convenience. Professor MASSEY.

A fundamental course treating of the nature, cause, and control of plant diseases, illustrated by studies of the more common diseases of cultivated crops. The method of conducting the course enables the individual student to study diseases which are of particular interest to him. The work is designed to meet the special needs of teachers of agriculture in secondary schools, teachers of biology, and county agents, as well as undergraduates in the College of Agriculture. Laboratory fee, \$1.25 a credit hour; breakage deposit, \$3.

A 121. Comparative Morphology of Fungi. Credit four hours. For description, see under **Botany**.

A 222. Mycology. Credit four hours. For description, see under **Botany**.

PSYCHOLOGY

***S 1. Elementary Psychology.** Credit two hours. Lectures and recitations, daily except Sat., 8. *GS C.* Dr. RYAN.

Basic problems and principles of human psychology. The course is designed as a general foundation for the later study of social, animal and child psychology, and the psychology of the abnormal. Class demonstrations will supplement the lectures and recitations. Textbook: Bentley, *The New Field of Psychology*.

S 8. The Psychology of Personality. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 9. *Morrill 41.* Professor WELD.

A critical study of the term personality, with emphasis laid upon the unstable, the maladjusted, and the introverted.

S 10. The Psychology of Social Control. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 11. *GS C.* Professor WELD.

A study of the social psychology of rules, regulations, and laws; their origin and growth, and their significance for social living. The survey will include public opinion and the law, respect for the law, why we keep the rules and why we break them, authority, reward and punishment.

S 15. Sanity and Insanity. Credit two hours. Lectures, readings, and discussion. Daily except Sat., 10. *Morrill* 40. Professor BENTLEY.

A psychological account of the mental disorders. Hazards and crises in daily living at all ages.

S 18. Genetic Psychology. Credit two hours. Lectures, readings, and discussions. Daily except Sat., 11. *Morrill* 40. Professor BENTLEY.

Human development through childhood and adulthood, with emphasis laid on adolescence and early manhood and womanhood.

ZOOLOGY

***S 1a. Introductory Zoology.** Credit three hours. Equivalent to Zoology 1, first term. Lectures, daily except Sat., 8. *McGraw* 203. Laboratory, daily except Sat., 9-10:30. *McGraw* 104. Assistant Professor YOUNG and Dr. MEKEEL.

The structural and physiological organization of an animal type as viewed from the standpoint of the organism as a biological unit. Also an introduction to the basic phenomena of cellular activity as illustrated by reproduction, development, heredity and variations. Laboratory fee, \$2.50.

[*S 1b. **Intermediate Zoology.** Credit three hours. Equivalent to Zoology 1, second term. Lecture, daily except Sat., 1:40-2:30. *McGraw* 203. Laboratory, daily except Sat., 2:30-4. *McGraw* 104. Assistant Professor YOUNG and Dr. MEKEEL.

A study of the groups of animals, stressing the pathway of descent, and the critical epochs thereof. Also considering adaptations, behavior, interrelationships, classification, and the zoology of the human species. Laboratory fee, \$2.50. Courses 1a and 1b may be taken simultaneously for six hours credit.] Not given in 1938.

A 8. Systematic Vertebrate Zoology and Ecology. Credit four hours. Lectures, M T W Th, 1:40-2:30. Laboratory and field work, M T W Th, 2:30-5:30. *McGraw*. Several all-day trips are required. Occasionally a field trip, 5:30-8 a.m. or 5-8 p.m., may be substituted for the regular periods. Professor WRIGHT.

Lectures on fishes, amphibians, reptiles, birds, and mammals; their habits, life-histories, coloration, respiration, locomotion, reproduction, and adaptations; together with their classification, nomenclature, characters, and relationships. Laboratory study of the parts employed in the classification of these groups, with training in the identification of two hundred and forty North American species. Field work is partly to give practice in field observations and in ready identification of local vertebrates in their natural environment, and partly to introduce some ecological methods. Textbook: Jordan's *Manual of Vertebrates of the Northeastern United States*, new edition. Laboratory fee, \$4.50.

S 16a. Invertebrate Zoology. Credit four hours. A similar but slightly more comprehensive course than Zoology 16, first term. Prerequisite, Zoology 1a and 1b or their equivalents. Lectures, daily except Sat., 9. *McGraw* 203. Laboratory, and field trips, daily except Sat., 10-12:20. *McGraw* 207. Assistant Professor YOUNG and Mr. HEMING.

Animals belonging to the following groups will furnish subject matter of the course: Protozoa, Porifera, Coelenterata, Platyhelminthes, Nemertea, Nemathelminthes, Trochelminthes, Bryozoa, and Brachiopoda. To be offered in alternate summers with 16b.

This course should provide a better foundation for the advanced students in the field of zoology or give to the teacher a knowledge of a larger variety of forms available for use in general courses, either in high schools or in colleges. It differs from the type of invertebrate course offered by marine biological laboratories in that stress is laid upon many species which may be secured alive away from the sea shore. Methods used in collecting and the study of habitats are the more important objectives of the field trips. Classification, structure, and development are emphasized in the laboratory. Laboratory fee, \$3.

[S 16b. **Invertebrate Zoology.** Credit four hours. A similar but slightly more comprehensive course than Zoology 16, second term. Prerequisite, Zoology 1a and 1b or their equivalents. The following groups of animals are included: Echinodermata, Annelida, Arthropoda, Mollusca, and the prochordates. Assistant Professor YOUNG and Mr. HEMING.]

To be offered in alternate summers with 16a. **Not given in 1938.**

B 99. Special Problems with Animals. Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the field of general zoology, invertebrate zoology, systematic vertebrate zoology, comparative anatomy of vertebrates, ornithology, histology, embryology, general entomology, systematic entomology, economic entomology, or general biology. A member of the staff must supervise the work.

GEOGRAPHY, GEOLOGY, AND METEOROLOGY

GEOGRAPHY AND GEOLOGY

It is the purpose of this department to meet, primarily, the needs of teachers. A second aim is to provide courses of practical and cultural value to college students. The work embraces lectures, laboratory, and field instruction in physical and economic geography, and in the elements of geology. The environs of Cornell University are rich in phenomena of geographic and geologic interest. Field excursions, consequently, are made an especially important part of the work of this department in the Summer Session. The laboratories are well equipped with apparatus and illustrative material for instruction. The material includes teaching and reference collections of minerals, rocks, fossils, maps, photographs, models, and more than five thousand lantern slides. The lecture rooms and laboratories are in *McGraw Hall*.

Students planning to take work in the department should, if possible, register for courses on Tuesday, July 5, at the Drill Hall.

LECTURE COURSES IN GEOGRAPHY AND GEOLOGY

*S 1. **Physical Geography.** Credit two hours. Daily except Sat., 9. *Geological Lecture Room, McGraw* (first floor, south end). Professor VON ENGELN.

An introductory course in physical geography, including discussion of the nature and form of the continents; the structure and development of the relief of the land; the physiographic cycle in humid and arid regions; glaciers; the glaciation of North America; the elements of oceanography.

The lectures are illustrated by lantern slides, maps, models, and charts. Students registering in course S 1 are advised to take also the related courses S 9 and S 10.

S 2. **Economic Geography.** Credit two hours. Daily except Sat., 11. *Geological Lecture Room, McGraw*. Professor VON ENGELN.

The effect of geographic factors on the production and distribution of commodities. Discussion of the origins and regional background of industry and commerce; the volume, extent, and utilization of important products and resources; location and growth of cities. Recommended for teachers who wish broad training in regional geography.

*S 5. **Geology.** Credit two hours. Daily except Sat., 10. *Geological Lecture Room, McGraw*. Assistant Professor BURFOOT.

An introductory course in geology, consisting of lectures and readings in textbook upon the following topics: origin of the earth; geologic history of the earth, materials of the earth's crust and their arrangement, as well as the forces modifying them; vulcanism, earthquakes, etc.; development of life on the earth.

The lectures will be illustrated with lantern slides, models, maps, and specimens. Students registering for this course are urged to take the laboratory

course S 9 and, if possible, course S 10. Credit for Geology course 100, regular session, will be allowed only for successful completion of all three courses S 5, S 9, S 10.

LABORATORY AND EXCURSION COURSES IN BOTH GEOGRAPHY AND GEOLOGY

*S 9. **Geology, Laboratory Course.** Credit one hour. W F, 2-4. *General Geological Laboratory, McGraw* (first floor, middle entrance). Assistant Professor BURFOOT and Dr. WELLS.

This course is designed to supplement courses S 1 and S 5. A study will be made of the more common structural phenomena; of the interpretation and uses of topographic and geological maps; of characteristic life forms developed in different geological periods; and of the more common rocks and minerals. Short field excursions may be taken to collect both rock specimens and fossils. Laboratory fee, \$1.

S 10. **Geography and Geology, Field Course.** Credit one hour. This course should be elected by all those registering in course S 1 or S 5. With courses S 1 and S 9 it affords a comprehensive course in physical geography; with courses S 5 and S 9 it will give a similarly broad training in elementary geology, as the dynamic phases of geology are emphasized on the excursions. Mimeographed outlines of the excursions are to be secured from one of the bookstores by each student desiring credit. See also a pamphlet, obtainable in Ithaca, on *The Geography and Geology of the Cornell Region*. Professor VON ENGELN, Assistant Professor BURFOOT, and Dr. WELLS.

Students desiring credit or certificates of attendance must register in S 10 and will be given preference in accommodations.

Those desiring University or entrance credit must take field notes and hand in written reports. Excursions 1, 2, 3, 4, 5, are required of all students in the course, and in addition for one hour's credit they must take any two of the following four all-day excursions: 6, Watkins Glen; 7, Northern Pennsylvania; 8, Lake Ontario; and 9, Carpenter's Falls.

Meeting place and time announced in mimeographed outlines or by bulletin. Meet for first excursion, Monday, July 11, at McGraw Hall, 2 P.M. Excursions 1-5, Monday afternoons; 6, 7, 8, 9, all day. On those excursions to which a cost is attached for bus or railway fares, persons wishing to go must register at the department and secure tickets in advance of the date of the trip. For bus fare on the first excursion, bring 10 cents. The total cost of the trips will be from \$7 to \$10, according to the choices made. Announcements regarding field trips are posted on the middle door of *McGraw Hall* and all arrangements for reservations and tickets are made in the Geology Department Office, middle entrance, *McGraw Hall*. The trips are open to others besides the members of the excursion class as far as accommodations are available. Stops are made at points of interest, explanations given, questions asked, and discussion invited.

OUTLINE OF EXCURSIONS: COURSE S 10

Monday Afternoons

1. **Cascadilla Creek.** To study the origin and nature of sedimentary rocks, also processes of erosion, transportation, deposition, and cementation. A study in detail of one of the large gorges and its special features. Bring ten cents for return bus fare. July 11.

2. **Snyder Hill.** By bus. No tickets; bring 25 cents in change for bus fare. To become acquainted with the lie of the land about Cornell, to learn the place names and nature of the broader physiographic features, studying the maturely dissected plateau and processes of weathering. The top of the hill is a vantage point from which a good view of the lake and the land for miles to the north, east, and west may be had. July 18.

3. **Portland Point.** By bus. Tickets. To study rock structure; intrusion of igneous rocks into sedimentary formations; rock-folding and small scale faulting

and associated phenomena; vein-formation; fossil content of strata; economic utilization for cement. July 25.

4. **Enfield Gorge and Falls.** By bus. Tickets. To study the relations of pre-glacial and hanging valleys and the postglacial and interglacial gorges, their origin and features. Joint-plane guidance of stream courses. Ride to the head of the gorge, and walk through it to the crest of Lucifer Falls. Swim and picnic at the close of the excursion at the lower Enfield pool. Enfield is perhaps the most picturesque of the gorges in the Cornell region. August 1.

5. **Terminal Moraine, Kames, Esker and Outwash Deposits.** By bus. Tickets. Varna, Freeville, and South Cortland. To study a massive morainic loop and the glacio-fluvial deposits which are well developed in these parts. August 8.

All-day Excursions

6. **Watkins Glen.** By bus. Tickets in advance. Watkins Glen is one of the most beautiful scenic spots in the country. The party will study the gorge, its pot holes, and its falls in detail; and consider its relation to the Seneca Lake valley in comparison with the conditions at Ithaca in relation to the Cayuga valley. Luncheon at the head of the gorge. July 16.

7. **Northern Pennsylvania.** By bus. Tickets in advance. Geology of a coal mine and the physiography of the Susquehanna valley at Wyalusing Rocks. Stops will be made to study Appalachian structure, folds and faults, and the stratigraphy of a complete section from the Portage beds of the Devonian through the Pottsville conglomerate of the Pennsylvania. An exceptionally fine scenic trip over the Roosevelt Highway through southern New York and northern Pennsylvania. July 23.

8. **Sand Dunes of Lake Ontario.** By bus. Secure tickets in advance. Take lunch. To study glacial drainage phenomena, overflow channels, 'fossil Niagara' at the Clark Reservation, high level lake deposits, drumlins, and the extensive and characteristic sand dune area at the east end of Lake Ontario. At the lunch hour there will be an opportunity for bathing in Lake Ontario. July 30.

9. **Carpenter's Falls and Fillmore Glen.** By bus. Secure tickets in advance. Take lunch. Have also bag or small basket for specimens. A fossil collecting trip to a remote, unexploited gorge and waterfall. A continuous section, 500 feet thick, from the Skaneateles shales through the Tully limestone is available for good collecting. Stop at Fillmore Glen State Park for examination of an exposure of the top of the same section at another site. August 6.

FIELD SCHOOL

S 21. **Summer Field School in Geology.** Intended for students who desire to study geology in the field. The camp is located in central Pennsylvania near Tyrone and instruction covers a period of six weeks, from June 19 to July 30. Six hours of college credit are given upon successful completion of the course. Fixed expenses, including the regular tuition fee of \$55, are approximately \$140. Registration is limited to men. Professor NEVIN.

The region selected is especially suitable for field work in geology. Sedimentary rocks from Cambrian to the Coal Measures are represented, with a total thickness of some 27,000 feet. Folds and faults are extensively developed, and their effect on the topography is very marked. Instruction includes reconnaissance and detailed mapping. The course, open to students with either elementary or advanced training in geology, will be conducted to meet the individual needs of the student. A special circular containing detailed information will be furnished upon request.

METEOROLOGY

*A 1a. **Meteorology.** Credit two hours. Lectures and discussions, daily except Sat., 10. *Plant Science* 143. Professor MORDOFF.

This course is adapted to the needs of teachers and students in subjects of which the weather is an important factor, particularly teachers of general science, physical geography, and agriculture. It is designed to acquaint the student with the laws governing the primary and secondary circulation of the atmosphere, and with the development, progression, and conditions that attend cyclones, tornadoes, and other atmospheric phenomena. Attention is given to the principles and practice of weather forecasting from weather maps and from local observations.

*A 1b. **Meteorology, Laboratory Course.** Credit one hour. W F, 1:40-4, or other periods to be arranged. Must be accompanied by course A 1. *Plant Science* 114. Professor MORDOFF.

The work consists in the study of the principal weather and climatic elements with the aid of maps, charts, and instruments. The various meteorological instruments will be studied, as well as the methods of taking and recording the observations. Opportunity will be given the student for making practice forecasts.

A 2. **General Climatology.** Credit one hour. Must be accompanied or preceded by course A 1. Lectures and discussions, M W F, 8, or other periods to be arranged. *Plant Science* 114. Professor MORDOFF.

A course designed to give a general knowledge of climatology and of the various climates of the United States. It is planned especially to meet the needs of teachers of general science, physical geography, and agriculture.

A 6. **Special Problems.** Credit and hours by arrangement. Professor MORDOFF.

Special work in Meteorology and Climatology may be elected by qualified students with the permission of the instructor.

ASTRONOMY, CHEMISTRY, PHYSICS, AND MATHEMATICS

ASTRONOMY

*S 1. **General Astronomy.** Credit two hours. Daily except Sat., 8. *Rockefeller* 322. Four evening observing periods during the term at the *Observatory*. Professor BOOTHROYD.

An introductory descriptive course illustrated by observations, models, and lantern slides.

*S 2. **Laboratory Astronomy.** Credit one hour. T Th, 2-4, and one clear T or Th evening in each of the first five weeks. *Observatory* and *Rockefeller* 357. Professor BOOTHROYD.

This course must be preceded or accompanied by course S 1.

Observations to acquaint the student with the constellations and the most important facts about planets, sun, and stars, together with laboratory exercises dealing with time seasons, eclipses, meteors, and variable stars.

S 182. **Elements of Field Astronomy.** Credit two hours. Lectures and recitations, T Th, 9 or at hours to be arranged. *Rockefeller* 322. Laboratory, T Th, 2-4. *Rockefeller* 357, and first observation period with those in course S 2. Also three late afternoons for surveyor's transit and sextant observations on the sun and one evening for surveyor's transit observations on Polaris. *Observatory* and *Rockefeller* 357. Professor BOOTHROYD.

This course gives the student training in the use of the surveyor's transit and sextant in problems of surveying and navigation requiring the determination of time, latitude, longitude, and azimuth. This course is a good introduction to a course in Nautical Astronomy.

S 181. **Special Problems.** Credit and hours by arrangement. Professor BOOTHROYD.

Special work in Astronomy or Astrophysics may be elected by qualified students with the permission of the instructor.

Courses S 1 and S 2 offer an introduction to astronomical ideas and methods

and give a good background for teachers who may wish to prepare more thoroughly for teaching general science or geography.

Those who take both courses, S 1 and S 2, and those who take courses S 1 and S 182 may count three hours toward fulfilling half of the requirement of Group 4 in the College of Arts and Sciences.

Demonstrations at the Observatory. A series of lectures will be offered on Monday, Wednesday, and Friday evenings, illustrated by actual observations with the 12-inch equatorially mounted telescope when weather permits, and by diagrams and astronomical photographs at other times. These lectures and demonstrations carry no credit except for those registered in course S 1.

During the first and last weeks of the session these demonstrations will be general and open to all Summer Session students. During the second to fifth weeks a connected series of four lectures will be given which will give a background of astronomical knowledge sufficient to enable one to understand and appreciate more fully astronomical phenomena.

Those taking course S 1 are admitted by class cards. Ninety-nine other tickets will be given out each week, from the second week through the fifth. Holders of these tickets will have the advantage offered by such a connected series of lectures and observations. Tickets Nos. 1-33 are good for Mondays, 34-66 for Wednesdays, and 67-99 for Fridays.

Tickets may be obtained without charge at the Summer Session Office, 245 *Goldwin Smith Hall*.

CHEMISTRY

The courses announced below correspond entirely or in part with courses given during the regular sessions of the University. For regular students the requirements for admission to the various courses will be the same as during the year.

Teachers may be admitted to any course for which their general training or experience may be considered to prepare them. Efforts will be made to meet the individual needs of teachers by arranging and modifying the work, within reasonable limits, so as to fulfill the particular requirements in each case.

In some laboratory courses a deposit to cover the usual laboratory fee and also breakage and other variable items of expense is charged. At the end of the course the unexpended balance is returned to the student. In other courses a laboratory fee of fixed amount is charged. The amounts of the deposits and laboratory fees are indicated in the descriptions of courses.

All courses in Chemistry are given in the *Baker Laboratory of Chemistry*.

*S 102. **General Chemistry.** Credit six hours. For students who have not had high school chemistry. Lectures, daily except Sat., 8. *Main Lecture Room*. Professor LAUBENGAYER and assistant.

The lectures deal with the fundamental theories and laws of chemistry and with the more common elements and their compounds. They are profusely illustrated by experiments.

Recitations, daily except Sat., 9. *Room 22*. Professor LAUBENGAYER.

The recitations deal with the subject matter of the lectures and with the experimental work in the laboratory and afford thorough drill in the solution of chemical problems.

Laboratory, daily except Sat., 10-1. *Rooms 177 and 150*. Professor LAUBENGAYER and Dr. FRIERSON.

A series of experiments designed to illustrate the fundamental laws of chemistry and to acquaint the student with the principal elements and their compounds. The equivalent of 102b may be obtained by attending the last three weeks of the Summer Session. Deposit, \$20.

*S 104. **General Chemistry.** Credit six hours. For students who have had high school chemistry. Lectures, recitations, and laboratory practice at hours to be arranged. Professor LAUBENGAYER and assistants. Deposit, \$20.

*S 106. **General Chemistry.** Credit six hours. For students in the College of Engineering. Lectures, recitations, and laboratory practice at hours to be arranged. Professor LAUBENGAYER and assistants. Deposit, \$20.

*S 205. **Introductory Qualitative Analysis.** Credit three hours. Must be taken with course S 206. Lectures and recitations, daily except Sat., 8, and T Th, 11. Room 206. Dr. LONG.

A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

*S 206. **Introductory Qualitative Analysis.** Credit three hours. Must be taken with course S 205. Laboratory, daily except Sat., 9-1. Room 252. Dr. LONG.

A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds. Deposit, \$25.

*S 210. **Introductory Qualitative Analysis.** Shorter course. Lectures and laboratory practice. Credit three hours. Lectures, daily except Sat., 8. Room 206. Laboratory, daily except Sat., 9-12. Room 252. Dr. LONG.

The properties and reactions of the common elements and acids, and their detection in various liquid and solid mixtures. Deposit, \$20.

*S 225. **Introductory Quantitative Analysis.** Shorter course. Lectures and laboratory practice. Credit three hours. Lectures, M W F, 11. Room 206. Professor NICHOLS. Laboratory, daily except Sat., 8-11. Room 252. Professor NICHOLS and Dr. LONG.

A study of the fundamental principles of gravimetric and volumetric analysis, and the analysis of various substances by these methods. Deposit, \$20.

S 230. **Advanced Quantitative Analysis.** Recitations and laboratory practice. Credit three hours. Laboratory, daily except Sat., 8-1. Room 252. Professor NICHOLS and Dr. LONG.

The calibration of weights and volumetric apparatus; the analysis of ferrous and non-ferrous alloys, silicates, and organic substances by various gravimetric, volumetric, and combustion methods. Deposit, \$20.

S 275. **Quantitative Microanalysis.** Credit three or more hours. Daily except Sat., 8-5. Room 282. Professor NICHOLS and Mr. BARRICK.

Laboratory practice in typical methods of both organic and inorganic quantitative microanalysis. Fee, \$20.

S 305. **Introductory Organic Chemistry.**

A. Credit three hours. Lectures and written reviews. Daily, 8, throughout the session, and also daily, 9, during the first three weeks. Room 207. Professor JOHNSON.

The lectures discuss systematically the more important compounds of carbon, their occurrence, methods of preparation, reactions, and uses. The work covered is equivalent only to the first half of the year course. Students who wish a complete course must register in Chemistry S 375.

S 310. **Introductory Organic Chemistry.**

A. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had or who are taking S 305 A. Hours to be arranged, in the mornings. Room 250. Dr. MILLER. Deposit, \$35.

B. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had S 305 A and S 310 A. The course is a continuation of Part A. Hours to be arranged, in the mornings. Dr. MILLER.

The student prepares a number of typical compounds and familiarizes himself with their properties, reactions, and relations. Deposit, \$35.

S 320. **Advanced Organic Chemistry.** Credit two or more hours. Laboratory practice at hours to be arranged, in the mornings. Professor JOHNSON.

An advanced course in the preparation of organic compounds, involving the use of the more difficult methods and of the less common reagents. Fee variable.

S 375. **Introductory Organic Chemistry.** Shorter course. Lectures and written reviews. Daily, 8-10. Room 207. Professor JOHNSON.

A shorter course in organic chemistry, designed for students in home economics, pre-medical, biological, and agricultural curriculums. Credit four hours for lec-

tures and written reviews. Laboratory practice. Credit one or two hours. Hours to be arranged in the mornings. *Room 250.* Deposit, \$15-\$20.

S 405. Introductory Physical Chemistry.

A. Credit three hours. Lectures, daily except Sat., 8., and one other lecture, T, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Dr. HOARD.

A systematic presentation of modern chemical theory. The subject matter includes gases, liquids and solids; the elements of thermochemistry and thermodynamics; the phase rule and the theorem of Le Chatelier; the theory of solution; chemical equilibrium.

B. Credit three hours. Lectures, daily except Sat., 9, and one other lecture, Th, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Dr. HOARD.

A continuation of Part A. The subject matter includes elementary electrochemistry and electrolytic conductance; ionization and ionic equilibria; reaction velocity and catalysis; miscellaneous topics in modern physical chemistry.

S 410. Physical Chemistry Laboratory.

A. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Dr. HOARD and Mr. HOYT. Open only to those who have taken or are taking course S 405 or its equivalent. With the data obtained in the laboratory as a basis, detailed reports are written covering each of the following topics: molecular weight determination by vapor density; boiling point and freezing point methods; vapor pressure; viscosity; distillation of liquid mixtures.

B. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Dr. HOARD and Mr. HOYT. Open only to those who have taken or are taking course S 405 B or its equivalent. The course is a continuation of Part A. The following topics are considered: dissociation; solubility; reaction velocity and catalysis; indicators; thermochemistry; diffusion; colloids and adsorption; phase rule studies.

S 465. Laboratory Practice in Physical Chemistry. Credit one to three hours. Laboratory periods to be arranged. Dr. HOARD and Mr. HOYT.

This course is designed to afford opportunity for special laboratory practice in physical chemistry, colloid chemistry, or electrochemistry.

S 530. Introductory Chemical Microscopy. Lectures and laboratory practice. Credit three hours. Lectures, M W F, 10. *Room 377.* Laboratory, M W F, 11-1, T Th, 10-1. *Room 378.* Professor MASON and assistant.

Microscopes and their accessories, as applied to problems in chemistry and technology. Micrometry; quantitative analytical methods; optical properties of crystals and other double refractive materials; physico-chemical studies; illumination, photomicrography, and ultramicroscopy; recognition of textile and paper fibers. Laboratory fee, \$5.

S 535. Advanced Chemical Microscopy. Laboratory practices. Credit two or three hours. Prerequisite, course S 530. Laboratory periods and conference hours to be arranged. *Room 378.* Professor MASON.

Practice in the examination and analysis of inorganic substances containing the more common elements, with special reference to rapid qualitative methods and to the analysis of minute amounts of material.

Students not desiring University credit, who wish to secure a working knowledge of Chemical Microscopy in the shortest possible time, may arrange by advance correspondence with the instructor to cover the parts of both of the above courses which best meet their needs. Laboratory fee, \$5.

S 195, S 295, S 395, S 495, S 595. **Research.** Credit one to six hours. Senior chemists, and others by special permission, may elect research in the fields of Inorganic, Analytical, Organic, or Physical Chemistry, or Chemical Spectroscopy, or Chemical Microscopy, under the direction of the respective members of the staff of instruction. Fee variable.

S 950. The Teaching of Chemistry in Secondary Schools. (Education S 226a.) Credit two hours. Daily except Sat., 12. *Baker 107.* Dr. MOOSE.

Prerequisites, 18 hours of chemistry including courses in inorganic, analytical, organic, and physical; or by special permission. Conference hours will be arranged for the discussion of the individual teacher's problems.

MATHEMATICS

Each teacher will have a daily office hour for consultation with students. It is urged that this opportunity be utilized by all concerned.

In the following list, courses S 1 to S 5b are equivalent to courses having the same numbers in the Announcement of the College of Arts and Sciences for 1938-39.

Courses S 1, S 2, S 3 are equivalent to the advanced entrance requirements of Cornell University and of the College Entrance Examination Board; they presuppose a ready knowledge of elementary and intermediate algebra and of plane geometry. They are also suitable for teachers in the secondary schools who wish to review the subjects.

Students taking S 5a or S 5b are requested to take no other University work during the session without special permission from the Department of Mathematics.

*S 1. **Solid Geometry.** Credit three hours. Daily, 11. *White 1.* Assistant Professor LAWRENCE. (Office hour, 9, *White 3.*)

*S 2. **College Algebra.** Credit three hours. Daily, 10. *White 6.* Professor HURWITZ. (Office hour, 11, *White 8.*)

*S 3. **Trigonometry.** Credit three hours. Daily, 8. *White 2.* Assistant Professor JONES. (Office hour, 10, *White 4.*)

*S 5a. **Analytic Geometry and the Calculus.** (First term's work.) Credit five hours. Daily, 8 and 11. *White 5.* Dr. ROSSER. (Office hour, 10, *White 3.*)

*S 5b. **Analytic Geometry and the Calculus.** (Second term's work.) Credit five hours. Daily, 8 and 11. *White 21.* Dr. LEWIS. (Office hour, 10, *White 23.*) *White 9.* Dr. CURTISS. (Office hour, 10, *White 11.*)

S 20. **Teachers' Course.** Credit two hours. Daily except Sat., 9. *White 10.* Professor CARVER and Assistant Professor HULSE. (Office hours, Professor CARVER, 10, *White 12*; Professor HULSE, 11 *GS 251.*)

The course will treat certain selected topics in the algebra and geometry of the secondary school curriculum; such as the number system, the meaning and existence of solutions of equations and sets of equations, geometry as a logical system, and constructions with ruler and compasses. A part of the time will be devoted to a critical study of the content and organization of secondary school mathematics courses and programs.

S 23. **Modern Algebra.** Credit three hours. Daily, 11. *White 2.* Assistant Professor JONES. (Office hour, 10, *White 4.*)

Determinants, matrices, and their relationships to linear transformations and quadratic forms.

S 42. **Advanced Calculus.** Credit three hours. Daily, 12. *White 6.* Professor HURWITZ. (Office hour, 11, *White 8.*)

A study of the processes of the calculus; definitions and properties of limits, continuity, derivatives, and integrals.

S 45. **Functions of a Complex Variable.** Credit three hours. Daily, 8. *White 6.* Assistant Professor AGNEW. (Office hour, 10, *White 8.*)

An elementary course on complex numbers and single-valued analytic functions of them.

S 61. **Projective Geometry.** Credit three hours. Daily, 10. *White 1.* Assistant Professor LAWRENCE. (Office hour, 9, *White 3.*)

The principles underlying projective forms of the first and second degrees will be discussed. Although no knowledge of mathematics beyond plane geometry will be presupposed, additional training is highly desirable.

S 85. **Vector Analysis.** Credit three hours. Daily, 9. *White 6.* Assistant Professor AGNEW. (Office hour, 10, *White 8.*)

The algebra and calculus of vectors with some applications to physics and engineering.

READING AND RESEARCH COURSES

In addition to the preceding courses opportunities are offered to graduate students to participate in informal work by reading and research under the direction of members of the Department of Mathematics. A regularly registered student may, by arrangement, obtain academic credit for any of this work; and number of hours of credit will depend on the amount of work done. Students interested in such directed reading or research may consult any member of the staff.

S 100a. **Topics in Algebra.

S 100b. **Topics in Analysis.

S 100c. **Topics in Geometry.

S 100d. **Topics in Applied Mathematics.

PHYSICS

*S 3. **Introductory Experimental Physics.** Mechanics, heat and sound. Given in three parts which may be taken separately or in any combination with credit as indicated. Parts (a) and (b) constitute the complete work of Physics 3 of the regular school year. If all three parts are taken the student should register for course S 11.

(a) Credit two hours. Demonstration lectures and recitations. Daily except Sat., 11. *Rockefeller A.* Professor GRANTHAM.

(b) Credit one hour. Fourteen experiments each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4:00. *Rockefeller 152.* Dr. TOMBOULIAN. Laboratory fee, \$5.

(c) Problem work. Credit one hour. F, 1:40-4:00. *Rockefeller 121.* Professor GRANTHAM.

*S 4. **Introductory Experimental Physics.** Magnetism, electricity, and light. Given in three parts which may be taken separately or in any combination with credit as indicated. Parts (a) and (b) constitute the complete work of Physics 4 of the regular school year. If all three parts are taken the student should register for course S 12.

(a) Credit two hours. Demonstration lectures and recitations. Daily except Sat., 9. *Rockefeller B.* Assistant Professor COLLINS.

(b) Credit one hour. Fourteen experiments each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller 152.* Dr. TOMBOULIAN. Laboratory fee, \$5.

(c) Problem work. Credit one hour. F, 1:40-4. *Rockefeller 121.* Professor GRANTHAM.

*S 11. **Introductory Experimental Physics.** Credit four hours. Parts (a), (b), and (c) of S 3, which constitute the complete work of Physics 11 of the regular school year.

*S 12. **Introductory Experimental Physics.** Credit four hours. Parts (a), (b), and (c) of S 4, which constitute the complete work of Physics 12 of the regular school year.

S 70. **Introduction to Mathematical Methods of Physics.** Credit three hours. Given in cooperation with the Department of Mathematics. Prerequisites, introductory college physics and trigonometry. Daily except Sat., 11 and Sat., 11-1. *Rockefeller 109.* Professor MURDOCK.

A review of selected topics in physics in which the use of analytical geometry and calculus is generally essential. The fundamental mathematical concepts, symbols and procedures will be introduced as needed. Practice in the applications of these to the solution of physical problems will be provided. The course is planned to supply the inexperienced student with a sufficient working knowledge

of mathematics and practice in its application in physics to enable him to pursue understandingly those studies required for a Master's degree in physics. The course will also be suitable for Master's degree candidates and others who at some time have had a course in analytical geometry and calculus but who now feel a need for some review of those subjects and of certain related physics as a preparation for further study of physics.

[S 72. **Molecular Physics.** Credit two hours. Prerequisites the same as in Physics S 73. Not given in 1938, planned for 1939.]

Mechanics of a particle, surface tension, elasticity, kinetic theory, molecular energies, specific heats, molecular spectra.

S 73. **Optics and Spectroscopy.** Credit three hours. Prerequisites, Physics S 3, S 4, and Mathematics S 3 or their equivalents. Those not prepared to use the calculus should take S 70 simultaneously with S 73.

Class work covering the laws of reflection and refraction and their application to optical instruments, dispersion, interference, polarization, radiation, and the fundamental laws of atomic and molecular spectra. Laboratory exercises which may consist of either (a) the analysis of spectroscopic data or (b) experimental work.

Class work daily except Sat., 10. *Rockefeller* 322. Dr. CADY.

Laboratory (a) Sat., 8-10:30. *Rockefeller* 121. Dr. CADY.

Laboratory (b) any day except Sat., 1:40-4. The work of (b) may be so arranged that this course will be equivalent to Physics 22 of the regular year.

[S 75. **Electric and Magnetic Fields.** Credit three hours. Prerequisites the same as for Physics S 76. Not given in 1938, planned for 1939.]

Electrostatic, magnetostatic and electromagnetic fields; electromagnetic electromotive force; variable and alternating current phenomena, and electric oscillations.

S 76. **Electrical Conduction and Related Phenomena.** Credit two hours. Prerequisites, Physics S 3, S 4 and Mathematics S 3 or their equivalent. Those not prepared to use the calculus should take S 70 simultaneously with S 76. Daily except Sat., 9. *Rockefeller* 105. Professor MURDOCK.

Electric conduction in metals, electrolytes, gases and by emission in high vacua. Chemical and thermal electromotive forces, contact potential and work function.

S 81. **Recent Developments in Physics.** Credit two hours. Prerequisite, a second year course in college physics or simultaneous registration in such a course. Daily except Sat., 8. *Rockefeller* 109. Assistant Professor BACHER.

An introductory survey and study of the significant developments in physics since 1895; including such topics as radioactivity, x-rays, photoelectric effects, atomic structure, quantum theory, atomic and molecular spectra, critical potentials, thermionics, relativity, isotopes, cosmic rays and nuclear physics.

S 83. **Intermediate and Advanced Laboratory Physics.** Credit one to three hours. Prerequisite, an introductory college course in Physics. The laboratory will be open daily except Sat., 1:40-4. *Rockefeller* 301. Assistant Professor COLLINS and Dr. CADY. Laboratory fee, \$5 for each laboratory credit hour.

The experiments will be chosen to meet the needs and previous experience of the individual student. For those students of less experience the emphasis will be placed on physical principles and a wide range of topics will be provided. Experiments in mechanics, properties of matter, heat, sound, light and electricity may be performed.

For the student who has had considerable experience in physical measurements, apparatus and equipment are available for work in a wide variety of fields, such as: optics, spectroscopy, x-rays, electrical measurements and high temperature measurements. The student will work independently on a group of experiments selected to meet his individual requirements. These experiments may be brief so that wide range of topics will be covered, or a longer time may be spent on each of a relatively few experiments.

S 90. **The Teaching of Physics in Secondary Schools.** (Education 226b.) Credit two hours. Lectures and discussions. Daily except Sat., 10. *Rockefeller* 220. Professor HOWE and Assistant Professor MOOSE.

Prerequisite, 12 hours of college physics or permission of instructor.

A critical review of the subject matter used by the high school teacher; organization and presentation of subject matter; the application of mathematics in elementary problem analysis; the selection and use of apparatus for demonstration and laboratory work.

Personal conferences will be arranged for the discussion of the individual teacher's problems. Teachers of physics are advised to bring with them a copy of the textbook they are using.

S 303. **Classical and Quantum Mechanics. Credit two hours. Prerequisite, general courses in physics and the calculus. Daily except Sat., 11. *Rockefeller* 104. Professor KENNARD.

Selected problems will be treated successively in terms of the principles of Newtonian mechanics, the first quantum theory, and the new quantum mechanics, in such a way as to bring out the achievements and limitations of each type of theory. The problems will deal with such topics as specific heat, thermal radiation, atomic structure, spectra, properties of the electron and magnetism.

S 315. **Special Topics for Investigation. Students who are prepared to profit by the use of the library and laboratory facilities of the Department in the study of some special topic or in investigation will be given an opportunity to do so. This work may be taken in connection with or independently of any of the above courses and will be under the direction of one or more members of the staff, with whom frequent conferences should be arranged. Credit varies with the nature and amount of work done. Students interested are advised to correspond with Professor MURDOCK.

Colloquium. Reports and discussions of recent work in physics. M, 4. *Rockefeller* C.

ARCHITECTURE

The COLLEGE OF ARCHITECTURE offers in the Summer Session a combined course stressing the interrelation between Architecture and Landscape Architecture. This course is open to a limited number of students who have had three or more years of Design, in either Architecture or Landscape Architecture, or equivalent experience.

S 115. **Architectural and Landscape Design.** Maximum credit of six hours. Registration in other Summer Session courses will be by permission only.

The plan for the course includes three major problems, three one-day problems, at least one field trip devoted to the study of the Finger Lakes Parks, and seminars devoted to the study of parti and plant materials.

The problems chosen for study will be in the field common to the two professions and all students will do the same work.

The Faculty will consist of EDWARD LAWSON, Assistant Professor of Landscape Architecture at Cornell University, and ROGER BAILEY, Professor of Architecture, Yale University.

Application for admission should be made as early as possible. In the case of a student now or recently enrolled in a school of Architecture or Landscape Architecture the letter of application should be accompanied by a statement from the head of the school to the effect that the applicant is in good standing and qualified to undertake advanced work in Design. Applications will be considered in the order of their receipt.

Further information will be furnished on request. All correspondence should be addressed to the College of Architecture, Cornell University, Ithaca, New York.

ENGINEERING

The courses in engineering described below are equal in character to corresponding courses given in the COLLEGE OF ENGINEERING during the regular session. They will be accepted for credit towards graduation by the several schools of the college so far as they apply to the prescribed work of the school concerned. Students in the College of Engineering who may desire to offer work done in the Summer Session toward graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Others may obtain information concerning these courses by applying to the Secretary of the College of Engineering.

MECHANICS OF ENGINEERING

The following courses in Mechanics of Engineering are open to students from other universities, subject to the same requirements for admission as are made for Cornell students.

*S 3M22a. **Strength of Materials.** Credit three hours. Daily, 8, Sat., 10, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. *West Sibley* 310. Professor SWITZER and Mr. ARMSTRONG.

Stress, strain; strength and elastic properties of materials in tension, compression, and shearing; riveted joints; torsion of shafts; helical springs; shear; moment, safe loading, and deflection of simple beams; eccentric loads; columns; impact loads.

*S 3M23. **Hydraulics.** Credit two hours. Daily except Sat., 10. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. *West Sibley* 312. Professor SWITZER.

Hydrostatics: pressures and centers of pressure. Hydrokinetics: general equations of energy; orifices, weirs, nozzles, Venturi meters, etc.; losses of head; flow in pipe. Hydro-dynamics: forces on stationary and moving bodies.

S 3M32. **Applied Mathematics.** Credit three hours. Daily, 9, Sat., 11, and one computing period Fri., 10 to 12:20 or 1:40 to 4. Prerequisite, Theoretical and Applied Mechanics, 3M21 and Strength of Materials, 3M22a, or equivalent, but may be taken concurrently with S 3M22a. *West Sibley* 312. Professor SWITZER and Mr. ARMSTRONG.

Curve plotting, choice of coordinates and scale, straight line plotting of simple equations; logarithmic plotting; fitting empirical equations to experimental data; first and second order differential equations; vibration problems in engineering; linear, torsional, and flexural vibrations without and with damping; forced vibrations; critical speeds; problems with two degrees of freedom.

EXPERIMENTAL MECHANICAL ENGINEERING

S 3X21. **Materials of Engineering.** Credit three hours. Lectures daily except Sat., 12, and Wed., 1:40-4. *West Sibley* 1. Prerequisite, General Chemistry 106a and b or the equivalent. Professor DAVIS and Assistant Professor JEFFREY.

An elementary lecture course in engineering materials covering fuels, refractories, metallurgy of iron and steel, and the constitution of metals and alloys.

S 3X31. **Properties of Engineering Materials.** Credit four hours. Lectures daily except Sat., 10-12. Laboratory, daily except Sat., 1:40-4. Two lectures and two laboratory periods a week as assigned. *Mechanical Laboratory.* Prerequisites, Engineering Materials 3X21, Theoretical and Applied Mechanics 3M21, Strength of Materials 3M22a, or the equivalent. Courses S 3X21 and S 3X31 may be taken concurrently. Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

A laboratory course dealing with: the determination of physical properties of materials (principally metals and alloys) by means of tension, torsion, transverse and compression tests; the selection of materials for a given use based upon

physical properties; the control of physical properties by various forms of thermal and mechanical treatments with emphasis on the relationship between internal structure and physical properties.

STRUCTURAL ENGINEERING

S 270. **Structural Analysis and Design.** Credit four hours. Lectures and recitations, daily except Sat., 8; computations and drawings at hours to be assigned. *Lincoln* 14 and 29. Prerequisite, C.E. 220, 221. Assistant Professor BURROWS.

One-fourth of the course includes structural details, i.e., the design of a wooden roof truss and other timber joints. The remainder of the course includes dead load, live load, and impact stresses in simple bridge trusses due to uniform live panel loads, locomotive axle loads, and highway loads. Text: Urquhart and O'Rourke, *Stresses in Simple Structures*.

S 271. **Structural Design.** Credit three hours. Lectures, computations, and drawing. Daily, 9-11. *Lincoln* 14. Prerequisite, C.E. 270. Assistant Professor BURROWS.

An elementary course in steel design. Complete design, detail drawing, bill of material, and estimate of weight of a steel roof truss, a through plate girder railroad bridge. Floor systems of highway bridges. Text: Urquhart and O'Rourke, *Design of Steel Structures*.

S 272. **Advanced Structural Analysis.** Credit three hours. Daily except Sat., 8. Prerequisite, C.E. 270. *Lincoln* 21. Professor URQUHART.

Stress analysis of continuous beams, framed bents and rigid frames. Horizontal as well as vertical loading considered. Redundant structures including the braced two hinged arch. Displacement diagrams for trusses and arches and analytical computation of deflections of such structures.

S 274. **Bridge Design.** Credit three hours. Computation and drawing, daily, 11-12:50. Prerequisite, C.E. 271. Assistant Professor BURROWS.

Computations and drawing for the complete design of a riveted railroad or highway bridge. The computations to determine the sections of all members, joints, splices, and other details are to be written up in systematically arranged reports. The drawing consists of general plans showing the location of all rivets as well as the composition and relation of all members and connections. The final reports are to give a full list of shapes and plates, and a classified analysis of weight for the span.

S 280. **Concrete Construction.** Credit three hours. Daily, 9-10:30. Prerequisite, C.E. 220, 221. Professor URQUHART.

Concrete materials, properties of plain concrete, its making and deposition; elementary theory of reinforced concrete as applied to columns, rectangular beams, and slabs; T-beams reinforced for compression; direct stress combined with flexure; retaining walls. Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

S 285. **Reinforced Concrete Design.** Credit three hours. Daily except Sat., 11-12:30. Prerequisite, C.E. 280. Professor URQUHART.

Design of multiple column footings of reinforced concrete. I-beam grillages. Design of bins and tanks: subsurface and supported on towers. Shortspan bridges. Reports and sketches.

ELECTRICAL ENGINEERING

*S 415. **Principles of Electrical Engineering.** Credit three hours. Lectures, daily except Sat., 9. Computations, M W F, 10-1. Prerequisites, Physics 11 and 12, Mathematics 5a and 5b, or the equivalent. *Franklin*. Assistant Professor STRONG.

Equivalent to E.E. 415. Elementary DC circuit and machine theory.

*S 415a. **Principles of Electrical Engineering.** Credit one hour. T Th, 10-1. *Franklin*. Assistant Professor STRONG.

Laboratory work to accompany S 415. The two courses when taken together are equivalent to E.E. 405.

*S 416. **Principles of Electrical Engineering.** Credit three hours. Lectures, daily except Sat., 8; computations, M W F, 10-1. Prerequisite, E.E. 415 or the equivalent. *Franklin.* Assistant Professor STRONG.

Equivalent to E.E. 416. Elementary alternating current circuit and machine theory.

*S 416a. **Principles of Electrical Engineering.** Credit one hour. T Th, 10-1. *Franklin.* Assistant Professor STRONG.

Laboratory work to accompany S 416. The two courses when taken together are equivalent to E.E. 406.

S 457. **Electronics.** Credit three hours. Prerequisite, one year of college physics. Lectures daily except Sat., 12; laboratory, M W, 2-4; or T Th, 2-4. Laboratory sections limited to ten students. Persons planning to take the course are advised to register for a laboratory section by correspondence. *Franklin.* Professor BALLARD.

The study of electronic phenomena with particular emphasis on its application to electronic tubes operating as amplifiers, oscillators, etc. The cathode ray oscilloscope, its theory, operation and application. Gas and vapor tubes.

ADMINISTRATIVE ENGINEERING

S 3A23. **Business and Industrial Management.** Credit three or two hours. Daily except Sat., 12. One afternoon to be arranged for those desiring three hours credit. *West Sibley 2.* Professor BANGS and Assistant Professor HANSELMAN.

A survey of the problems of business and industrial management designed for administrative engineering students, although of considerable importance and open to any one interested in the problems of modern business. This rapidly growing field is concerned with business policies, types of business ownership, and includes the major functions of marketing, production, finance, and accounting. Major consideration is also given to the selection of personnel and to study of modern advertising.

One of the features of the course is the designing of an advertising portfolio and a critical study of the relationship of advertising to the modern organization.

*S 3A31. **First Course in Accounting.** Credit three hours. Daily except Sat., 10. Two practice periods per week to be arranged. *West Sibley 2.* Professor BANGS and Assistant Professor HANSELMAN.

Theory of debit and credit; the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables; bond valuation; sinking funds.

AGRICULTURE

In addition to the following technical courses, the NEW YORK STATE COLLEGE OF AGRICULTURE also offers courses in Rural Sociology, Rural Education, Meteorology, and the various Biological Sciences. For these courses, see the appropriate division as given in the Table of Contents on page 3, or consult the Index at the end of this Announcement.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A 202. **Farm Management.** Credit three hours. Lectures, daily except Sat., 10. *Agricultural Economics 101.* Laboratory, Tuesday, 1:40-4. *Agricultural Economics 101.* Field trips will usually be taken to some successful farms in nearby regions during the laboratory period. Professor SCOVILLE.

Intended primarily for students who have had some work in Farm Management. Fee for materials, \$2; for transportation, \$4; total, \$6.

A 115. **Prices.** Credit three hours. Lectures, daily except Sat., 8. *Agricultural Economics* 125. Laboratory, W, 1:40-4. *Agricultural Economics* 140. Dr. LEWIS.

A study of agricultural and other price movements and their causes, in the United States and other countries. Fee for materials, \$2.

A 138. **Taxation.** Credit two hours. Lectures, daily except Sat., 10. *Agricultural Economics* 225. Assistant Professor KENDRICK.

A study of the principles and practices of public finance with emphasis on taxation. Among the topics examined are: the growth of public expenditures; the changing pattern of federal, state, and local taxation; general property, personal income, inheritance, business, commodity, and motor vehicle taxation; the incidence of taxation; relations among taxing units; and the problem of developing a system of taxation. Fee for material, \$2.

A 139. **Problems in Taxation.** Credit two hours. Prerequisite, *Agricultural Economics* 36 or 138, or equivalent. Lectures, daily except Sat., 9. *Agricultural Economics* 125. Assistant Professor KENDRICK.

Among the topics considered are: the tax system in relation to requirements for revenue; taxable capacity; the use of taxation for social control; justice in taxation; tax administration; conflicts among governmental units; and some conclusions respecting needed adjustments.

A 143. **Marketing Dairy Products.** Credit three hours. Lectures, daily except Sat., 9. *Agricultural Economics* 225. Laboratory, Th, 1:40-4. *Agricultural Economics* 201. A field trip to study the operation of dairy plants will be arranged. Professor SPENCER.

A study of the economic factors involved in the marketing of fluid milk, cream, and other dairy products; economic geography of the industry; demand; supply; surplus; price plans and policies; costs of distribution; cooperative marketing; trade organization; trade regulation. Fee for materials, \$2.

A 200. **Research in Farm Management, Prices, Marketing, and Taxation. Credit one to four hours. Prerequisite, consent of instructor.

Intended for graduate students who have problems on which they desire to do research under personal supervision. Professors SCOVILLE and SPENCER, Assistant Professor KENDRICK, and Dr. LEWIS.

AGRICULTURAL ENGINEERING

A 40c. **Advanced General Farm Shop.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. Daily except Sat., 10-12. *Agricultural Engineering Laboratory*. Assistant Professor WRIGHT.

These courses are designed primarily for teachers of agriculture who are giving the work as part of the shop courses in high schools or who are conducting extension work. The preparation of job sheets will be a part of the instruction.

Unit 1. July 6-16. **Plumbing and its Application to the Home and Farm.**

A study of: (1) plumbing systems; (2) plumbing materials, including fixtures, pipe, fittings, etc.; (3) various types of domestic water systems. Practice to give skill in plumbing operations. Laboratory fee, \$1.

Unit 2. July 18-30. **Automobiles and their Engines.**

A study of: (1) the principles of operation, care, and repair of automobile engines; (2) the general structure and principles of operation of the various automobile units, including modern features; (3) the servicing of cars, such as lubrication, battery care, tires, etc. Laboratory fee, \$1.

Unit 3. August 1-13. **Household Mechanics.**

A study of and practice in methods of servicing and repairing various types of household equipment such as pumps, water-systems, faucets, valves, heating plant, electrical devices, refrigerators, washing machines, sewing machines, cutting tools, etc. Laboratory fee, \$1.

*A 41. **General Shop Work for Rural High-School Teachers.** Credit three hours. T Th, 1:40-4:45 and Sat., 8-12. *Agricultural Engineering Laboratory.* Professor ROEHL.

Practical jobs to develop skill in woodworking, saw filing, tool grinding, handle fitting, harness repairing, rope work, cold metal working, farm blacksmithing, painting and glazing, furniture repairing, and refinishing, as suited to the needs of rural communities.

A course for teachers of agriculture and general shop work in rural high schools. Designed to develop skill in performance. Laboratory fee, \$3.

A 43. **Field Machinery Repair.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. M W F, 1:40-4:45. *Agricultural Engineering Laboratory.* Professor ROEHL and Assistant Professor JENNINGS.

This course is intended to prepare men to teach the repairing of farm machinery as part of the shop work in Vocational Agriculture.

Unit 1. July 5-15. A study of the care, repair and operation of plows, cultivators, and other tillage machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

Unit 2. July 18-30. A study of the care, repair and operation of mowers, binders, and other harvesting machinery with the emphasis on practical care and maintenance. Laboratory fee, \$1.

Unit 3. August 1-13. A study of the care, repair and operation of planters, drills, and other seeding machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

*A 44a. **Industrial Arts General Shop.** Credit four hours. Registration limited to twenty-five. Daily except Sat., 10-12:30, and T Th, 1:40-4:45. *Junior High School Laboratories 102 and 110.* Mr. BECKER.

A general course for teachers of agriculture who desire to qualify for the part-time teaching of industrial arts in the secondary school. The New York State Course of Study for Industrial Arts I (Comprehensive General Shop) will be used as a basis. Each student participates in the regular work, organization and administration of the shop work. Wood, art metal, machine, ornamental iron, electricity, soft metal casting, etc., will constitute the course. Should be accompanied by Rural Education A 142a. Laboratory fee, \$4.

*A 44b. **Industrial Arts Wood Shop.** Credit two hours. Registration limited to twenty-five. Daily except Sat., 10-12. *Senior High School Laboratory 13.* Mr. RODEN. Laboratory fee, \$2.

*A 44c. **Industrial Arts Metal Shop.** Credit two hours. Registration limited to twenty-five. Daily except Sat., 8-10. *Junior High School Laboratory 110.* Mr. AHR.

A unit course, designed to follow the New York State Course of Study in Industrial Arts III (Tentative). The student will participate as in A 44a. One quarter of the time will be devoted to related metal work. Laboratory fee, \$2.

*A 44d. **Industrial Arts Electrical Shop.** Credit two hours. Registration limited to twenty-five. T Th, 1-5:40. *Junior High School Laboratory 102.* Mr. RODEN.

A unit course, designed to follow the New York State Course of Study in Industrial Arts IV (Tentative). The student will participate as in A 44a. One quarter of the time will be devoted to related electrical work. Laboratory fee, \$2.

*A 101a. **Electricity and its Application to the Home and Farm.** Credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each provided the first unit precedes the second and the first two precede the third. M W F, 1:40-4:45 and one extra hour each week. *Agricultural Engineering Laboratory.* Assistant Professor WRIGHT.

Unit 1. July 5-16. A study of elementary electricity, dry cell and storage batteries, elementary wiring, lighting and power circuits, switching circuits, burglar alarms, wiring materials, wiring code rules. Laboratory fee, \$1.

Unit 2. July 18-30. A study of house wiring, including the actual wiring of a small building, heating appliances, motor appliances, illumination and illuminating equipment including portable lamps, and power distribution systems. Laboratory fee, \$2.

Unit 3. August 1-13. Electric motors and generators. A study of types of motors and generators commonly used on the farm and in the home together with their various applications. Opportunity will be given to build small motors and generators as a means of learning the principles of operation. Considerable time will be given to such matters as the selection, installation and servicing of these machines. Laboratory fee, \$1.

A 240. **Shop Organization and Management.** Credit two hours. Daily except Sat., 9. *Agricultural Engineering Laboratory.* Professor ROEHL.

A course designed for teachers of agriculture and general shop practices, village principals, and others who have responsibilities for teaching and supervising shop work in central schools and rural high schools. A course dealing with objectives, shop curriculum, plans of shops, designs of home-made equipment such as work-benches, tool and storage cabinets, lumber and iron racks, etc.; shop tools and supplies; shop management; the demonstration and job sheet methods of teaching. Students will be permitted to work on individual problems by arrangement.

FLORICULTURE AND ORNAMENTAL HORTICULTURE

*A 2. **Amateur Floriculture.** Credit one hour. Lectures, Th F, 11. *Plant Science 37.* Laboratory, F, 1:40-4:30. *Plant Science 15.* Miss SMITH.

An elementary course, designed especially for those who do not wish to major in floriculture but who wish a practical knowledge of the culture and use of plants indoors and in the amateur garden. Laboratory fee, \$1.

A 3. **Herbaceous Plant Materials.** Credit two hours. Lectures, M T W Th, 8. *Plant Science 37.* Laboratory, W Th, 1:40-4:30. *Plant Science 15, Greenhouses, and Gardens.* Mr. ALLEN.

A study of herbaceous plant materials. The aim is to give the student such an intimate knowledge of these forms of plants as may be used in garden planting, either in home grounds, rural social centers, or public parks, more particularly with reference to summer conditions. Students must have had sufficient botany to be familiar with the botanical characters and classification. An excellent collection of plant material is available for demonstrations. All members of the class must participate in an excursion to visit private estates and public parks in Canandaigua and in Rochester on August 6 and 7. Laboratory fee, \$2.

*A 4. **Planning and Planting the Home Grounds.** Credit two hours. Lectures, W Th, 12; *Plant Science 37.* Laboratories, W Th, 9-12, and one additional period; *Plant Science 433.* Acting Professor PORTER.

A brief course intended to familiarize the student with the best trees, shrubs, and vines, and their use on the home grounds. A discussion of the fundamental principles of landscape planning as related to our smaller residence properties. Not a technical course; open for general election. Students will need a set of drawing instruments and should bring with them, if possible, a measured plan and photographs of some property they wish to design. Registration limited to sixteen. Laboratory fee, \$3.

*A 5. **Flower Arrangement.** Credit one hour. Lecture, M, 12. Practice, M T, 1:40-4:30. *Plant Science 22.* Miss SMITH.

A study of the principles and methods of arranging flowers and plants for decorative use in the home and for public functions. Registration limited to twenty. Laboratory fee, \$5.

A 8. **Woody Plant Materials for Landscape Planting.** Credit four hours. Lectures, M T W Th, 9. Laboratory and field trip, M T, 10-12:30, 1:40-4:30. *Plant Science 37 and Campus.* Professor CURTIS.

A study of the characteristics and requirements of trees, shrubs, and vines for landscape planting. The laboratories and field trips enable the student to recog-

nize common woody plants. The lectures discuss planting areas, planting practices, and plant materials, in order that the student may learn to see plants not only as growing things but as possible units in designs with which he may be able to improve his surroundings. All members of the class must participate in an excursion on August 5 and 6 to visit private estates and public parks in Canandaigua and in Rochester. The transportation charge will be \$5. Laboratory fee, \$3.

A 109. **Summer Propagation.** Credit two hours. Lectures, W Th, 8. Laboratories, T W, 1:40-4. *Greenhouses and Nurseries.* Assistant Professor HUNN.

Intended for students who have had the beginning course in propagation. Laboratory fee, \$3.

Advantage is taken of the summer months to amplify the regular and summer courses in propagation by intensive practice in the summer production of soft wood cuttings and the budding of nursery stocks. This will include the management of hot beds and the lining-out system followed in the production of stock plants. Two extra hours a week before and after classes are required for care of hot beds. Two one-day trips are planned for visits to producing nurseries on July 8 and 29.

A 118. **Landscape Construction.** Credit two hours. Prerequisite, permission to register. Open only to advanced students. Lectures, F, 8. *Plant Science 37.* Laboratory, F S, 9-12:50, 1:40-4:30. *Practice fields.* Acting Professor PORTER.

A course covering the construction problems of the service departments of nursery landscape firms, greenkeepers, and landscape contractors. Includes studies and practice of grading, earthwork, walls, terraces, steps, pools, and the like. Several trips to visit work under construction will be required. Laboratory fee, \$8.

A 171. **Tree and Shrub Management.** Credit two hours. Registration by permission of the instructor. Lectures, T Th, 9; laboratories, T, 10-12:50 and 1:40-4. *Plant Science 40 and Nurseries.* Assistant Professor HUNN and others.

A study of the principles and practices employed in the transplanting and care of trees and shrubs including fertilizing, pruning, spraying, big-tree moving, and a discussion of special plants for special places.

HOME ECONOMICS

The Summer Session courses in the NEW YORK STATE COLLEGE OF HOME ECONOMICS are planned primarily to meet the needs of teachers, extension workers, and other persons dealing with problems in homemaking who wish to broaden and strengthen their home economics background and thus to be able to meet more adequately the needs of the situations in which they work.

All courses are given in *Martha Van Rensselaer Hall.*

ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

E 112. **Management in Relation to Family Living. Credit three hours. Discussions, laboratory, and field trips, M W, 2-5, F, 2-3. *Room G-19.* Assistant Professor CUSHMAN and Miss WIESENDANGER.

This course is for teachers, extension workers, social workers and homemakers who wish help in the understanding of principles, and opportunity for practice of a technique of management that will be useful in any situation. The emphasis is on the management of time and energy and of those other resources which especially affect their satisfactory use. Students will gain experience in recognizing and analyzing their own management problems. They will visit homes, schools and community centers to see how individual families and groups of people manage differently to achieve their individual purposes. Laboratory work will consist of cooperation with interested families and other groups in the study

of tasks and the setting up of trial work centers from portable equipment which will make possible the most satisfactory way of performing these tasks in each individual case, whether in homes or in homemaking centers in schools. Students will be given opportunity to develop their own ideas and to use initiative in working out methods and materials helpful in meeting their vocational or professional problems in management. Fee, \$3.50. Field trips, approximately \$5 in addition to the fee.

****E 200. Management and Economic Problems of Families.** Credit two hours. T Th, 7:30-9, Sat., 8-10. Room 121. Professor CANON and Department staff.

This course is offered for mature students who have a general background of home economics. For persons who have done no advanced work in this field, the course will serve as an introduction to the work of this department and to the courses offered from summer to summer; for advanced students in this field, it will serve to unify learnings in the various phases. The purpose is to help identify management and economic problems with which families are faced in their day-to-day living, recognize the many specialized fields of knowledge into which these problems lead, evaluate possible solutions, and locate sources of information.

Discussions will center around specific problems which are raised by homemakers invited to the class, and around those which are discovered in individual visits to homes. The Saturday meetings will be open to all summer session students and staff members who are interested; on two Saturdays, tours will be conducted to observe ways in which families are handling their management problems; on the remaining three Saturdays, class discussions will be used for clarifying the educational needs and possibilities in this field. Opportunity will be given for students to work out plans for their own personal or professional development. Fee, \$1.50.

FAMILY LIFE

E 101. Principles of Child Guidance. Elementary course. Credit two hours. Prerequisite or parallel, psychology of childhood and adolescence. Discussions, daily except Sat., 8. Room 124. Nursery School observations, one hour daily except Sat.; hours to be arranged with the instructor during registration. Professor WARING and Assistant Professor REEVES.

Application of psychology in the learnings of young children is the basis for developing guidance practices of adults. Observations in the Nursery School are arranged at different hours each day in order to include typical activities. Laboratory fee, \$7.50.

E 117. Family Experience and Personality Development. Credit two hours. Daily except Sat., 9. Room 121. Assistant Professor ENTORF.

This course will deal with the influence of family experience on the growth of personality and the ways in which individuals adjust to typical life situations. Fee, \$2.50.

****E 214. Research Studies in Family Life.** Credit one or two hours. Registration by permission of the instructor. Hours by arrangement. Professor WARING and Professor ROCKWOOD.

The purpose of the course is to offer to a limited number of qualified graduate students an opportunity for research in Family Life. Fee, \$2.50.

E 220. Participation in the Nursery School. Credit two or three hours. Limited to twelve students. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Prerequisites, child psychology and an elementary course in behavior. For each hour credit, there is required a total of thirty hours of supervised participation in the Nursery School and several conferences each week with the teaching staff. Laboratory and conference hours to be arranged. Assistant Professor REEVES.

Participation in the Nursery School is designed to be an experience in group living, for adults and children. The opportunity to participate with young children in the Nursery School not only helps students to understand children

and their behavior and guidance, but it helps them to understand themselves, their students, their friends and family members. It contributes subject matter in child care and training and gives practice in guiding a child activity program, in working with staff members concerned with all aspects of child development, and in cooperating with parents in the promotion of child welfare. Laboratory fee, \$5.

****E 225a. Seminar in Family Life with Special Consideration of the Adolescent in Family and Social Relationships.** Credit two hours. Limited to twenty-five students. T Th, 10-12:30. Instructors will be available for individual conferences. Room 121. Professor ROCKWOOD and Assistant Professor ENTORF. Fee, \$2.50

Tentative list of courses to be offered in the Department of Family Life in the next two Summer Sessions:

1939

- E 101. Principles of Child Guidance. Elementary course
- E 115. Family Relationships
- E 116. Parent Education in a Family Life Program
- E 214. Research Studies in Family Life
- E 220. Participation in the Nursery School
- E 225b. Seminar in Family Life with Special Consideration of the Adult in His Family and Social Relationships

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- E 101. Principles of Child Guidance. Elementary course
- E 115. Family Relationships
- E 117. Family Experience and Personality Development
- E 214. Research Studies in Family Life
- E 220. Participation in the Nursery School
- E 225c. Seminar in Family Life with Special Consideration of the Child of Pre-school and School Age in His Family and Social Relationships

FOODS AND NUTRITION

E 102. **The Scientific Aspect of Food Preparation.** Elementary course. Credit two hours. Lectures and discussions, M W F, 2. Room 339. Laboratory or demonstration, T Th, 2-5. Rooms 353 and 358. Assistant Professor PERSONIUS.

The purpose of this course is to show the relationship between basic science and the principles underlying food preparation. This will be accomplished by the study of the basic science necessary to understand the reasons for modern cookery methods. Fee, \$10.

E 123. **Advanced Nutrition.** Credit two hours. Registration by permission of instructor. Lectures and discussions, daily except Sat., 8. Room 426. Professor HAUCK.

The topics considered in this course will be determined by the needs and interests of the students participating in it. Emphasis is placed on the experimental data on which the principles of human nutrition are based, and a critical review of current literature in this field. Fee, \$1.

E 145. **Consumer Problems in Buying Foods.** Credit two hours. Lectures and discussions, T Th, 9. Room 3M 13. Laboratory, M W F, 7:30-10. Room 358. Miss STAINKEN.

This course is designed to analyze the problems encountered by consumers in the purchasing of foods. Topics will include: points in selecting specific food products; problems arising from the wide range in quality of foods and variation in individual purposes and needs; certain factors influencing cost, such as quality, season, waste, quantity; sources of information; government and private regulations and standards. Laboratory fee, \$5.

E 150. **Special Problems in Foods and Nutrition.** Credit and hours to be arranged. Registration by permission of instructor. Professor HAUCK and Assistant Professor PERSONIUS.

Independent work on problems not dealt with in other courses in the department. Problems may consist of laboratory research or library investigation. Fee will depend upon the problem undertaken.

Tentative list of courses to be offered in the Department of Foods and Nutrition in the next two Summer Sessions:

1939

- E 111. Meal Planning, Preparation and Service
- E 112. The Scientific Aspect of Food Preparation. Advanced course
- E 121. Elementary Nutrition
- E 150. Special Problems: Foods
- E 255b. Seminar: Nutrition

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- E 131. Family Nutrition with Emphasis on Child Nutrition
- E 145. Consumer Problems in Buying Foods
- E 150. Special Problems: Nutrition
- E 202. Experimental Cookery
- E 255a. Seminar: Foods

HOUSEHOLD ART

E 102. **Art Essentials in the Home.** Credit two hours. Registration limited to 15 students. Lectures, discussions, and laboratory. M W, 2-5. Room 408. Assistant Professor SCIDMORE.

This course involves the application of art to home and community problems. It will include lectures and discussions on architecture, furniture, textiles, and crafts; trips to homes, schools, and other buildings of interest. Experiments in furnishing will be carried on in a full size house which has been set up in the laboratory for this purpose.

E 108. **Room Rearrangement.** Credit two hours. Registration limited to ten students. Discussion and laboratory, T Th, 2-5, F, 3-5. Room 3M14. Assistant Professor WRIGHT.

This course is planned primarily for teachers and extension workers. Arrangement of furnishings, study of lighting requirements, and planning of small accessories will be included. Two laboratory periods each week will be spent in the rearrangement of furnishings in homes with the family cooperating and in home-making centers in schools, with emphasis on the needs and activities of the members of the family or of the group. Opportunity will also be given for practice in conducting group experiments in room rearrangement.

It is suggested that students bring remnants and scraps of old materials of interesting texture, color, or design that can be used for making table covers, chair protectors and other small accessories. These may be pieces of homespun linen, wool, worn pieces of paisley shawls, old white bedspreads, old coats, dresses, upholstery scraps, and remnants. Pieces of yarn, colored tapes and braids may also be used. Fee, \$5.

E 109. **Consumer Problems in Buying Home Furnishings.** Credit two hours. Discussion and laboratory, M W, 2-5. Room 3M14. Assistant Professor WRIGHT.

This course is planned for extension workers and teachers. Consideration will be given to helping consumers shop intelligently through study of actual home situations, preparation of shopping aids, experience in selecting harmonious furnishings and knowledge of quality. Appreciation of the wide range of quality and use for specific situations will be gained through trips to factories producing various grades of furnishings; through contacts with local retail stores and through mail order catalogs and newspaper advertising. It will be helpful if

students will bring advertisements for sales of home furnishings from local newspapers, sections of mail order catalogs commonly used, and all possible information in regard to factors that influence local buying practices. Estimated cost of field trips, \$10 to \$15. Laboratory fee, \$3.

E 127. **Housing from the Standpoint of Home Economics.** Credit two or three hours. Discussions, laboratories and field trips for two hours of credit, T Th, 2-5. Room 408. Additional laboratory and conference hours required for three hours of credit. Individual conferences to be arranged. Professor MORIN.

A brief survey of the factors in present-day housing with which the home economics student is vitally concerned as homemaker, community member or vocational home economics worker. A study of some of the problems involved in achieving adequate housing, and discussion of the contribution that home economics should be making toward the solution of these problems in cooperation with other agencies concerned; the place of home economics in housing courses in elementary and high schools and adequate teacher preparation for cooperating in such courses; discussion of vocational opportunities for the home economics student in the field of housing. Fee, \$2.50 per credit hour.

Tentative list of courses to be offered in the Department of Household Art in the next two Summer Sessions:

1939

- E 102. Art Essentials in the Home
- E 104. Art Essentials: Individual Home and School Furnishing Problems
- E 110. Art Appreciation: General Art Principles with Emphasis on Crafts
- E 116. Crafts: Color and Dying.

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- E 102. Art Essentials in the Home
- E 104. Art Essentials: Individual Home and School Furnishing Problems
- E 108. Room Rearrangement
- E 109. Consumer Problems in the Buying of Furnishings
- E 127. Housing from the Standpoint of Home Economics
- E 110. Art Appreciation: General Art Principles with Emphasis on the House and Furnishings
- E 116. Crafts: Weaving

TEXTILES AND CLOTHING

E 116. **Craftsmanship in Designing Distinctive Details of Clothes.** Credit two hours. Registration limited to twenty students. Students are asked to consult the instructor before registering. Lecture and laboratory, M W F, 10-1. Room 215. Mrs. FULLER.

The purpose of this course is to develop originality in the use of texture combinations, structural detail, surface decoration, and color, and to incorporate these into the costume in a fashionable way. Ideas for design will be drawn from both modern and historic sources but emphasis will be given to style distinction in their use. Consideration will be given to the adaptation of subject matter to individual selections. Estimated cost of materials, \$5 to \$10. Fee, \$3.

E 140. **Problems in Teaching Grooming.** Credit two hours. Registration limited to sixteen students and by permission of the instructor. Laboratory and field practice, M W, 2-5, F, 2. Room 213. Mrs. BUTT.

For resident and extension teachers and social workers who are interested in developing projects involving improvement of personal appearance as a part of the total effect of personality. Practice will include demonstration of and experience with methods of teaching grooming that are effective and educational in community group projects. Opportunity will be given for work with adult and junior extension groups and for consideration of methods of adapting these experiences to specific teaching situations. Estimated cost of materials and field trips, \$10. Fee, \$5.

E 145. **Clothing Construction.** Credit two hours. Prerequisite, elementary clothing selection and construction. Registration is limited, and by permission of the instructor. Laboratory and field practice, T Th, 2-5, F, 3. Room 217. Mrs. BUTT.

For teachers and extension workers who wish to understand the problems involved in selecting, fitting, and constructing clothing for adults or for persons who have figures of irregular proportions. Opportunity will be given in class and through personal conferences to consider the ways of adapting methods and work to specific situations. Laboratory and field practice will consist of participation in adult group meetings in class and community. Estimated cost of materials and field trip, \$10. Fee, \$3.

E 160. **Consumer Problems in Buying Ready-made Garments and Clothing Fabrics.** Credit two hours. Registration by permission of instructor. Limited to twenty students. Discussion and laboratory, T Th, 2-5. Room 215. Mrs. FULLER.

This course is designed to help students better understand the buying problems of consumers in the field of clothing fabrics and ready-made garments. Consideration will be given to the buying practices of consumers; the selling practices of retail stores; and the management problems met by consumers in choosing from the wide range in quality and cost, the article best suited to the specific need. Other topics to be discussed are: the relationship of such factors as design, fashion and construction to the quality and cost of merchandise; labels and trade marks now used for identifying differences in quality of fabric, and the possibilities of further extending these guides by action either of the clothing industry or of the government; services offered by retail stores, such as testing bureaus, consultant bureaus, and training of salespeople. Information now available to consumers will be evaluated. Help will be given in the selection of subject matter for individual teaching situations.

Shopping trips to stores in Ithaca and short trips to nearby towns will be included. Estimated cost of materials and trips, \$10. Fee, \$5.

Tentative list of courses to be offered in the Department of Textiles and Clothing in the next two Summer Sessions:

1939

- E 117. Costume Design and Illustration
- E 145. Clothing Construction
- E 150. Identification and Testing of Textiles
- E 155. Consumer Problems in Buying Household Textiles

1940

- E 116. Craftsmanship in Designing Distinctive Details of Clothes
- E 110. Designing and Construction of Clothes for Children and Adolescents
- E 145. Clothing Construction
- E 150. Identification and Testing of Textiles
- E 160. Consumer Problems in Buying Ready-made Garments and Clothing Fabrics

INSTITUTION MANAGEMENT

E 102. **Organization, Administration, and Management Problems. July 25 to August 13. Credit two hours. Class limited to fifteen students. Lectures and discussions, daily except Sat., 2-4. Room G-62. Two observation periods each week in the cafeteria or elsewhere. Field trips will be arranged to supplement these observation periods. Miss ROBERTS.

This course is planned for food administrators and institution managers who have a background of experience and wish to bring themselves up-to-date. The content will be governed by the needs and interests of the group. Fee, \$1.

****E 103. School Lunch Problems.** Three units as follows:

Unit A. Purchasing of Food. July 5 to July 16. Credit two hours. Class limited to twenty students. Lectures and discussions, daily except Sat., 8-10. Room G-62. Trips or laboratories on alternate afternoons. Professor HARRIS.

The problems of quantity buying with reference to use, sources, quality standards and grades, determination of yield and ultimate cost, mechanics of purchasing, and storage are given consideration. A two-day trip to the Rochester markets is included. Fee for materials and trip (not including meals and lodging), \$6.

Unit B. Planning and Equipping the School Lunch Room or Cafeteria. July 11 to July 23. Credit two hours. Class limited to fifteen students. Lectures and discussions, daily except Sat., 10-12. Room G-62. Trips or laboratories on alternate afternoons. Miss ROBERTS.

This course is planned to acquaint the student with principles of planning for efficiency and economy. It will consider also the problems of determining equipment needs and the basis for selection and purchase of large pieces of equipment. Trips to nearby schools will be scheduled in so far as is possible. Cost of trips, not more than \$5. Fee, \$1.

Unit C. Administrative and Management Problems. July 5 to July 9. Credit one hour. Class limited to twenty students. Lectures and discussions, daily except Sat., 9-11 and 2-4. Room 124. Miss ROBERTS.

This course will deal with the organization and administration of school lunch rooms with emphasis on management problems. Observation periods in the Home Economics Cafeteria may be arranged for those interested. Fee, \$1.

LEADERSHIP IN HOME ECONOMICS

E 120. Leadership in Home Economics: Program Planning and Methods. (Rural Education 134b: Adult Homemaking Education). Credit three hours. Discussion, M W F, 10-12. Room 121. Miss HENDERSON.

For extension workers, home economics teachers, and others interested in leadership in homemaking education. This course offers opportunity for students to re-evaluate and reconstruct their own past experience in home economics, for the purpose of developing increasingly effective programs in homemaking education for a variety of present-day homes and families. Through observing and assisting several extension specialists, agents, and lay leaders, county leaders of home economists, and other teachers of adults, when they are working near Ithaca with individual families and groups, students may (1) broaden and clarify their concept of the directions in which leadership is commonly needed among families; (2) develop some additional skill in finding significant facts about family needs and some further judgment about programming procedures; and (3) ascertain some principles of program building and of learning. Through individual and group discussion and work, students will evaluate methods of leadership and will actually plan programs to meet needs of specific groups.

Observation of field work will be planned for four or more days during the summer session, part of which may be done during class periods. This course combines well with other courses requiring home visits and observations of leaders, as: Economics of the Household and Household Management 112; Household Art 108; Textiles and Clothing 140, 145. Estimated expenses for trips \$10 to \$15. Fee, \$3.

HOTEL ADMINISTRATION

In 1922 Cornell University established, with the cooperation and financial assistance of the American Hotel Association, a four-year course in Hotel Administration for high-school graduates desiring to enter the administrative departments of the hotel business. Many hotel proprietors and managers, who have been unable to take a four-year university course, have asked for shorter courses with less formal entrance requirements.

To meet this demand, all Summer Session work in Hotel Administration is given in unit courses, either one or two weeks in length. A circular giving full

details of these courses will be issued about April 1. For this circular or for other information about the work in this department, address Professor H. B. MEEK, Martha Van Rensselaer Hall, Cornell University, Ithaca, N. Y.

The first unit courses in this department begin on June 27. All courses are for undergraduate students.

REQUIREMENTS FOR ADMISSION

Anyone employed in hotel work is eligible for admission. Prospective students will be required to present evidence of good character, of sincerity of purpose, and of interest in hotel work. It is distinctly to the advantage of prospective students to file applications early, in any event not later than June 15.

COURSES OF INSTRUCTION

- H 11. **Hotel Operation.** 1 hr.
- H 15. **Hotel Promotion.** 1 hr.
- H 18. **Personnel Methods.** 1 hr.
- H 22. **Quantity Food Preparation.** 2 hrs.
- H 24. **Institution Menu Planning.** 1 hr.
- H 25. **Hotel Stewarding.** 1 hr.
- H 26. **Hotel Menu Planning.** 1 hr.
- H 31. **Elementary Accounting.** 3 hrs.
- H 32. **Hotel Accounting.** 3 hrs.
- H 33. **Interpretation of Hotel Statements.** 1 hr.
- H 36. **Food and Beverage Control.** 1 hr.
- H 41. **Hotel Engineering.** 2 hrs.
- H 71. **Hotel Housekeeping.** 1 hr.
- H 81. **Hospital Operation.** 2 hrs.
- H 153. **Problems in Hotel Administration.** 2 hrs.

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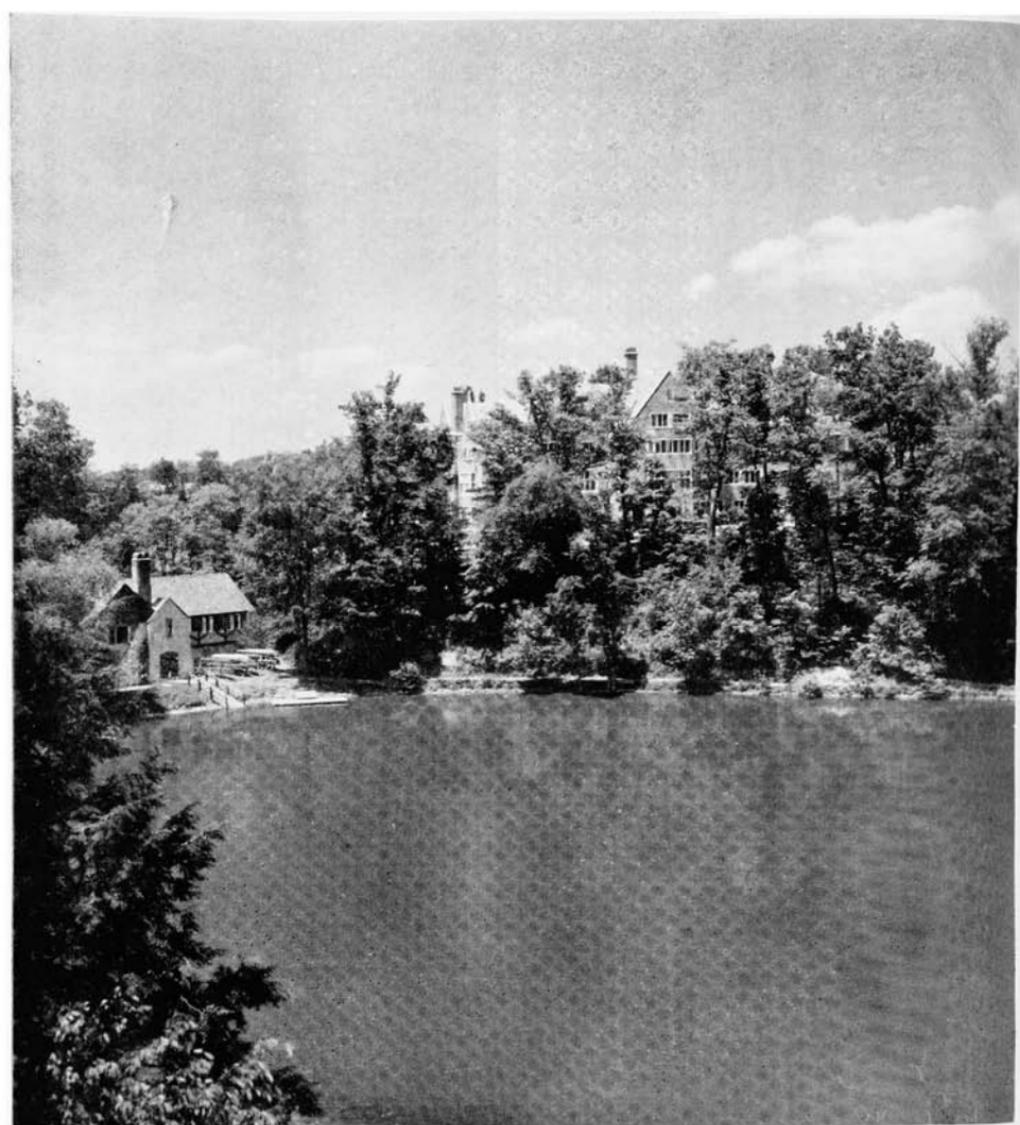
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Buttermilk Falls is at the entrance to a State Park four miles distant from the campus.



*Two of the residential halls
for women are located near this
small lake, adjoining the
campus.*