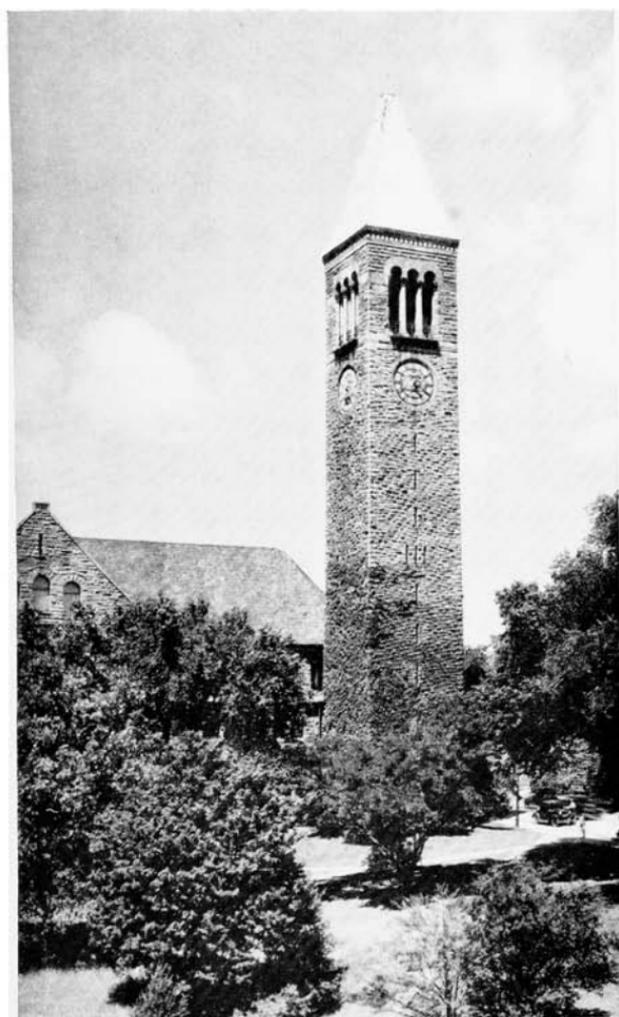


CORNELL UNIVERSITY OFFICIAL PUBLICATION

VOLUME XXVIII

NUMBER 14



*Announcement
of the*
SUMMER
SESSION
1937

UNIVERSITY
AND STATE
SUMMER
SCHOOLS

PUBLISHED BY THE UNIVERSITY

ITHACA, NEW YORK

MARCH 1, 1937



Goldwin Smith Hall is the main building of the College of Arts and Sciences. It is named in honor of Goldwin Smith (1823-1910), who resigned a fellowship of University College, Oxford, and accepted the chair of English history at Cornell University in 1868.

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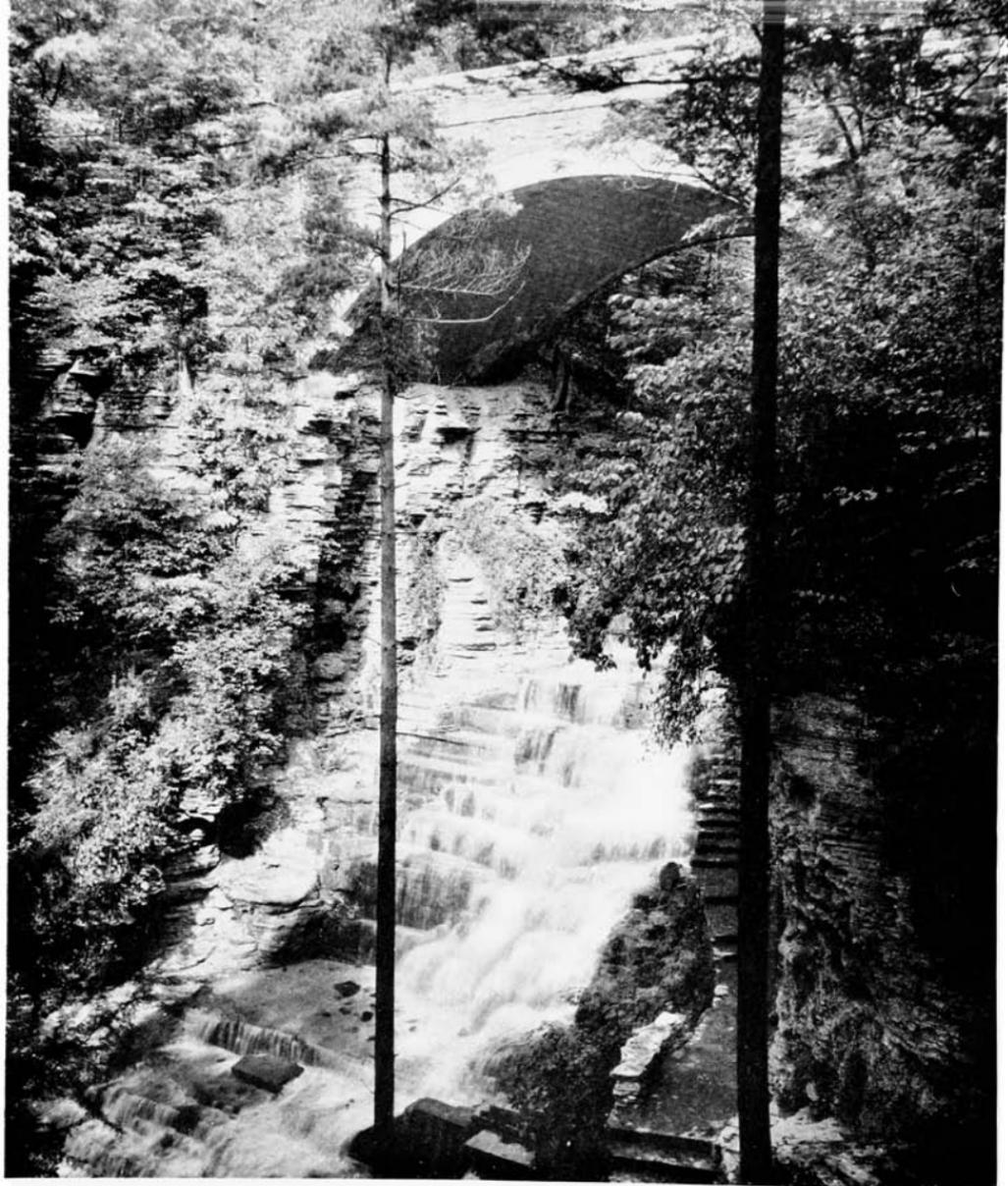
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ITHACA, NEW YORK

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*The gorge of Cascadilla
Creek lies within the campus,
and over this bridge passes one
of the principal campus roads.*



CORNELL UNIVERSITY is situated in a picturesque region—the lake country of the State of New York. The University's domain of fourteen hundred acres occupies the brow and crest of a hill overlooking the town of Ithaca, twenty miles of Cayuga Lake, and the surrounding country. The Campus is eight hundred feet above sea level and four hundred feet above the level of the lake.

The country about Ithaca is a plateau, moulded by stream and glacial erosion into rolling landscapes. Its unusual picturesqueness is due to the presence of a few extraordinary valleys, long and narrow, and deeply cut in the rock of the plateau, forming lake basins. These are the Finger Lakes, so called because, on the map of the State of New York, the longer of them resemble the outspread fingers of a hand. Around them is a country of orchards, vineyards, and dairy farms.

The Cayuga Lake valley's southern or upper end, near Cornell University, is typical of the scenery of this region. From the high Campus the eye looks north, west, and south over the Lake and the broad level valley of Ithaca to a horizon of hills blue in the distance. Streams flowing into the lake have cut deep channels in the soft sandstone and shale of the hills and tumble through the chasms in many waterfalls. Two gorges, those of Fall Creek and Cascadilla Creek, are on the borders of the Campus. The grandest of all these gorges is that of Taughannock, ten miles from the Campus across the lake, where the stream has a sheer fall of two hundred and fifteen feet down the wall of a vast rock chamber. The even more famous Watkins Glen, at the head of Seneca Lake, is about twenty miles away.

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THE CALENDAR

- July 5, Monday Registration, 8 a.m.-5 p.m., *Drill Hall*. Fees are due for payment at the Treasurer's office, *Morrill Hall*.
- July 6, Tuesday Instruction begins at time and place announced for each course. Registration is continued at the Registrar's office, *Morrill Hall*.
- July 9, Friday Last day for payment of fees at the Treasurer's office, which closes at 4 p.m., *Morrill Hall*.
- July 10, Saturday Instruction continues on this Saturday.
- Aug. 12, Thursday Final examinations begin.
- Aug. 13, Friday Summer Session ends, 4 p.m.

SPECIAL EVENTS

- June 20, Monday Summer Field Course in Geology begins, *Spruce Creek, Pennsylvania*.
- June 28, Monday First unit course in Hotel Administration begins, 9 a.m., *Martha Van Rensselaer Hall*.
- July 1, 2, and 3 Symposium on the Structure of Metallic Phases, *Rockefeller 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

OBJECT OF THE SUMMER SESSION

The primary object of the Summer Session is to carry on the work of the several Schools and Colleges of the University during the summer vacation period. By doing this it provides the opportunities 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 need 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 11. 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 1937 will take place on Monday, 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 1937 is July 8.

CHANGES OF REGISTRATION

All changes of registration after Monday, 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 Thursday, 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 Wednesday, July 7.**

CERTIFICATES FOR WORK DONE

Students of the Summer Session may receive certificates of attendance and of work performed, with grades. Application for them should be made before August 7, 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.

IN THE 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.

IN THE 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.

IN THE 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.

IN THE 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.

IN THE 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.

IN 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 1937, not later than July 8.

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 involving 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 July 9.

TUITION FEES

The tuition fee for the Summer Session is \$50. Students who were registered as candidates for a degree in the Graduate School prior to April 1, 1935 will pay \$30 and an administration fee of \$6.25. This is the only exception to the uniform tuition fee of \$50 for the session of six weeks.

Students taking unit courses for less than six weeks will pay tuition at the rate of \$10 a week. If unit courses extending through six weeks are taken, the tuition fee will be \$50.

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 \$30 if he was admitted to candidacy for a degree prior to April 1, 1935. If admitted to candidacy for a degree after that date, the minimum tuition fee to secure admission to Summer Session classes will be \$50.

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, carrying on regular work in the Summer Session, and paying a tuition fee of \$30; (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.

WILLARD STRAIGHT HALL FEE

Willard Straight Hall is the social center of the University. It contains the University theatre, reading rooms and lounges for men and women, dining rooms and a cafeteria, game rooms, etc. The fee of \$3 charged for its privileges is paid by all Summer Session students. Students registered for unit courses only and in attendance for three weeks or less pay a fee of \$1.50.

OTHER FEES AND DEPOSITS

Registration of motor vehicles to be driven in and about Ithaca by Summer Session students is required. The fee for this registration is \$.50.

A fee of \$1.50 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 descriptions 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 Wednesday, 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. The joint fee for these registrations is \$.50.

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 \$1.50.

THE 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 Saturday night, July 3 (not earlier), and all meals to and including breakfast Saturday, 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.

THE 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, 10 a.m. to 1 p.m.*; Dr. Jennette Evans, medical adviser of women, *daily except Sunday, 9 a.m. to 11 a.m., and 1 p.m. to 2 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.

THE 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.

WILLARD STRAIGHT HALL

Willard Straight Hall is the social center of the University. It contains the University theatre, reading rooms, and lounges for men and women, dining rooms and a cafeteria, game rooms, etc. In accordance with regular procedure, a fee of \$3 is required of all summer registrants, payable at the same time as other fees.

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.

SYMPOSIUM ON THE STRUCTURE OF METALLIC PHASES

Under the auspices of the Department of Physics, a three-day program devoted to a discussion of the theoretical and experimental aspects of cooperative phenomena such as allotropy, superstructures and ferromagnetism has been arranged for the week-end immediately before the Summer Session opens.

This symposium is planned to provide a comprehensive survey of this field, with ample opportunities for discussion. The order of the topics will be so arranged and the reports will be so correlated with each other that those not familiar with the field may gain a clear understanding of the subject. The speakers will include specialists from various university and other research laboratories. One of the principal papers will be given by Dr. Francis Bitter, Associate Professor of the Physics of Metals, Massachusetts Institute of Technology, and one of the leading investigators in this field. Dr. Bitter will also continue in residence throughout the Summer Session as visiting lecturer in Physics and will give courses upon the subject of magnetism; for further details of these courses, see announcements of Physics courses, page 63.

The dates for this symposium are July 1, 2, and 3. Arrangements will be made for housing the group in attendance, including families, at a moderate rate in one of the University dormitories for the nights of June 30, July 1, and 2. Reservations for such rooms should be made in advance with the Manager of Residential Halls, Morrill Hall, Ithaca, N. Y. There will be a registration fee of one dollar for those attending these meetings. For further information, address Professor R. C. Gibbs, Rockefeller Hall, Ithaca, N. Y.

CONCERTS

Organ recitals will be given on the first, third, and fifth Sunday evenings of the session in Bailey Hall or in Sage Chapel (as announced in the Summer Session Calendar) 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.

THE SUMMER THEATRE

During the Summer Session weekly performances are given by the Summer Theatre Company on Saturday evenings, beginning July 10. 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 Company. 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 11 to August 8 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 Taughannock Falls, to Watkins Glen, and to Niagara Falls. Details of the plans for these are given on page 57.

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.

THE 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.

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.

OFFICERS AND FACULTY

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LIVINGSTON FARRAND, A.B., M.D., L.H.D., LL.D., President of the University.
EDMUND EZRA DAY, S. B., A.M., Ph.D., LL.D., President-Elect of the University.
ALBERT RUSSELL MANN, A.M., D.Sc., D.Agr., LL.D., Provost of the University.
EUGENE FRANCIS BRADFORD, Ph.D., Registrar and Director of Admissions.
R. LOUISE FITCH, A.M., Dean of Women.
LOREN C. PETRY, Ph.D., Director of the Summer Session and Chairman of the Administrative Board.

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ELSA GUERDRUM ALLEN, Ph.D., Instructor in Ornithology.
RAYMOND CLAYTON ALLEN, B.S., Instructor in Floriculture.
HOWARD R. ANDERSON, Ph.D., Assistant Professor of History and Head of the Department of Social Studies in the University High School of the University of Iowa, Iowa City, Iowa.
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SAMUEL LATIMER BOOTHROYD, M.S., Professor of Astronomy and Geodesy.
ROSS BRAUGHT, M.F.A., formerly Instructor in Drawing and Painting, Kansas City Art Institute, Kansas City, Mo.
JULIAN PLEASANT BRETZ, Ph.D., Professor of American History.
ARTHUR WESLEY BROWNE, Ph.D., Sc.D., Professor of Inorganic Chemistry.
WILLIAM F. BRUCE, Ph.D., Instructor in Chemistry.
OLGA P. BRUCHER, M.A., Assistant Professor of Home Economics.
JAMES DABNEY BURFOOT, JR., Ph.D., Assistant Professor of Geology.
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GLADYS BUTT, B.S., Extension Instructor in Home Economics.

- JULIAN EDWARD BUTTERWORTH, Ph.D., Professor of Rural Education and Director of the Graduate School of Education.
- DOROTHY K. CADWALLADER, M.A., Principal of Washington and Hewitt Schools, Trenton, N. J.
- WILLOUGHBY MILLER CADY, Ph.D., Instructor in Physics.
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- GEORGE H. CLARKE, Ph.D., Professor of English, Queen's University, Kingston, Ontario.
- LEONARD SLATER COTTRELL, JR., Ph.D., Assistant Professor of Rural Social Organization.
- JOHN COURTNEY, M.S., Assistant Professor of Hotel Accounting.
- WILLIAM J. ELIOT CRISSY, B.S., Psychologist, Massachusetts General Hospital, Boston, Mass.
- LOWELL CLEM CUNNINGHAM, Ph.D., Extension Assistant Professor of Farm Management.
- OTIS FREEMAN CURTIS, Ph.D., Professor of Botany.
- RALPH WRIGHT CURTIS, M.S.A., Professor of Ornamental Horticulture.
- JONATHAN WADHAMS CURVIN, M.A., Assistant Professor of Public Speaking, Hobart College, Geneva, N. Y.
- ELLA CUSHMAN, M.S., Extension Assistant Professor of Home Economics.
- GEORGE IRVING DALE, Ph.D., Professor of Romance Languages and Literatures.
- KARL M. DALLENBACH, Ph.D., Professor of Psychology.
- ADAM CLARKE DAVIS, JR., M.E., Professor of Experimental Engineering.
- FAITH DAVIS, M.A., Instructor in Home Economics.
- GEORGE DECKER, M.A., Instructor in Industrial Arts Education, Buffalo State Teachers College, Buffalo, New York.
- HARVEY C. DIEHL, Ph.D., Instructor in Chemistry.
- JOSEPH C. DOANE, Ph.D., Superintendent, Jewish Hospital, Philadelphia, Pa.
- ALEXANDER M. DRUMMOND, A.M., Professor of Public Speaking and Director of the University Theatre.
- CHARLES L. DURHAM, Ph.D., Litt.D., Professor of Latin.
- FRANCES MARKEY DWYER, Ph.D., Instructor in Home Economics.
- ARTHUR J. EAMES, Ph.D., Professor of Botany.
- THEODORE HILDRETH EATON, Ph.D., Professor of Rural Education.
- NORMA EDWARDS, B.S., Home Demonstration Agent, Syracuse, N. Y.
- LYNN A. EMERSON, Ph.D., Assistant Superintendent of Schools in charge of Vocational Education, Yonkers, N. Y.
- MARK ENTORF, A.B., Extension Assistant Professor of Home Economics.
- JENNETTE EVANS, M.D., Assistant Professor of Hygiene and Medical Adviser of Women.
- EMERY N. FERRISS, Ph.D., Professor of Rural Education.
- HARRY MORTON FITZPATRICK, Ph.D., Professor of Mycology.
- MARIE BELLE FOWLER, M.A., Professor of Home Economics.
- ALLAN CAMERON FRASER, Ph.D., Professor of Plant Breeding and Genetics.
- FRANK SAMUEL FREEMAN, Ed.D., Professor of Education.
- WALTER HOYT FRENCH, Ph.D., Assistant Professor of English.
- WILLIAM JOSEPH FRIERSON, Ph.D., Assistant in Chemistry.
- PAULINE WELLS FULLER, B.S., Instructor in Home Economics.
- LUELLE PEARL GARDNER, Ph.D., Instructor in Rural Education.
- ARTHUR K. GETMAN, D.Sc., Chief, Agricultural Education Bureau, State Department of Education, Albany, N. Y.
- EVA LUCRETIA GORDON, M.S., Assistant in Rural Education.
- GUY EVERETT GRANTHAM, Ph.D., Professor of Physics.
- JACOB M. GRAY, C.E., Chairman of the Department of Mechanical Drawing and Design, Brooklyn Technical High School, Brooklyn, N. Y.
- ALRIK GUSTAFSON, Ph.D., Instructor in English.

- IDA DECK HAIGH, Instructor in Music.
 W. S. HAMMOND, Ph.D., Assistant in Histology and Embryology.
 GEORGE R. HANSELMAN, M.E., Assistant Professor in Administrative Engineering.
 MARY KOLL HEINER, B.S., Director, School of Domestic Arts and Science, Chicago, Ill.
 RICHARD S. HILL, M.A., Instructor in Music.
 EDWIN RAYMOND HOSKINS, Ph.D., Assistant Professor of Rural Education.
 RALPH SHELDON HOSMER, M.F., Professor of Forestry.
 HARLEY EARL HOWE, Ph.D., Assistant Professor of Physics.
 ERNEST BASIL HOYT, M.S., Assistant in Chemistry.
 MELVIN LOVELL HULSE, Ph.D., Assistant Professor of Education.
 HELEN L. HULTZ, M.A., Teacher, Fox Meadow School, Scarsdale, N. Y.
 CHESTER JERMAIN HUNN, B.S.A., Assistant Professor of Ornamental Horticulture.
 WALLIE ABRAHAM HURWITZ, Ph.D., Professor of Mathematics.
 RONALD INGALLS, B.Mus., Assistant Professor of Music.
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 BURTON AARON JENNINGS, B.S., Assistant Professor of Agricultural Engineering.
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 WALTER LANDÉ, Instructor, Brooklyn College, Brooklyn, N. Y.; Formerly Ministerialrat in the Prussian Ministry of Education.
 RICHARD ALBERT LAUBENGAYER, Ph.D., Instructor in Botany.
 VIVIAN STREETER LAWRENCE, JR., Ph.D., Assistant Professor of Mathematics.
 DANIEL CLARK LEWIS, JR., Ph.D., Instructor in Mathematics.
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 HARRY J. LINTON, B.S., Director of Secondary Education, Schenectady, N. Y.
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 AMY GRACE MEKEEL, Ph.D., Instructor in Zoology.
 CHARLOTTE HOPKINS MERRELL, B.S., Formerly Assistant Professor of Institution Management.
 CLYDE I. MILLARD, E.E., Instructor in Administrative Engineering.
 WILLIAM T. MILLER, Ph.D., Instructor in Chemistry.
 BENTON SULLIVAN MONROE, Ph.D., Professor of English.
 HELEN MONSCH, M.A., Professor of Home Economics.
 ROYAL EWART MONTGOMERY, Ph.D., Assistant Professor of Economics.
 CLYDE B. MOORE, Ph.D., Professor of Rural Education.

- CARLETON A. MOOSE, Ph.D., Assistant Professor of Education, Albany State Teachers College; Supervisor of Science Teaching in Milne High School, Albany, N. Y.
- RICHARD ALAN MORDOFF, Ph.D., Professor of Meteorology.
- GRACE MORIN, M.S., Professor of Home Economics.
- JOHN ROBERT MOYNIHAN, M.M.E., Instructor in Experimental Engineering.
- CARLETON CHASE MURDOCK, Ph.D., Professor of Physics.
- D. E. MURRAY, A.B., Director of Physical Education, Madison Junior High School, Rochester, N. Y.
- K. A. H. MURRAY, Ph.D., Research Office, Agricultural Economics Research Institute, University of Oxford, England.
- HENRY ALONZO MYERS, Ph.D., Instructor in English.
- WILLIAM RUEL NEEDHAM, B.S., of Needham and Grohmann, Specialists in Hotel Advertising, New York, N. Y.
- CHARLES MERRICK NEVIN, Ph.D., Professor of Geology.
- MELVIN LORREL NICHOLS, Ph.D., Professor of Chemistry.
- LUTHER MELANCHTHON NOSS, M.Mus., Assistant Professor of Music.
- EDWIN NUNGEZER, Ph.D., Assistant Professor of English.
- WALTER CHRISTOPHER O'CONNELL, Instructor in Physical Education.
- GIFFORD P. ORWEN, Ph.D., Instructor in French.
- WILLIAM PABST, B.S., Chairman of the Department of Applied Electricity, Brooklyn Technical High School, Brooklyn, N. Y.
- FRED B. PAINTER, M.A., Principal of the East District, Ithaca, N. Y.
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- JOHN M. PARKER, III, Ph.D., Instructor in Geology, North Carolina State College, Raleigh, N. C.
- HOWARD C. PERKINS, M.E., Assistant Professor of Mechanics of Engineering.
- LOREN C. PETRY, Ph.D., Professor of Botany and Director of the Summer Session.
- PAUL R. POPE, Ph.D., Professor of German.
- JOSEPH PULLMAN PORTER, M.S.A., Acting Professor of Ornamental Horticulture.
- FRANK HARRISON RANDOLPH, M.E., Professor of Institutional Engineering.
- MICHAEL RAPUANO, Architect, of the firm of Vitale and Geiffert, Gilmore D. Clarke, and Rapuano, Landscape Architects, New York City.
- HAROLD LYLE REED, Ph.D., Professor of Economics and Finance.
- HUGH DANIEL REED, Ph.D., Professor of Zoology.
- KATHERINE REEVES, B.A., Assistant Professor of Home Economics.
- BLANCHARD L. RIDEOUT, Ph.D., Instructor in French.
- EDWARD M. RODEN, B.S., Instructor in Industrial Arts, Eastwood High School, Syracuse, N. Y.
- LOUIS MICHAEL ROEHL, B.S., Professor of Farm Mechanics.
- MABEL ROLLINS, B.S., Instructor in Home Economics.
- FRANÇOIS JACQUES RONGIER, B.-ès-L., Assistant in French, DePauw University, Greencastle, Indiana.
- JOHN BARKER ROSSER, Ph.D., Instructor in Mathematics.
- WILLIAM MERRITT SALE, Ph.D., Assistant Professor of English.
- DWIGHT SANDERSON, Ph.D., Professor of Rural Social Organization.
- MAE E. SCHARLIN, Executive Housekeeper, Hotel TenEyck, Albany, N. Y.
- F. LAURISTON SHARP, M.A., Instructor in Anthropology.
- LESTER WHYLAND SHARP, Ph.D., D.Sc., Professor of Botany.
- MAX ADAMS SHEPARD, Ph.D., Assistant Professor of Government.
- JAMES MORGAN SHERMAN, Ph.D., Professor of Dairy Industry.
- HAROLD ROBERT SMART, Ph.D., Assistant Professor of Philosophy.
- D. F. SMILEY, M.D., Professor of Hygiene and Medical Adviser.
- LUCILLE GRANT SMITH, B.S., Extension Instructor in Floriculture and Ornamental Horticulture.
- EARL COOPER SMITH, M.S., Assistant in Chemistry.
- THEODORE SNOOK, Ph.D., Instructor in Histology, Syracuse University, Syracuse, N. Y.
- WALTER HUTCHINSON STANTON, Ph.D., Assistant Professor of Public Speaking and Assistant Director of the University Theatre.

- CLIFFORD NICKS STARK, Ph.D., Professor of Bacteriology.
 PAULINE WHITSON STARK, M.S., Instructor in Bacteriology.
 CARL STEPHENSON, Ph.D., Professor of History.
 ROLLAND MACLAREN STEWART, Ph.D., Professor of Rural Education.
 EVERETT MILTON STRONG, B.S. in E.E., Assistant Professor of Electrical Engineering.
 DONALD CARL SWENSON, B.S., Restaurant Supervisor, Knott Hotels Corporation, Pittsburgh, Pa.
 EDWARD ANDREWS TENNEY, Ph.D., Assistant Professor of English.
 CHARLES KENNETH THOMAS, Ph.D., Assistant Professor of Public Speaking.
 CHARLES SWAIN THOMAS, Litt.D., Professor in Graduate School of Education, Harvard University, Cambridge, Mass.
 KERSTIN V. THORIN, M.A., Instructor in Physical Education.
 DIRAN HAGAPOS TOMBOULIAN, Ph.D., Instructor in Physics.
 JOEL TRAPIDO, Assistant in Public Speaking.
 HARLAN UPDEGRAFF, Ph.D., LL.D., Educational Consultant, Washington, D. C.
 LEONARD CHURCH URQUHART, C.E., Professor of Structural Engineering.
 EVELYN VAN DUZER, Assistant in Rural Education.
 OSCAR DIEDRICH VON ENGELN, Ph.D., Professor of Physical Geography.
 RUSSELL HALDERMAN WAGNER, Ph.D., Assistant Professor of Public Speaking.
 ROBERT JOHN WALKER, Ph.D., Instructor in Mathematics.
 KENNETH L. WASHBURN, M.F.A., Assistant Professor of Freehand Drawing.
 PAUL JOHN WEAVER, B.A., Professor of Music.
 LUDOLPH F. WELANETZ, M.M.E., Instructor in Mechanical Engineering.
 HARRY PORTER WELD, Ph.D., Professor of Psychology.
 HERBERT AUGUST WICHELNS, Ph.D., Professor of Public Speaking.
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 DELPHA WIESENDANGER, M.S., Extension Instructor in Home Economics.
 JOHN N. WILLMOTT, M.A., Supervisor of Industrial Arts, Garden City, N. Y.
 ANDREW LEON WINSOR, Ph.D., Professor of Rural Education.
 ARTHUR LENSON WOEHLE, Ph.D., Assistant Professor of Speech, Hunter College of the City of New York, New York, N. Y.
 ELIZABETH DOROTHY WORMAN, M.A., Assistant in Public Speaking.
 ALBERT HAZEN WRIGHT, Ph.D., Professor of Zoology.
 FLORENCE WRIGHT, M.S., Extension Assistant Professor of Home Economics.
 FORREST BLYTHE WRIGHT, Ph.D., Assistant Professor of Agricultural Engineering.
 BENJAMIN PERCY YOUNG, Ph.D., Assistant Professor of Zoology.
 MARIETTA ZOLLER, B.S., Assistant in Home Economics.

COURSES OF INSTRUCTION

ARRANGEMENT OF SUBJECTS

Subjects of instruction are grouped into eleven divisions as given in the Table of Contents on page 5.

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.

DRAWING, PAINTING, AND MUSIC

DRAWING: PAINTING: MODELING

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 Dean George Young, Jr., 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 WASHBURN.

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 WASHBURN.

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 WASHBURN.

Study from living model in charcoal. Course S1 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.* Mr. BRAUGHT.

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.* Mr. BRAUGHT.

As in elements of color, students in advanced color work from groups (vases, fruit, flowers) in oil or in water color. Those who have not had elements of color 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.* Mr. BRAUGHT.

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.

S 7. Modeling. Credit two hours. Daily except Sat., 8-10. *Third floor, Franklin.* Assistant Professor WASHBURN.

The work consists of the study of modeling of architectural ornament, the human figure, and portrait, using plaster casts. Advanced students will do original compositions.

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 5a. 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.

S 10a. History of Music. Credit two hours. Daily except Sat., 12. Open to upperclassmen and graduates, and to underclassmen by permission. *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 the Gregorian Chant to the rise of the romantic school of composers (roughly 200 to 1800).

S 10c. History of Music. Credit two hours. M W F, 2-3:30. Open to upperclassmen and graduates, and to underclassmen by permission. *Music Building, 320 Wait Avenue.* Mr. HILL.

A survey of the evolution of the art of music. This part of the course covers the period from Wagner and Brahms on, with special consideration of present idioms and tendencies. Music S 10a and b are not prerequisite for this course.

S 13a. Historical Survey of Orchestral Music. Credit two hours. Daily except Sat., 8. Open to upperclassmen and graduates and to underclassmen by permission. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

An illustrated course giving a survey of orchestral music. This part of the course covers the period through the work of Beethoven.

S 14a. Historical Survey of Violin Music. Credit two hours. Daily except Sat., 11. Open to upperclassmen and graduates and to underclassmen by permission. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

An illustrated course giving a survey of violin music from its beginnings to the present day. Ability to play the violin is not required.

S 60 and S 61. 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 IDA DECK HAIGH.

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 number for which his previous training qualifies him.

Individual instruction is offered in organ under Assistant Professor NOSS, in piano under Mrs. HAIGH, 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 1 or of English 3 in the regular University session, but not of both.

S 1. Composition. Credit two hours. Daily except Sat., 8. *GS 124.* Mr. BALDWIN.

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

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

A study of selections from Shakespeare, Milton, and writers of lyric poetry, intended to acquaint the student with works of the masters of English literature.

S 4. Advanced Composition. Credit two hours. Daily except Sat., 8. *GS 164.* Dr. GUSTAFSON.

Instruction and practice in composition, accompanied by a study of representative English essayists of the nineteenth and twentieth centuries. Emphasis in class discussion on expository forms of writing, though the instructor in conference will offer critical guidance to students interested in other forms.

S 5. Teachers Course. (Education S 33.) Credit two hours. Daily except Sat., 12. *GS 164.* Professor THOMAS.

Designed to present the basic principles that determine growth in expressional skill and the maturing ability to interpret the printed page. Sample topics: the articulation of high school English with grammar school English; remedial reading; the educational values of examinations and objective tests in an English curriculum; the teaching of lyric poetry, the drama, the novel, the short story; the relationship of grammar, composition, and literature. Students will be encouraged to do original writing and to contribute to the oral discussions of topics related to the various phases of English teaching.

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: Oxford Byron, Modern Library Keats and Shelley.

S 8. Modern English Poets. Credit two hours. Daily except Sat., 9. *GS 134.* Professor CLARKE.

The poets to be discussed are Robert Bridges, John Masefield, Walter de la Mare, A. E. Housman, the Sitwells, Yeats and the Irish group. Attention will also be paid to the poetry of the Great War and to present-day trends in English and American poetry.

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 10. **Eighteenth Century Prose.** Credit two hours. Daily except Sat., 12. GS 156. Assistant Professor SALE.

A study of certain aspects of the prose of Defoe, Swift, Fielding, Voltaire, Goldsmith, and Burke.

S 11. **American Literature to the Civil War.** Credit two hours. Daily except Sat., 9. GS 156. Dr. MYERS.

A study of selections from the writings of Irving, Bryant, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Longfellow, Whittier, Holmes, Lowell, and Whitman. Texts: Spiller, *The Roots of National Culture*; McDowell, *The Romantic Triumph*; Whitman, *Leaves of Grass*.

S 15. **Lyric and Narrative Poetry.** Credit two hours. Daily except Sat., 12. GS 162. Assistant Professor TENNEY.

The reading of English poetry, past and present. Text: Blain and Chandler, *Approaches to Poetry*.

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.

Recitations, lectures, collateral reading. The course does not require previous knowledge of Old or Middle English.

S 17. **Modern Drama.** Credit two hours. Daily except Sat., 9. GS 183. 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.

S 19. **Victorian Poets.** Credit two hours. Daily except Sat., 10. GS 160. Professor CLARKE.

The poets who will be given most attention are Tennyson, Arnold and Clough, and Brownings, the Rossettis, Swinburne, Hardy and Kipling.

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 21. **Modern Criticism.** Credit two hours. Daily except Sat., 11. GS 164. Assistant Professor SALE.

A course planned to increase the critical awareness of the student through a study of the method of approach to literature of a few contemporary critics, English and American.

S 24. **Chaucer.** Credit two hours. Daily except Sat., 10. GS 164. Assistant Professor FRENCH.

The Prologue and some of the Canterbury Tales. Text: F. N. Robinson, *Chaucer's Complete Works*.

COURSES EXCLUSIVELY FOR GRADUATES

S 31. **Dramatic Literature.** Credit two hours. First meeting, T, 2:30, GS 160; subsequent hours to be arranged. Dr. MYERS.

A study of tragedy and comedy based on examples from the drama of Greece and France (in translation) and Elizabethan and Restoration England.

S 32. **Elizabethan Literature.** Credit two hours. For graduates only. Daily except Sat., 12. GS 160. Assistant Professor NUNGEZER.

Studies in Elizabethan backgrounds: Erasmus, More, Elyot, Castiglione, Ascham, Wyatt and Surrey.

FRENCH

S 1. **Elementary Course.** Credit four hours. Daily except Sat., 8 and 12. GS 290. Dr. ORWEN. 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. RONGIER. 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. Dr. ORWEN.

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 exercises. This course is conducted in French.

S 29. **Contemporary Thought and Literature in France.** 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. Dr. ORWEN.

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

S 37. **The Theater in the Eighteenth Century.** Credit one hour. M W F 10. GS 283. Dr. ORWEN.

Lectures and readings in the eighteenth century theater, Le Sage, Beaumarchais, Voltaire, Marivaux, Sedaine, Regnard, and others. Class discussions and reports.

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. Grammar, composition, reading, oral training. Credit four hours. Daily except Sat., 8 and 12. *GS 183*. Professor POPE. Entrance credit, one unit.

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. Reading, grammar, composition, oral training. Credit four hours. Daily except Sat., 8 and 12. *GS 177*. Professor BOESCHE. Entrance credit, one unit (third unit).

Prerequisite: two years of high school German or the equivalent.

S 6. Advanced Practical Course in German Grammar. Credit two hours. Daily except Sat., 11. *GS 177*. Professor BOESCHE.

For teachers and advanced students. A presentation of the chief problems of German grammar, such as the auxiliary use of *haben* and *sein*; the use of the subjunctive; moods and tenses in indirect discourse; separable and inseparable verbs; the order of words; the use of cases; etc. Historical explanations of modern conditions will be given but no knowledge of the earlier periods of the German language will be required.

S 8. Goethe. Credit two hours. Daily except Sat., 9. *GS 190*. Professor POPE.

The pre-Weimar period will be studied. This course is supplementary to the "Readings from Goethe" given in 1936.

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*. Professor CAPLAN.

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*. Professor CAPLAN.

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 1937 Summer Session are invited to correspond with Professor CHARLES L. DURHAM, Goldwin Smith Hall, Ithaca, N. Y., con-

cerning 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 and Materials for the First and the Second Year of High-School Latin. Credit two hours. Daily except Sat., 9. *GS 128.* Professor DURHAM.

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. Vulgar Latin and the Development of the Romance Languages. Credit two hours. Daily except Sat., 10. *GS 128.* Professor DURHAM. Primarily for graduate students. Lectures, texts, inscriptions, and documents.

S 3. Seminary. Cicero and Prose Rhythm. For graduate students. Hours and credit to be arranged. *Latin Seminary Room.* 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.

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. THOMAS, *GS 23*; in Rhetoric and Public Speaking, Mr. WAGNER, *GS 237*, or Mr. WICHELNS, *GS 235*.

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

Practice in discussion and in platform speaking, on topics of current interest. Methods of preparation and delivery studied in relation to practice; selected readings on contemporary problems; conferences. Regular students passing the course are admitted to Public Speaking 2. High school teachers will find the methods applicable to their work in public speaking and oral English.

S 2. Argument and Debate. Credit two hours. Daily except Sat., 9. *GS 236.* Assistant Professor WAGNER.

Practice in the composition and delivery of argumentative speeches, and in debate; study of analysis, modes of proof, refutation, speech construction, forms of argument and discussion. Conferences. Debate coaches will find the course of aid in their work.

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

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

S 14. **Current Events and Public Opinion.** Credit two hours. Daily except Sat., 10. *GS* 234. Professor WICHELNS.

Current controversies on American problems studied in the light of modern theories of public discussion, mass persuasion, and opinion control. Lectures and class discussions.

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

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

S 22. **Research.** Credit two hours. Hours as arranged. Professor WICHELNS and Assistant Professor WAGNER.

For graduates qualified to pursue independent investigation in the theory, the history, and the criticism of public address.

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

Designed for secondary school teachers whose work includes oral English or public speaking. Aims and standards; organization of courses; methods and materials; conduct of speech activities. Examination of reports and syllabuses on oral English and public speaking 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 THOMAS.

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

S 32. **Principles of Speech Correction.** Credit 2 hours. Daily except Sat., 10. *GS* 21. Assistant Professor THOMAS.

Methods of improving the speech of substandard speakers, including the foreign born; lectures, discussions, observation and practice in the speech clinic.

Speech Clinic. For students working under the direction of the department. Assistant Professor THOMAS, by appointment.

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. STANTON, *GS* 239, or Mr. WOEHLE, *GS* 244.

Phonetics and Speech Training are listed under Public Speaking.

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

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 Professor WOEHLE and Dr. ALBRIGHT.

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. Dr. ALBRIGHT.

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.* Mr. LEWIS.

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

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. Assistant Professor STANTON.

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

S 90. **Theatre Practice.** Credit one hour. Hours to be arranged. Open by consent of instructor. In charge of Assistant Professor CURVIN, 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 various techniques involved. Four sections:

S 90A. **Stagecraft and Technical Stage Practice.** Mr. LEWIS and Mr. CURVIN.

S 90B. **Stage Lighting.** Mr. STANTON and Mr. TRAPIDO.

S 90C. **Stage Make-up.** Mr. CURVIN.

S 90D. **Stage Costuming.** Miss WORMAN.

The various sections may be taken for credit in successive summers.

Modern Drama. See **English, S 17.**

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

Shakespeare. See **English S 20.**

SPANISH

S 10. **Spanish Literature.** Credit two hours. Daily except Sat., 10. GS 277. Professor DALE.

The Modern Drama of Benavente, Marquina, and Martinez Sierra. Lectures, readings, classroom discussions.

S 30. **Spanish Seminary.** Credit one hour. Hours and room to be arranged. Professor DALE.

Thesis subjects and related material for graduate students.

The following course for beginners in Spanish will be offered if a sufficient number of students apply. Those wishing to enroll must do so by communicating with the Director of the Summer Session before June 25.

S 1. **Course for Beginners.** Credit four hours. Daily except Sat., 8 and 12. GS 277. Professor DALE. Entrance credit, one unit.

Drill in the essential rules of grammar, reading, composition, and pronunciation.

PHILOSOPHY, 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 S1 covers the subject matter usually included under elementary economics. For Cornell students: Course S1 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. Modern Economic Society. Credit four hours. Twice daily except Sat., 11 and 12. *GS 264.* Assistant Professor JOHNSON.

Survey of the existing economic order, its more salient and basic characteristics, and its operation.

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 will prepare the student for a discussion of important current problems such as the future goal of monetary policies, the sterilization of gold inflows, the control of stabilization funds, and the avoidance of unnecessary expansion of banking facilities.

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

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

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 REED.

A study of the financial problems of the business corporation, including the issue and distribution of securities, sinking funds, the maintenance of working capital, the treatment of earnings, methods of reorganization.

This course will satisfy all requirements which otherwise would necessitate taking Economics 31 in the regular sessions.

S 41. Labor Economics, Labor Movements, and Labor Law. Credit two hours. Daily except Sat., 10. *GS 256.* Assistant Professor MONTGOMERY.

An introduction to the more basic problems in the field of Labor Economics and a study of the philosophy, aims, and policies of trade unions and of the legal and constitutional problems arising out of modern labor relations.

S 45. Movements of Economic Protest and Unorthodox Economic Theories. Credit two hours. Daily except Sat., 11. *GS 256.* Assistant Professor MONTGOMERY.

A study of the important movements of social protest, the economic doctrines on which they are based, and the types of economic organization which are thus suggested, including the Utopias, Marxian Socialism, Collectivism, Anarchism, the Single Tax, Syndicalism, Fascism and Communism.

A 115. Prices. Credit three hours. Lectures daily except Sat., 11. *Agricultural Economics 125.* Laboratory, W, 1:40-4:00. *Agricultural Economics 140.* Dr. MURRAY.

An examination of the movements of agricultural and industrial prices. 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.

See also courses in **Farm Management** in the division of **Agriculture**.

GOVERNMENT

S 2a. **Comparative European Government.** Credit two hours. Daily except Sat., 11. *Boardman* B. Assistant Professor SHEPARD.

The government and politics of England, France, Germany, Italy, and Russia.

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 7. **Public Life and the Arts in England, 1558-1660.** Credit two hours. Daily except Sat., 9. *Boardman* D. Professor MARCHAM.

A brief survey of political and governmental affairs in England, together with short studies of literature—chiefly dramatic, architecture, and the fine arts. Lantern lectures will be given in the evenings.

S 8. **Modern England, 1830 to the present.** Credit two hours. Daily except Sat., 11. *Boardman* D. Professor MARCHAM.

A study of the chief changes in the political, economic, and social life of England during the past century.

S 13. **American History. 1830-1860.** Credit two hours. Daily except Sat., 10. *Boardman* D. Professor BRETZ.

A study of the Thirties and Forties with some attention to the approach of the Civil War. Of particular importance will be anti-slavery, expansion, and problems arising from territorial acquisitions. The text used will be Morison and Commager.

S 14. **American History, Westward Expansion, 1750-1830.** Credit two hours. Daily except Sat., 8. *Boardman* D. Professor BRETZ.

A survey of the crossing of the Appalachian barrier and the creation of new states in the Mississippi Valley. The emphasis is upon the social history of the movement, but attention is paid to problems of war and diplomacy connected with northern and southern frontiers and to the more recent literature of the westward movement.

S 21a. **The Age of the Crusades.** Credit two hours. Daily except Sat., 8. *Boardman* C. Professor STEPHENSON.

A general sketch of the political and cultural history of Europe from the eleventh to the thirteenth century. Among the topics discussed will be the following: the contrast between the Christian and Moslem worlds, feudal society, ecclesiastical reform and the advance of the papacy, the revival of commerce and the growth of towns, Christian offensives by land and sea, the new states of Europe, intellectual development and the rise of the universities, vernacular literature, Romanesque and Gothic art.

S 45. **Europe, 1870-1936.** Credit two hours. Daily except Sat., 10. *Boardman* C. Professor ANDREWS.

A general survey of conditions before the World War. In the post-war period the social and political experiments in Russia, Italy and Germany are stressed.

S 46. **The Napoleonic Era.** Credit two hours. Daily except Sat., 12. *Boardman* C. Professor ANDREWS.

A study of the career of Napoleon against the background of the Revolution with emphasis upon his constructive achievements in France and his larger European program.

See also **Education** S 30.

PHILOSOPHY

S 1. **Philosophies of Life.** Credit two hours. Daily except Sat., 11. *GS* 225. Assistant Professor SMART.

A study of some representative theories of human conduct, advanced by philosophers, poets, and others, in relation to current moral, social, and educational problems.

SOCIOLOGY: RURAL SOCIOLOGY

A 1. **General Sociology.** Credit two hours. Daily except Sat., 8. *GS 225.* Dr. SHARP.

A study of racial and cultural origins and cultural evolution, the social development of human personality, and the behavior of social groups.

A 12. **Rural Sociology.** Credit two hours. Daily except Sat., 8. *Agricultural Economics 340.* Professor SANDERSON.

A study of groups, institutions and organizations found in rural society. The structure and function of rural groups are analyzed and attention is given to the processes and results of group action.

A 55. **Social Anthropology.** Credit two hours. Daily except Sat., 9. *GS 225.* Dr. SHARP.

The social anthropology of a number of selected primitive communities, including a study of marriage and the family, associations, social control, economics, and religion.

A 111. **Rural Community Organization.** Credit two hours. Daily except Sat., 11. *Agricultural Economics 302.* Professor SANDERSON.

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 inter-organization cooperation.

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

An outline of social-psychological principles which can serve as a basis for understanding the dynamics of the social behavior of persons and of groups. Application is made to problems of social attitudes, public opinion, and collective behavior in 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.

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 CONFERENCE

Cornell Conference of School Administrators and Pupil Personnel Workers on Assisting the Individual Child. The fourth conference on this general subject will be held August 2-6. It is planned to have special conference groups organized for the following officers: school administrators, attendance officers, health workers, visiting teachers and other social workers, teachers of various types of exceptional children, guidance counsellors, school psychologists and psychiatrists, and the like. Registration fee, \$1.

EDUCATIONAL PSYCHOLOGY

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 134.* Professor FREEMAN.

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. *East Roberts 222.* Professor KRUSE.

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

A 212. **Psychology of Learning.** Credit two hours. M W F, 7:30 to 8:50 a. m. *Stone 309.* Professor KRUSE.

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., 9. *Stone 102.* Dr. GARDNER.

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

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.* Dr. 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 5.) Credit two hours. Daily except Sat., 12. *GS 164.* Professor THOMAS.

Designed to present the basic principles that determine growth in expressional skill and the maturing ability to interpret the printed page. Sample topics: the articulation of high school English with grammar school English; remedial reading; the educational values of examinations and objective tests in an English curriculum; the teaching of lyric poetry, the drama, the novel, the short story; the relationship of grammar, composition, and literature. Students will be encouraged to do original writing and to contribute to the oral discussions of topics related to the various phases of English teaching.

A 107a. **The Teaching of Nature Study or Elementary Science.** Credit two hours. Lectures, M W F, 9. *Fernow 8.* Field and laboratory work, T Th, 9-11:30 or 1:40-4. Miss GORDON and Miss VAN DUZER.

To acquaint teachers with the principles, materials and methods of nature study or elementary science. The biological and physical science commonly found in elementary school programs will be considered through activities in lecture, laboratory and field.

A 122. **Education Through Child Activity.** Credit two hours. Daily except Sat., 8. *Agricultural Economics 225.* Supt. KULP and Mr. PAINTER.

Planned for elementary school teachers who wish to understand the theory, methods, and program of a child activity school. Students will be given an opportunity to plan an activity program for later use in their own classes. Directed observation together with individual and group conferences.

Enrollment limited to 30. Applications for admission should, therefore, be sent to the Director of the Graduate School of Education as early as possible. Membership of the class will be fixed tentatively about June 15.

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.* Supt. KULP, Mr. PAINTER, Miss CADWALLADER, and Miss HULTZ.

So far as facilities permit, Summer Session students will, under certain conditions, be permitted to observe teaching in this field. The group conferences will be held for the purpose of discussing and interpreting the teaching observed. Requests for permission to register for this course should be made to the instructor during the first three days of the Summer Session.

A 127. **Observational Aids.** Credit two hours. Lectures, M W F, 10. *Fernow 8.* Laboratory, W F, 10-12:30 or 1:40-4. Assistant Professor JOHNSON, Miss GORDON and assistants.

A course dealing with methods for collecting, preparing and evaluating materials available as visual or other aids, together with a study of techniques for using such aids effectively. Special emphasis will be given to elementary and secondary school science but the application of methods and techniques to other fields will be permitted.

A 133. **Directed Agricultural Teaching.** Credit one or two hours by arrangement. *Stone 205.* Assistant Professor HOSKINS.

Available only to students in A 134a or A 277, who desire special work in teaching problems.

A 134a. **Adult Education.** Credit two hours. Daily except Sat., 11. *Agricultural Economics* 240. Assistant Professor HOSKINS.

Designed for special teachers and other vocational leaders, desiring to establish programs of adult education.

The consideration of the development, trends, opportunities and problems of adult education, given from the standpoint of special education and more particularly from that of vocational education. Teachers of Home Economics who enroll in this course will have opportunity to discuss with a specialist the adult education problems peculiar to their work.

A 142a. **Organization and Method of Teaching Industrial Arts.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 240. 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 part.

The materials are arranged in three parts, two of which are given in 1937. The third is planned for 1938.

a. Curriculum construction in technical high school courses and in the related technical subjects in industrial high schools. (Not given in 1937.)

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

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.** (Chem. 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* 105. 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 235. **Seminar in Teaching Home Economics.** Credit two hours. Daily except Sat., 9. *Plant Science* 141. Professor MCGINNIS.

This course is planned on a three-session cycle as follows: (a) The Teaching of Social and Family Relationships in Secondary Schools (1937); (b) The Teaching of Home Management in Secondary Schools (1938); (c) The Teaching of Home Planning and Furnishing in Secondary Schools (1939).

Unit a has two purposes: to help teachers to see education for family life as a continuous, unified program throughout the lifetime of the individual and secured from many sources and by varying means; and to assist them in planning and teaching high school courses in family and social relations.

A 236b. **Creative Procedures in the Teaching of Home Economics in the Senior High School.** Credit two hours. Daily except Sat., 8. *Stone* 102. Professor BINZEL.

This course is designed to acquaint teachers with studies, investigations and literature bearing upon the education of girls and boys; to develop intelligent appraisal of home economics programs and teaching procedures, and to engender creative procedures in building and in teaching home economics courses.

A 242a. **Seminar in Industrial Arts Education.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 201. Mr. DECKER.

A list of needed researches will be formulated. Each student will be expected to undertake the development of a study which will be completed in subsequent seminars required for the industrial arts supervisor's license.

A 250. **Seminar in Agricultural Education.** Credit two hours. Daily except Sat., 8. *Plant Science* 40. Professor STEWART, Dr. GETMAN cooperating.

National and state policies in the teaching of vocational agriculture, interpreted in the light of the practices and the new Federal Act.

For other courses designed primarily for teachers, see also **French S 30, Latin S 1, Public Speaking S 28, S 30, S 31, Mathematics S 20, Agricultural Engineering A 41, A 44a, b, c, d, and A 240.**

PREPARATION OF TEACHERS IN NORMAL SCHOOLS AND COLLEGES

A 245. **College Preparation of Teachers of Agriculture for Departments in Secondary Schools.** Credit two hours. Daily except Sat., 10. *Agricultural Economics* 240. Professor STEWART.

A study of the organization and conduct of curriculums utilized in the education of prospective teachers of agriculture for departments of vocational agriculture.

A 248. **The Preparation of Teachers of Home Economics for Secondary Schools.** Credit two hours. Daily except Sat., 11. *Plant Science* 141. Professor BINZEL.

This course is designed to meet the needs of persons who have had both technical preparation in home economics and teaching experience, and who desire to prepare for the special problems involved in the professional work of preparing teachers of home economics for secondary schools.

ADMINISTRATION, SUPERVISION, AND CURRICULUM

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: I. Organization and Management of the Building, 1937; II. The Teaching Staff, 1938; III. The Pupil; and the Public, 1939.

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* 227. 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.

S 23. **The Administration of the Elementary School.** Credit two hours. Daily except Sat., 11. *Plant Science* 143. Supt. KULP.

A consideration of problems in the administration of an elementary school. Intended primarily for persons seeking elementary principal's certificate.

A 242b. **Supervision of Industrial Arts Education.** Credit two hours. Daily except Sat., 10. *Stone* 309. Mr. DECKER.

A comprehensive survey of the major problems and issues in supervision of the secondary industrial arts program. Emphasis will be placed on the application of principles of supervision to actual classroom situations.

A 243. **Problems in the Administration of Industrial and Technical High Schools.** Credit two hours. Daily except Sat., 11. *Plant Science* 40. Dr. EMERSON.

A study of the administrative responsibilities of the department head, assistant principal, administrative assistant and principal of an industrial or technical high school.

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. In both, opportunity for practice is provided in the Ithaca High School.

A 243c. **Problems in Industrial and Technical Education.** Credit two hours. Daily except Sat., 8. *East Roberts* 223. Mr. BIRD.

Objectives of technical high school and industrial high school courses. Selection, promotion, transfer, placement and follow-up of pupils. State and federal regulations. Planning of courses.

A 249. **Seminar in Home Economics Education.** Credit two hours. Daily except Sat., 12. *East Roberts* 223. Professor MCGINNIS.

This course is planned on a three-session cycle as follows: (a) Evaluation of Home Economics Education (1937); (b) Service and Research Studies (1938); (c) Curriculum Development and Building in Home Economics Education (1939).

Unit b is required of all graduate students majoring in Home Economics Education. Students are urged to survey their own needs and interests and to be prepared to present problems for service or research study.

A 261. **The Administration of Rural Schools.** Credit two hours. Daily except Sat., 8. *Agricultural Economics* 125. 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 262a. **The Business Administration of the School System.** Credit two hours. Daily except Sat., 8. *Plant Science* 141. Dr. UPDEGRAFF.

A critical study, from the point of view of educational and social needs and the principles of scientific management and political science, of current practices in: the purchase and the use of materials and services; the classification of school costs; the calculation and the use of unit costs; cost accounting; the preparation and the administration of the budget; bonding; school tax management; and similar matters. Prerequisite, a general course in educational administration.

A 262h. **State and Federal Financial Policies in Education.** Credit two hours. M W F, 11-12:30. *Stone* 102. Dr. UPDEGRAFF

A seminar dealing with prevailing practices and current proposals for promoting education through the financial assistance of state and federal governments. Prerequisite: at least a general course in educational administration and the approval of the instructor.

S 263. **Procedures and Techniques in Supervision.** Credit two hours. Daily except Sat., 11. *GS* 142. 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* 325. 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 267d. **Vocational Education in New York State.** Credit two hours. Daily except Sat., 9. *Stone* 309. Mr. BIRD.

A more advanced course than 267c, covering all types of vocational industrial schools and classes in operation in New York State, including elementary industrial, trade, technical, apprentice, trade extension, part-time and arts and crafts.

S 276. **Principles of Curriculum Building.** Credit two hours. Daily except Sat., 12. *Agricultural Economics* 125. Professor FERRISS.

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 276b. **Practicum in the Secondary School Curriculum.** Credit two hours. M W F, 2-3:30. *Stone* 102. Mr. LINTON.

Designed to give students insight into the more recent practices and techniques of constructing curriculums and courses of study on the secondary school levels. Techniques and problems common to the selection and organization of content in most or all the important subject-matter fields will receive attention. Practice in building courses of study in particular subject-matter fields or fusions of fields will be a major phase of the work.

Students must have as a prerequisite a course in the theory of curriculum building, as S 276 or an equivalent.

A 277. **Vocational Courses of Study in Agriculture.** Credit two hours. Daily except Sat., 9. *East Roberts* 223. Assistant Professor HOSKINS.

A study of the making of vocational courses in agriculture for secondary schools, in correlation with planning the long-time supervised practice programs.

GUIDANCE

A 28a. **Educational and Vocational Guidance.** Credit two hours. Daily except Sat., 11. *Agricultural Economics* 225. Mr. LINTON.

A study of the theory and practice of educational and vocational guidance in secondary schools; procedures and techniques in the adjustment of pupils to educational and vocational surroundings; community resources useful in guidance and methods of utilizing them; guidance functions of teachers.

This course is intended primarily for teachers having some responsibility for participating in the guidance program of the secondary school. It is suggested that, if possible, principals postpone this course until 1938, when a special section for administrative officers will be offered.

A 31. **Studies in Educational and Occupational Opportunities.** Credit four hours. Daily except Sat., 1:30-3:00. *Plant Science* 40. Dr. EMERSON.

Prerequisite, A 28 or 28a or equivalent.

Organization of educational and occupational information for use in counseling with students; occupational trends; opportunities and requirements of occupations, sources of information; procedures and techniques in presenting such information.

Students should arrange their schedules to permit field visits on Tuesday and Thursday afternoons to representative industries in Ithaca and nearby cities.

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

A 6. **Philosophy of Education.** Credit two hours. Daily except Sat., 9. *GS 242.* Professor EATON.

A course intended for graduate students who are well advanced in knowledge of school practice and the technical aspects, at least, of education. The course deals with the background of ethical theory from which every justifiable undertaking of education must derive its moral sanction. That background is examined briefly in the light of three conceptions of the nature of man and his life: the biological, the spiritual, and the social. Endeavor will be made to take as the points of departure and of summation in discussion existent problems of the school administrator and the teacher.

A 13. **History of Education.** Credit two hours. Daily except Sat., 8. *GS 142.* Mr. LANDÉ.

A study in the history of educational ideas and institutions in late medieval and modern times; the general cultural and sociological conditions underlying education during this period. 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 hours to be arranged. *Stone 309.* Professor EATON.

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 281a. **The Newer Interpretations of Secondary Education.** Credit two hours. Twice daily except Sat., July 12-23. First meeting, M, 9. *Agricultural Economics 101.* Professor FERRISS.

This course is designed to consider the more recent trends in the theory and practice of secondary education in the United States and their bearing upon the smaller secondary schools. Among the topics considered will be: the philosophy and objectives of secondary education and important issues involved; the reorganization of secondary schools; the program of studies, curriculums, and instructional materials; pupil activities; pupil accounting and guidance; teaching procedures; community adaptations, etc.

A unit course planned primarily for district superintendents of New York State. Not open to students enrolled in the regular summer session.

A 295. **Comparative Education.** Credit two hours. Daily except Sat., 10. *Stone 102.* Mr. LANDÉ.

A course offering a general survey on the educational ideas, tendencies, and institutions in England, France, Germany, Italy, and Russia; interpretation of European education on the background of the cultural, sociological, and political conditions of these countries; a comparison of American and European educational tendencies.

GENERAL

A 238. **Economics and the School.** Credit two hours. Lectures daily except Sat., 9. *Agricultural Economics 225.* Assistant Professor KENDRICK.

A study of economic problems especially related to the provision of financial support for the public schools.

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, page 77.

HEALTH EDUCATION

S 1. **The School Health Program.** Credit two hours. Daily except Sat., 9. *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., 11. *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 12. **Gymnastics and Body Mechanics.** Credit one hour. Daily except Sat., 12. *Sage Gymnasium.* Miss THORIN.

Practice in gymnastics in accordance with Swedish, Danish, Finnish, and modern German methods. A study of faulty postures with lectures and practice in examinations, measurements, and efficiency tests of children and adults.

S 13. **Leadership in Community Recreation Programs.** Credit one hour. Daily except Sat., 11. *Sage Gymnasium.* Miss THORIN.

This course includes a study of the need, nature, function, and development of recreation programs. Special consideration is given to the contributions of Physical Education to community recreation and the functions of directors, supervisors, and teachers of Physical Education in organizing and administering recreation programs.

S 14. **Folk and Tap Dancing.** Credit one hour. Daily except Sat., 2:30. *Sage Gymnasium.* Miss THORIN.

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

S 15. **The Modern Dance.** Credit one hour. Daily except Sat., 3:15. *Sage Gymnasium.* Miss THORIN.

Fundamentals of bodily movements, relation of music to the dance, the study of rhythm, educational aspects of the dance.

S 16. **Swimming.** No credit. Hours to be arranged. The new pool in the *Old Armory.* (Women) Miss THORIN and assistants. (Men) Mr. O'CONNELL. 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. *Balch 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 Th, 7:15 p.m., *Recreation Room, Willard Straight Hall.*

Tournaments and other recreational activities. Tennis tournaments will be arranged by the Department of Physical Education. Instruction in Badminton, Deck Tennis, and Volley Ball daily at one o'clock. For further information consult Sage Gymnasium office.

A nominal fee of ten cents per period will be charged for the use of the tennis courts. (12 play periods for \$1.00.)

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. Professor CLAASSEN.

Designed to acquaint the general student and the prospective teacher with the main ideas of biology through selected practical studies of the phenomena on which biological principles are based. Lectures, demonstrations, laboratory work, and field trips include studies of such simpler organisms as protozoa, algae, fungi, and bacteria, followed by studies of the more highly specialized forms of plant and animal life. 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. LAUBEN-GAYER.

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 Dr. PALMQUIST.

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 2. **Plant Physiology.** Credit four hours. Equivalent to Botany 31. Prerequisite, course A1 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 3. Taxonomy of Vascular Plants. Credit four hours. Equivalent to Botany 117. 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 4. Comparative Morphology of Fungi. Credit four hours. Equivalent to Plant Pathology 121. Prerequisite, course A 1 or its equivalent 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 6. Cytology. Credit three hours. Prerequisite course A 1 or a course in general zoology or their equivalent and permission to register. Laboratory, M T Th F, 9-12:30, usually with a lecture at 9. *Plant Science* 219. Professor SHARP.

A course for those who have had some fundamental work in biology. The principal topics studied are protoplasm, cells and their components, nuclear and cell divisions, meiosis and fertilization, together with their bearing on the problems of development, reproduction, and heredity. Both plant and animal materials are used. Microtechnique is not included. Laboratory fee, \$5.

A 7. Mycology. Credit four hours. Prerequisite courses A1 and A4 or their equivalent and permission to register. Lectures or conferences, T Th, by arrangement. 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, Fungi Imperfecti, and Myxomycetes. 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 1937 Summer Session, group (3) Basidiomycetes, will be given. Laboratory fee, \$6; deposit, \$3.

A 8. Morphology of Vascular Plants. Credit four hours. Prerequisite, course A 1 or an equivalent and permission to register. Laboratory, M T Th F, 8-12. Hours for lectures to be arranged within these periods. *Plant Science* 228. Professor EAMES.

An advanced course in the comparative morphology and phylogeny of vascular plants. Laboratory fee, \$5.

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. Mr. MAGUIRE.

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 31. Other trips will be arranged. Laboratory fee, \$1.50; deposit, \$3.

A 19. **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 30. **General Entomology.** Credit three hours. Equivalent to Animal Biology 12 or Entomology 12. Prerequisite, Biology 1 or Zoology 1 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 31. **Elementary Morphology of Insects.** Credit three hours. Equivalent to Entomology 21. Twenty actual hours a week, by appointment. *Comstock* 270. Professor JOHANNSEN.

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.

A 32. **Elementary Systematic Entomology.** Credit two or three hours. Prerequisite, courses A 30, A 31, 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 JOHANNSEN.

(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 JOHANNSEN and MATHESON.

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

A 34. **Advanced Morphology, Histology, and Embryology of Insects.** Credit one hour. Prerequisite, courses A 31 and A 30 or A 32 or equivalent. M W F, 8. Lectures, assigned reading, and reports. *Comstock* 145. Professor JOHANNSEN.

This course will be given if four or more students register for it. In the summer of 1937 it will deal with the morphology and histology of insects.

A 35. **Histology of Insects.** Credit two hours. Must be preceded or accompanied by course A 31. Laboratory, fifteen actual hours a week, by appointment. *Comstock* 270. Professor JOHANNSEN.

Technique in histological methods as applied to insects. Laboratory fee, \$3.

B 39. **Special Problems with Animals.** Credit two or more hours. For description, see under **Zoology**.

GENETICS

A 40. **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 26. **Histology.** Credit four hours. No prerequisite, but previous work in biology, zoology, and botany or physiology is recommended. Lectures, daily except Sat., 12. The laboratory will be open every morning except Saturday. *Stimson*. Dr. 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 26a. **The Organs.** Credit four hours. Opportunity will be afforded a limited number of students for a laboratory study of the histology of the organs. Mornings except Sat. *Stimson*. Professor KINGSBURY. Laboratory fee, \$6.

S 27. **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. The laboratory will be open every morning except Saturday. Professor KINGSBURY and assistants.

For students of biology or those preparing for medicine. Preparation and study of embryological specimens from all the chief groups of vertebrates. Particular 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 Mr. 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 Mr. 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 Mr. 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 1a. **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 4. **Comparative Morphology of Fungi.** Credit four hours. For description, see under **Botany**.

A 7. **Mycology.** Credit four hours. For description, see under **Botany**.

PSYCHOLOGY

S 1. **Elementary Psychology.** Credit two hours. Lectures and recitations, daily except Sat., 9. *GS C.* Professor WELD.

A general introduction to the psychological study of man from the experimental point of view. The course opens with a brief discussion of the nature of psychology, of the problems which psychology is called upon to face, and of the methods at its disposal for their solution. It then sets forth in order the facts and principles of psychological functioning. Textbook: Boring, Langfeld, and Weld, *Psychology; a factual textbook*.

S 2. **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, the concept of the antisocial personality, juvenile delinquency, and the criminal.

S 16. **Applications of Psychology.** Credit two hours. Lectures, recitations, and readings, daily except Sat., 8. *Morrill* 59. Professor DALLENBACH.

A general review of the experimental and statistical evidence dealing with the applications of psychological methods and facts to problems in business and industry. Topics to be considered will include personnel, industrial selection, advertising and selling, and market research. Textbook: Jenkins, *Psychology in Business and Industry*.

S 21. **Attention.** Credit two hours. Daily except Sat., 10. *Morrill* 59. Professor DALLENBACH.

In this course the application of attention to advertising, to hypnosis, to testimony, to efficiency, and to learning, will receive special emphasis. The applica-

tion will, however, be made only after the student has been grounded in the elementary facts and laws of attention. The development, the conditions, the kinds, and the levels of attention will first be considered; then the experimental investigations will be reviewed; and thereafter the practical considerations will be taken up.

Demonstrations and class-experiments will be used frequently for illustration. No textbook will be prescribed, but the lectures will be supplemented by assigned readings in standard works.

S 22. Psychology of Primitive and Civilized Magic. Credit two hours. Lectures, readings, and recitations, daily except Sat., 11. *Morrill* 59. Professor BENTLEY.

An account of magical views about life, destiny, disease, prophesy, and super-human abilities and skills. A distinction will be made between that which is reasonable and authentic and that which is irrational and superstitious.

ZOOLOGY

S 20a. Introductory Zoology. Credit three hours. Lectures, daily except Sat., 9. *McGraw* 203. Laboratory, first, third, and fifth weeks, M W F 1:40-4; second, fourth, and sixth weeks, M W, 1:40-4. *McGraw* 104. Professor REED and Dr. MEKEEL.

The scope, objective, and principles of animal biology based upon a study of the structural and physiological organization of an animal type viewed from the standpoint of the organism as a biological unit. Also an introduction to the basic phenomena of reproduction, development, heredity, and evolution. Laboratory fee, \$2.50.

This course is the equivalent of the first term of Zoology I as given during the academic year.

S 20b. Intermediate Zoology. Credit three hours. Lectures, daily except Sat., 10. *McGraw* 203. Laboratory, first, third, and fifth weeks, T Th 1:40-4; second, fourth, and sixth weeks, T Th F, 1:40-4. *McGraw* 104. Professor REED and Dr. MEKEEL.

A study of the groups of animals, stressing the pathway of descent and the critical epochs thereof, kinships, classification, adaptations, behavior, the zoology of the human species, and the unity of animal life. Laboratory fee, \$2.50. Courses S 20a and S 20b may be taken simultaneously for six hours credit.

This is the equivalent of the second term of Zoology I as given during the academic year.

A 21. 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 North-eastern United States*, new edition. Laboratory fee, \$4.50.

[S 22a. **Invertebrate Zoology.** Credit four hours. Prerequisite, S 20 or an equivalent and permission to register. The following phyla of animals are included: Protozoa, Porifera, Coelenterata, Platyhelminthes, Nemertea, Nematelminthes, Trochelminthes, Bryozoa and Brachiopoda. To be offered in alternate summers with S 22b. Not given in 1937.]

S 22b. **Invertebrate Zoology.** Credit four hours. Prerequisite S 20 or an equivalent and permission to register. Daily except Sat., 9-12:20. *McGraw* 102. Lectures, field trips, laboratory work, and discussions will be arranged during these periods. Animals belonging to the following phyla will furnish the subject

matter: Echinodermata, Annelida, Arthropoda, Mollusca, and the prochordate subphyla. To be offered in alternate summers with S 22a. Assistant Professor YOUNG.

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 23. **Vertebrate Zoology and Comparative Anatomy.** Not given in 1937.]

B. 39. **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 fields 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 Monday, 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. PARKER.

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. PARKER.

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, Taughannock; 7, Niagara; 8, Northern Pennsylvania; and 9, Watkins Glen.

Meeting place and time announced in mimeographed outlines or by bulletin. Meet for first excursion, Monday, July 12, 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 12.

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 19.

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 26.

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. Enfield is perhaps the most picturesque of the gorges in the Cornell region. August 2.

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 9.

All-day Excursions

6. **Taughannock Gorge and Falls.** By bus. Secure tickets in advance. To study the upland physiography of the region, especially the Portage escarpment, and the deep gorge and falls of Taughannock, one of the highest straight falls east of the Rockies. Luncheon at the foot of the falls. July 17.

7. **Niagara Falls and Gorge.** By train and bus. Tickets in advance. Physiography of northwestern New York; physiography and geology of Niagara Falls and Niagara Gorge. July 25.

8. **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 Pennsylvanian. An exceptionally fine scenic trip over the Roosevelt Highway through southern New York and northern Pennsylvania. July 31.

9. **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. August 7.

FIELD COURSE

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 20 to July 31. Six hours of college credit are given upon successful completion of the course. Fixed expenses, including the regular tuition fee of \$50, 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 1. **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 2. 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 3. 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.

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* 330. 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 first three weeks with course S 1. Laboratory T Th, 2-4, 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* 330. 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.

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 the 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.

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

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.

S 101. General Chemistry. Credit three hours. Lectures, daily except Sat., 8, and M W, 9. *Main Lecture Room*. Professor BROWNE 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. Chemistry S 101 and S 105 must be taken simultaneously unless permission is obtained from the Department of Chemistry to take either course alone.

S 105. General Chemistry. Credit three hours. Recitations and laboratory practice.

Laboratory, daily except Sat., 10-1. *Rooms 177 and 150*. Professor BROWNE and Dr. FRIERSON. A series of experiments designed to illustrate the fundamental laws of chemistry and to acquaint the student with the properties of the principal elements and their compounds.

Recitations, T Th F, 9. *Room 22*. Professor BROWNE. 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. Deposit, \$20.

S 106b. General Chemistry. Lectures, recitations, and laboratory practice. Given the last three weeks of the Summer Session at hours to be arranged. This course is limited to students from the College of Engineering of Cornell University, who have completed course 106a. Professor BROWNE and assistants.

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. DIEHL.

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. DIEHL.

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. DIEHL.

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. DIEHL.

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. DIEHL.

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. SMITH.

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. Dr. BRUCE.

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. Dr. BRUCE.

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. Dr. BRUCE.

A shorter course in organic chemistry, designed for students in home-economics, pre-medical, biological, and agricultural curriculums. Credit four hours for lectures and written reviews. Laboratory practice. Credit one or two hours. Hours to be arranged in the mornings. Room 250. Fee variable.

S 405. Introductory Physical Chemistry.

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

A systematic presentation of modern chemical theory. The subject matter includes: gases, liquids, and solids; chemical equilibrium in homogeneous and heterogeneous systems; the phase rule and its applications; the theory of solution; the elements of thermochemistry and thermodynamics.

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

A continuation of Part A. The subject matter includes the theory of solution; ionic equilibria; reaction velocity and catalysis; elementary electrochemistry; the application of the phase rule to systems of two and three components.

S 410. **Physical Chemistry Laboratory.**

A. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor KIRKWOOD and Mr. HOYT. Open only to those who have taken or are taking course S 405 A 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.* Assistant Professor KIRKWOOD 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. Assistant Professor KIRKWOOD 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 _____.

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 practice. 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 1937-38.

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, 8. *White 2.* Assistant Professor JONES. (Office hour, 10, *White 4.*)

S 2. **College Algebra.** Credit three hours. Daily, 11. *White 1.* Assistant Professor LAWRENCE. (Office hour, 10, *White 3.*)

S 3. **Trigonometry.** Credit three hours. Daily, 10. *White 6.* Assistant Professor AGNEW. (Office hour, 9, *White 8.*)

S 5a. **Analytic Geometry and the Calculus.** (First term's work.) Credit five hours. Daily, 8 and 11. *White 24.* Dr. WALKER. (Office hour, 10, *White 26A.*)

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 5.* Dr. ROSSER. (Office hour, 10, *White 3.*)

S 20. **Teachers' Course.** Credit two hours. Daily except Sat., 9. *White 10.* Professor CARVER and Assistant Professor HULSE. (Office hours, Professor CARVER, 8, *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.

ADVANCED COURSES

S 24. **Theory of Equations.** Credit three hours. Daily, 11. *White 2.* Assistant Professor JONES. (Office hour, 10, *White 4.*)

Solutions of the cubic and quartic; constructions with ruler and compasses; symmetric functions; determinants and eliminants. Textbook: Dickson's *First Course in the Theory of Equations.*

S 41. **Elementary Differential Equations.** Credit three hours. Daily, 8. *White 6.* Assistant Professor AGNEW. (Office hour, 9, *White 8.*)

A first course in the solution and interpretation of ordinary and partial differential equations; knowledge of the calculus is presupposed.

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 61. **Projective Geometry.** Credit three hours. Daily, 10. *White 10.* Professor CARVER. (Office hour, 8, *White 12.*)

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

Homogeneous point-coordinates and line-coordinates will be defined for a

plane, and projective properties of plane figures will be studied by means of these coordinate systems.

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

Demonstration Lectures. A series of experimental demonstrations covering the entire field of physics. Little time will be spent on the development of the related theory, this being left for the classroom work of Courses S 3-S 12, of which these lectures are a part. Teachers may find in these demonstrations valuable suggestions for their own work.

Mechanics, sound, and heat, T Th S, 11; *Rockefeller A*; magnetism, electricity, and light, M W F, 10; *Rockefeller B*.

S 3. Introductory Experimental Physics. Credit three hours. Demonstration lectures, recitations, and laboratory work covering mechanics, sound, and heat.

Lectures, T Th S, 11, *Rockefeller A*. Recitations, M W F, 11; written quiz, S 9, *Rockefeller 103*. Assistant Professor HOWE.

Laboratory open daily except Sat., 1:40-4:00. *Rockefeller 252*. Fourteen experiments will be performed. Dr. TOMBOULIAN. Laboratory fee, \$5.00.

S 4. Introductory Experimental Physics. Credit three hours. Demonstration lectures, recitations, and laboratory work covering magnetism, electricity, and light. Course S 4 must be accompanied by course S 3 or preceded by a study of mechanics in high school or college.

Lectures, M W F, 10. *Rockefeller B*. Recitations, T Th S, 10; written quiz, Th, 12. *Rockefeller 103*. Professor GRANTHAM.

Laboratory open daily except Sat., 1:40-4:00. *Rockefeller 252*. Fourteen experiments will be performed. Dr. TOMBOULIAN. Laboratory fee, \$5.00.

S 11. Introductory Experimental Physics. Credit four hours. Prerequisite trigonometry. Course S 3 and a computing period, F, 1:40-4:00. *Rockefeller 234*. Professor GRANTHAM.

S 12. Introductory Experimental Physics. Credit four hours. Prerequisite trigonometry. Course S 4 and a computing period, F, 1:40-4:00. *Rockefeller 234*. Professor GRANTHAM.

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, 11, and Sat., 8. *Rockefeller 103*. 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. Extensive practice in the applications of these to the solution of physical problems will be provided. Stress will also necessarily be laid upon a thorough understanding of the numerous physical principles treated. 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, Physics S 3, S 4 and Mathematics S 3 or the equivalent. Those not acquainted with the calculus should take S 70 simultaneously with S 72. Daily except Sat., 8. *Rockefeller* 109. Professor MURDOCK.

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

S 75. **Electricity and Magnetism.** Credit three hours. Prerequisites, Physics S 3, S 4 and Mathematics S 3 or the equivalent. Those not acquainted with the calculus should take S 70 simultaneously with S 75. Daily, 9, and Sat., 10. *Rockefeller* 104. Professor KENNARD.

The fundamentals of electrostatics, magnetostatics and electromagnetism and a study of direct and alternating current phenomena including electrical oscillations.

[S 76. **Electrical Conduction and Related Phenomena.** Credit two hours. Prerequisites the same as in Physics S 75. Not given in 1937, planned for 1938.]

S 81. **Significant Developments in Physics during the Period 1895-1937.** Credit two hours. Prerequisite, a second year course in college physics or simultaneous registration in such a course. Daily except Sat., 10. *Rockefeller* 109. Assistant Professor LIVINGSTON.

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 Saturday from 1:40-4:00, *Rockefeller* 301. Professor MURDOCK and Dr. CADY. Laboratory fee, \$5.00 for each laboratory credit hour.

The experiments will be chosen to meet the needs and previous experience of the student. For those students of less experience the emphasis will be placed on physical principles and a wide range of topics 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. These students will work independently on a group of experiments selected to meet their individual requirements. Such experiments as the following may be performed: measurement of the ionization potential of vapors, charge on the electron, ratio of charge to mass of the electron, ratio of charge to mass of ions, the study of photoelectric and thermionic emission, high vacuum technique, vacuum tube characteristics, resonance of high frequency circuits, x-ray determination of crystal structure, x-ray spectra, optical spectroscopy, physical optics.

S 90. **The Teaching of Physics in Secondary Schools.** (Education S 226b.) Credit two hours. Lectures and discussions. Daily except Sat., 9. *Rockefeller* 105. Assistant Professors HOWE and MOOSE.

Prerequisite, 12 hours of college physics or permission of 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.

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 other 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.

S 340. Magnetism. Credit two hours. Prerequisites, thorough general courses in physics and calculus. Daily except Sat., 12. *Rockefeller C.* Associate Professor BITTER.

The production of magnetic fields. Energy relations. Para- and dia-magnetism. Ferromagnetism: theory of spontaneous magnetization, applications to alloys, magnetic symmetry of crystals, magnetostriction, electrical effects, commercial and other special materials, magnetism as a tool for studying metals.

S 350. Seminar on Ferromagnetism. Credit one hour. Two or three meetings each week at hours to be arranged. Associate Professor BITTER.

Discussions of papers on various aspects of ferromagnetism, including a statistical approach to cooperative phenomena in general.

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 Mr. MICHAEL RAPUANO, of the firm of Vitale and Geffert, Gilmore D. Clarke, and Rapuano, Landscape Architects, New York City, 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.

Additional courses in Structural Engineering and courses in Hydraulics may be arranged to meet the needs of graduate students.

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, Fri., 1:40 to 4. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. *West Sibley* 308. Assistant Professor PERKINS and Mr. WELANETZ.

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* 307. Mr. WELANETZ.

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

EXPERIMENTAL MECHANICAL ENGINEERING

S 3X21. **Materials of Engineering.** Credit three hours. Enrollment limited to 35. Lectures, M W F, 8, and daily except Sat., 9. *West Sibley* I. Prerequisite, General Chemistry 106 a and b or the equivalent. Professor DAVIS and Mr. 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. Enrollment limited to 32. Lectures daily except Sat., 10-12. Laboratory, daily except Sat., 1:40 to 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 Messrs. 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, 10:30-12:50. *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 274. **Bridge Design.** Credit three hours. Computation and drawing, daily, 10:30-12:50. 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, courses 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 281. **Foundations.** Credit three hours. Daily except Sat., 8. Prerequisite, courses 220 and 221. Recitations, collateral reading in engineering periodicals, and illustrated reports. Professor URQUHART.

Piles and pile driving, including timber, concrete, tubular, and sheet piles; cofferdams; box and open caissons; pneumatic caissons for bridges and buildings, caisson sinking, and physiological effects of compressed air; pier foundations in open wells; freezing process; hydraulic caissons; ordinary bridge piers; cylinders and pivot piers; bridge abutments; spread footings for building foundations; underpinning buildings; subterranean explorations; unit loads. Text: Jacoby and Davis, *Foundations of Bridges and Buildings*.

S 285. **Reinforced Concrete Design.** Credit three hours. Daily except Sat., 10:30-12. Prerequisite, course 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.

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, Assistant Professor HANSELMAN, and Mr. MILLARD

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, Assistant Professor HANSELMAN, and Mr. MILLARD.

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 5, or consult the Index at the end of this announcement.

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A 102. **Farm Management.** Credit three hours. Lectures, daily except Sat., 9. *Agricultural Economics 125.* Laboratory, T Th, 1:40-4. *Agricultural Economics 140.* Assistant Professor CUNNINGHAM.

Farming as a business; types of farming; size of business; balance of business; rates of production; farm layout; building arrangement; machinery; buying and selling; ways of starting to farm; forms of tenure and leases; choosing and buying a farm; use of capital and credit; planning, organization, and management of specific farms. Fee for materials, \$2.

A 115. **Prices.** Credit three hours. Lectures, daily except Sat., 11. *Agricultural Economics 125.* Laboratory, W, 1:40-4. *Agricultural Economics 140.* Dr. MURRAY.

An examination of the movements of agricultural and industrial prices. 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 238. **Economics and the School.** Credit two hours. Lectures, daily except Sat., 9. *Agricultural Economics 225.* Assistant Professor KENDRICK.

A study of economic problems especially related to the provision of financial support for the public schools.

See also courses in **Economics** in the division of **Philosophy, History**, etc.

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 5-16. 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 19-30. 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 2-13. 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.

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. United 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 5-16. A study of the care, repair and operation of plows, cultivators, and other tillage machinery, with the emphasis on practical repair and maintenance.

Unit 2. July 19-30. A study of the care, repair and operation of mowers, binders, and other harvesting machinery with the emphasis on practical repair and maintenance.

Unit 3. August 2-13. A study of the care, repair and operation of planters, drills, and other seeding machinery, with the emphasis on practical repair and maintenance.

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 and Mr. RODEN.

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. *Junior High School Laboratory 102.* Mr. RODEN.

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. BECKER.

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. BECKER and 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 19-30. 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 2-13. 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.

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.

The culture and use of plants suitable for window gardening and for outdoor home gardening. 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, \$3.

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 recognize 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 6 and 7 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 9 and 30.

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.

FORESTRY

A 4. **Forests and Forestry.** Credit two hours. Lectures daily except Sat., 8. *Fernow* 122. Professor HOSMER.

This course is designed to meet the requirements of those who wish an elementary knowledge of forestry. Topics to be considered: the nature and scope of forestry; the economic importance of forests to the nation, including the influence of forests on streamflow and the relation of the forest to recreation and to wild life conservation; brief description of the forest regions of the United States; the forest as a biological unit; methods employed in the care and perpetuation of forests; the present status of Federal, state and private forestry.

This course should be helpful to teachers in secondary schools whose syllabuses in Biology, Civics, Economics, Physical Geography, and General Science include forestry topics.

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. Household Management in Relation to Family Living. Credit three hours. Discussions, laboratory, and field trips, T Th, 2-5, Sat., 8-10:30. Room G-19. Assistant Professor CUSHMAN and Miss WIESENDANGER.

This course is for teachers, extension workers, social workers, and homemakers who wish to study methods of work, arrangement of work centers, and selection and use of equipment and materials in relation to the satisfaction of the family and economy in the home. Group conferences in homes and in community halls; tours to improved kitchens and other work centers; experiments with portable walls and equipment in planning work centers; and other types of home, community, and laboratory demonstrations will be included. In this course, household management is approached from the viewpoint of the activities of the members of the family, and the relation between good home management and wholesome community life. Students will be given help in assembling illustrative material to meet their needs. Fee, \$3.50. Field trips, approximately \$4 in addition to the fee.

Trip to New York City. One week, the time to be determined. Assistant Professor CUSHMAN and Miss ROLLINS.

For students registering for E 112 and E 160 a one-week trip to New York City will be arranged which will include visits to stores, homes, community centers, schools, testing laboratories, manufacturing plants, kitchen planning centers, markets, and the like. Students registering for E 112 and E 160 who do not wish to join this tour may continue these courses at the College. The cost of this trip will be approximately \$25.

E 160. Marketing Problem from the Consumer's Viewpoint. Credit two or three hours. Discussions and laboratory, M W F, 2-4. Extra hours to be arranged for those taking the course for three hours of credit. Room 121. Miss ROLLINS.

This course is planned to help teachers, extension workers, and others to gain an understanding of consumers' buying problems in the present marketing system. Consideration will be given to evaluation of certain merchandising practices, effects of consumers' buying practices on marketing costs and policies, laws and regulations now in effect, and those which have been proposed which concern the consumer buyer. Time will be spent in helping students analyze situations in their local schools and communities, in evaluating sources of information, and in assembling illustrative material. Those students not participating in the trip to New York City described under E 112 will continue their work at the College. Fee, \$2.

FAMILY LIFE

E 101. Principles in Behavior and Guidance. Elementary course. Credit two hours. Prerequisite or parallel, a course in psychology of childhood and adolescence. Lecture-discussions, M W F, 3-4:30. Room 124. Nursery School observations, one hour daily except Sat., hours to be arranged. Dr. DWYER and Assistant Professor REEVES.

Readings, discussion, and observations emphasize significant factors in the immediate social and material environments of young children for the purpose of helping students to appreciate the influence of experience in the development of the individual.

Intensive studies in the Nursery School laboratory are designed to promote accuracy and objectivity as a basis for impartial evaluations of personality.

Nursery School observation is arranged at different hours each day in order to observe typical activities. These hours should be planned with the instructor during registration. Laboratory fee, \$7.50.

E 103. The Home and the Family. Credit two hours. Lecture-discussions, M T W Th, 8. *Room 121.* Laboratory, F, 7-9 or 8-10. *Room B-9a.* Two hours of assigned observation weekly in the Nursery School. Professor FOWLER.

This course is designed for parents, teachers of young children, and teachers of home economics. It undertakes to show the influence on the family, especially the younger members, of the many home conditions; the house and its furnishings; the play space, indoors and out, and its equipment; the food and its preparation and service; the clothing and its comfort and means for self-expression; the family income and schedule of activities; and the relationships among the family members. Through observation, discussion, and construction of play materials the attempt is made to promote an understanding of child needs and of the relationships of child to child and of child to adult. Laboratory fee, \$7.50.

E 115. Family and Social Relationships. Credit two hours. Two sections; registration limited to thirty students in each section. Lecture and discussion, daily except Sat., 8 or 10. *Room 124.* Assistant Professor ENTORF.

The course is designed for teachers of family and social relationships. Through discussion, reading, and observation the student will be helped to understand the processes involved in the development of personality and to evaluate the influence of human relationships upon personal adjustment. The material aspects of home-making and housekeeping will be viewed with particular reference to their function and meaning in terms of personal and family relationships.

This course is well supplemented by **Rural Education A-235.** Fee, \$2.50.

E 214. Studies in Family Life. Credit one or two hours. Registration by permission of the instructor. T Th, 2-4. Additional hours by arrangement. *Room 124.* Dr. DWYER.

The purpose of the course is to offer to a limited number of qualified graduate students an opportunity for special studies in the area of Family Life. Fee, \$2.50.

E 220. Participation in the Nursery School. Credit two or three hours. Laboratory and conference hours to be arranged. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Limited to twenty students. 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. Prerequisites, child psychology and an elementary course in behavior. Professor FOWLER, Assistant Professor REEVES, and Miss DAVIS.

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 the student-teacher practice in guiding a child activity program, in working with staff members concerned with all aspects of child development, in cooperating with parents in the promotion of child welfare. Laboratory fee, \$5.

FOODS AND NUTRITION

E 114. Food Selection and Preparation in Relation to Family Nutrition. Credit three hours. Prerequisite, knowledge of simple food preparation and elementary nutrition. Two sections. Limited to eighteen students in each section. Lectures, discussions, and marketing trips, Sat., 7-10 a. m. *Room 121.* Labo-

ratory, M W, 10-1:30 or T Th, 4-7 p. m. *Room 358.* Professor HEINER and Miss ZOLLER.

This course is designed primarily for teachers, extension workers, and demonstrators who feel the need of securing new and stimulating points of view in relation to their problems of food selection, preparation, and service. The approach will be made through meal planning and service. Laboratory fee, \$20.

E 121. Food Selection: Nutrition and Dietetics. Credit two hours. Daily, except Sat., 8. *Room 3M13.* Assistant Professor BRUCHER.

This course is for teachers and others interested in the study of nutrition and dietetics. It will include the study of the newer knowledges and trends in nutrition and will emphasize sound uses of nutrition subject matter in working with individuals and groups. Conferences will be arranged in order to permit each student to work toward the solution of problems related to her professional field. Fee, \$1.50.

E 131. Problems of Family Nutrition with Special Emphasis on Child Feeding. Credit: lectures and discussion, one hour; with laboratory, two hours. Prerequisite, a knowledge of general nutrition and dietetics obtained from previous college courses in these subjects. Lectures, discussions, and laboratory, T Th, 2-5. One conference hour by arrangement. Laboratory limited to twenty students. *Room 339.* Professor MONSCH.

This course comprises a study of family problems in nutrition, giving special emphasis to the nutritional needs of children of all ages. The relation between sound nutrition practices and community health and the family's food budget are considered. The laboratory period offers opportunity for experience in family situations in homes in Ithaca; it includes observation and experience in a well-baby clinic, in the Nursery School, in the cafeteria, and in the Ithaca Children's Home. Fee, lecture, \$1; with laboratory, \$6.

HOUSEHOLD ART

E 102. Art Essentials in the Home. Credit two hours. Two sections. Registration limited to eighteen students in each section. This course cannot be substituted for HA 31 given during the regular school year. Lecture-discussion, M, 2-5; laboratory, W or F, 2-5; individual conferences to be arranged. *Room 408.* Professor MORIN and Miss EDWARDS.

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; problems in the selection and arrangement of furniture, draperies, and upholstery materials for homes, homemaking centers in the school or in other community rooms. Laboratory fee, \$5.

E 104. Art Essentials—Special Home and Community Problems. Credit two to four hours. Two sections. Registration limited to ten students in each section. Prerequisite, E 102 or experience satisfactory to the instructor. If schedules permit, it is recommended that E 112 accompany this course. Discussion and laboratory, T Th, 2-5, with individual conferences to be arranged. For more than two hours of credit, extra laboratory and conference hours will be required. *Room 408.* Professor MORIN and Miss EDWARDS.

This course emphasizes the selection and arrangement of furnishings for individual homes and homemaking centers in schools, Home Bureaus, and other community rooms. Trips will be made to homes, schools, and other buildings of interest. Plans for purchasing furnishings will be based on study of the current market. Laboratory fee, \$5.

E 108. Room Rearrangement. Credit two hours. Two sections. Registration limited to ten students in each section. Discussion and laboratory, M W F, 2-5 or T Th F, 2-5. *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 smaller 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 family or 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.

TEXTILES AND CLOTHING

E 40. Problems in Teaching Grooming to Extension and School Groups. Credit two hours. Registration limited to ten students and by permission of the instructor. Laboratory and field practice, T Th, 2-5, S, 9-11. Room 215. Mrs. BUTT.

For extension workers, 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 extension groups and for consideration of methods of adapting these experiences to specific teaching situations. Estimated cost of materials and field trips, \$10. Laboratory fee, \$5.

E 45. Designing Clothes for Mature Women. Credit two hours. Registration limited to ten students and by permission of the instructor. Laboratory and field practice, M W, 2-5; discussion and conferences, S, 9-11. Room 213. Mrs. BUTT.

For teachers and extension workers who wish to understand the problems involved in designing, fitting, and making clothing for mature figures of irregular proportions. Line and color illusion will be considered and practice will be given in solving individual problems in corrective designing of clothes. Field work will consist of participation in adult group meetings. Opportunity will be given for personal conferences to consider ways of adapting methods and work to specific situations. Estimated cost of materials and field trip, \$10. Laboratory fee, \$5.

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 designs will be drawn from both modern and historic sources but emphasis will be given to style distinction in their use. Estimated cost of materials, \$5 to \$10. Laboratory fee, \$3.

E 118. Clothing Design. Credit two hours. Registration is limited to twenty students. Students are asked to consult the instructor before registering. Lecture and laboratory, M W F, 2-5. Room 234. Mrs. FULLER.

This course is planned to give the student experience in advanced clothing design, stressing the cutting and manipulation of fabrics in effective ways. Each problem will consider what is within the fashion as well as what is fine in design, and may be approached from the standpoint of home sewing or the purchase of ready-made clothing.

The class will also make a study of some of the new dress fabrics on the market, their respective advantages and disadvantages as to desirability, best method of handling and care. Estimated cost of materials, \$10 to \$15. Laboratory fee, \$3.

E 255. Problems in Purchasing Household Textiles. Credit two hours. Registration limited to twenty students. Discussions and laboratory, M W F, 2-5. Room 217. Professor BLACKMORE.

This course is offered for students interested in problems involved in the buying of household textiles and for teachers and extension workers who wish to de-

velop some phase of this work in their schools or communities. Buying practices will be discussed and technical information necessary for efficient buying will be considered. Sources of information for the consumer will be investigated and literature related to this phase of textiles will be reviewed; labels and advertising claims for textiles will be interpreted and evaluated. Opportunity will be given for personal conferences to consider methods of adapting the study of household textiles to specific situations. Estimated cost of materials, \$3. If the class as a whole desires the experience of visiting manufacturing establishments, a one- or two-day trip will be arranged making an added cost of approximately \$7 to cover travel expense. Laboratory fee, \$3.

See also **Education** A 235, A 236b, A 248, A 249.

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 28.

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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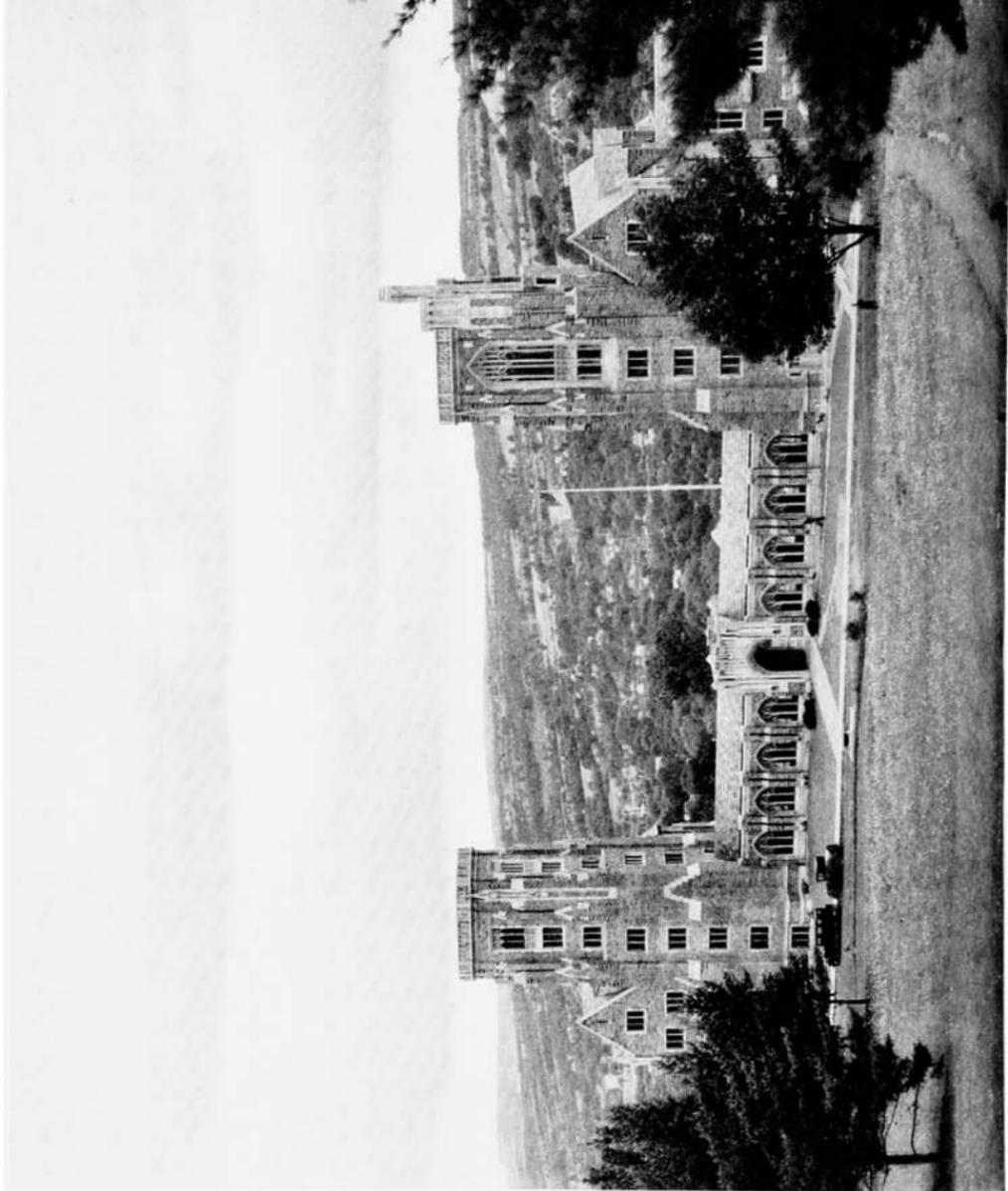
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This gorge, the center of a State park, is within a half-hour's drive of Cornell University. Between these cliffs Taughanock Creek flows to Cayuga Lake, less than a mile away.



Between the towers of the War Memorial, one of the dormitories for men, can be seen glimpses of downtown Ithaca. In the background Connecticut Hill rises to an altitude of about two thousand feet.



*This path through the gorge of
Cascadilla Creek affords a
route to downtown Ithaca,
a half-mile distant from the
campus and four hundred feet
below it.*

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