

CORNELL UNIVERSITY ANNOUNCEMENTS

SUMMER SCHOOL

1961

JUNE 28—AUGUST 11

## SUMMER SCHOOL OFFICE

THE OFFICE of the Summer School is in Room 117, Edmund Ezra Day Hall; the telephone number of the office and of the Director is 4-3211, Extension 2924. The office will be open from 8 a.m. to 4:30 p.m., except Saturday, during the period of the Summer School; on Saturday the office will close at 12 noon. Professor William A. Smith is Director.

### ADMINISTRATIVE BOARD

William A. Smith, Ph.D., Director of the Summer Session and Professor of Education

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# SUMMER SCHOOL

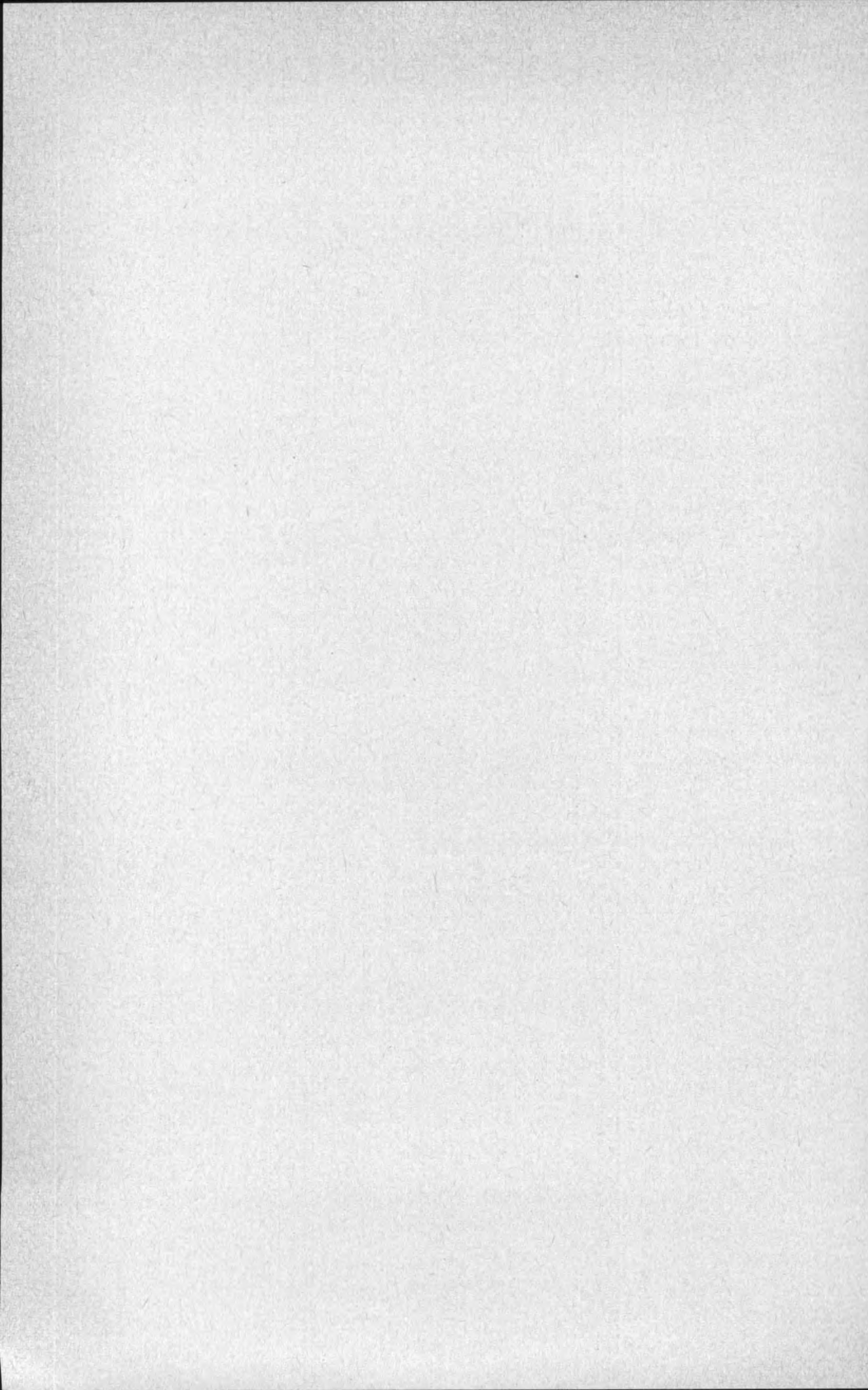
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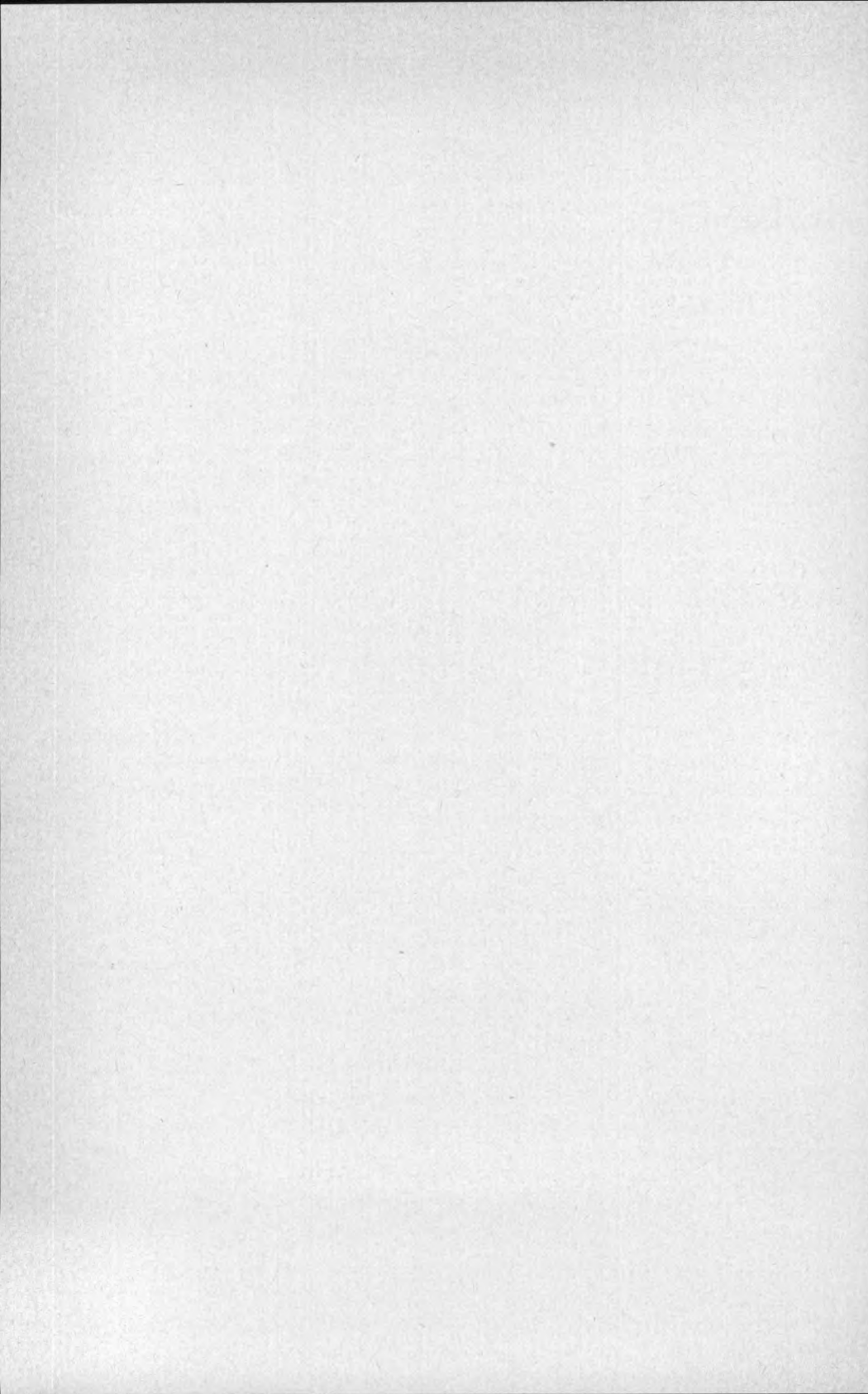
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# CALENDAR

## REGULAR SUMMER SCHOOL SESSION, 1961

- June 28, *Wednesday* Registration for the regular Summer School session, 9 a.m. to 12 noon and 1:30 p.m. to 3:30 p.m., in Barton Hall. Tuition and fees are due for payment at the Treasurer's Office, 260 Day Hall. Persons registering after this date without prior approval will pay a \$10 fee for late registration.
- June 29, *Thursday* Instruction begins at the time and place announced for each course. Late registrants report to the Summer Session Office, 117 Day Hall, to complete registration.
- June 30, *Friday* Last day for withdrawal from Summer School without payment of a fraction of tuition and fees.
- July 3, *Monday* Last day for payment of tuition and fees at the Treasurer's Office, which closes at 4:30 p.m.
- July 4, *Tuesday* Holiday.
- July 7, *Friday* Last day for making changes in registration *without payment of fee* at the Summer Session Office. A \$10 fee for change in registration will be charged after this date.
- July 10, *Monday* Registration and first day of instruction for the three-week unit Special Session in Agriculture. Registration at the Summer Session Office.
- July 21, *Friday* Last day for making changes in registration. *No changes will be permitted after this date.*
- July 24, *Monday* Registration for the second period of any three-week unit courses at the Summer Session Office.
- August 10, *Thursday* Final examinations begin; schedule on page 18.
- August 11, *Friday* Summer School ends, 4 p.m.

***Be sure to bring this Announcement with you for use on registration day and throughout the Summer School.***

## GENERAL INFORMATION

CORNELL UNIVERSITY is situated in Ithaca, in the beautiful Finger Lakes region of upstate New York. In its Summer School, academic instruction for both graduates and undergraduates is offered by members of the faculties of the Graduate School, of the Colleges of Architecture, Arts and Sciences, Engineering, Agriculture, and Home Economics, and of the Schools of Education, Industrial and Labor Relations, and Hotel Administration.

This unification of the curricula and faculties of the several schools and colleges makes possible the adaptation of academic work to the special needs of summer students. Undergraduate courses are equivalent to required and elective collegiate courses in the academic year leading to the baccalaureate. Advanced courses, seminars, and informal study, treating topics of concern to students with special interests, are available. The program is designed with particular regard for what can satisfactorily be treated in a short term and in the summertime. The needs of teachers are met not only in the workshops, seminars, and professional courses in Education, but also in courses in a number of subject fields. A number of sessions, some of which operate concurrently with the Summer School session, are offered for professional workers other than teachers. For description of other sessions, see pages 45-52.

All necessary facilities of the University are available to students registered in the Summer School: libraries, classrooms, and laboratories; residence halls, dining rooms, and cafeterias; health services and medical care; counseling services; student union, chapel, playing fields, and recreational areas.

## ADMISSION

The Summer School's objective is to place the facilities of the University at the disposal of persons who can use them to good advantage and for serious purposes during the summer period.

Admission of undergraduate or graduate students to the Summer School establishes no priority with respect to admission to the regular terms. Students seeking admission to Cornell undergraduate colleges should apply to the Director of Admissions, 239 Day Hall, before March first of the year in which entrance is desired.

Students are eligible for admission to the Summer School in the following categories:

## UNDERGRADUATES

This category includes all persons who are candidates for the Bachelor's degree and those precollege, high school graduates who have been accepted for admission to Cornell University or elsewhere. No other high school students will be accepted except in certain other programs of the Summer Session described on pages 49-51.

Undergraduates are required to preregister for a program of courses totaling between three and seven credit hours. A program of more than seven credit hours will be permitted only to students with high academic averages. Pre-registration consists of completing the undergraduate application form which will be mailed on request. An undergraduate candidate for degree at Cornell University must have his application approved by the appropriate officer of his school or college (see p. 5).

*June 20, 1961, is the closing date for admission of undergraduates.*

High school graduates and undergraduate degree candidates should consult the appropriate official either in the college to which they have been admitted or in the college where they are now matriculated for advice in planning their summer study programs. This is recommended in order that they may be assured that the credit earned will be appropriate to their degree programs. Courses in Summer School carry credit equivalent in amount and value to that available in the comparable academic year courses offered at Cornell. A transcript of the academic record for study in the Summer School will be sent to the college of the student's choice upon request directed to the University Registrar.

## GRADUATES

This classification is only for candidates for advanced degrees at Cornell University or elsewhere. Application for admission to the Summer School should be made before June 15. A graduate student may register as late as June 28 but is advised to select courses by June 15 in order to ensure a place in classes. The graduate application form will be mailed on request. Admission to the Summer School in this category does not constitute admission to the Graduate School of Cornell University as a candidate for an advanced degree.

A graduate student matriculated in the Graduate School of Cornell University may, upon the recommendation of his Special Committee chairman, register for as many as eight hours of credit. Six credit hours constitutes a minimum program for residence credit. (See page 9 for information regarding admission to the Graduate School.)

A graduate student who is a candidate for a degree at an institution other than Cornell University, and who is planning to obtain credit toward this degree by means of his Summer School work, does *not* register in the Cornell Graduate School but only in the Summer School. Before registering he should arrange for the accrediting of his work by the institution from which he plans to take his degree.

## SPECIAL STUDENTS

A mature person who is not a candidate for an academic degree will be admitted to the Summer School in courses taken for credit for vocational or personal purposes. Such a person would preregister by completing the "special



students" application form, which will be mailed on request. A special student may register as late as June 28 but is advised to select courses by June 15 in order to ensure a place in classes.

## AUDITORS

A graduate or special student who desires to attend a course or courses for no credit may register in the Summer School as an auditor. Such registration requires regular attendance in the class. A mark of "audit" will be recorded for satisfactory completion of a course. An auditor may register as late as June 28 but is advised to select courses by June 15, in order to ensure a place in classes. Tuition for auditing a course will be charged at the same rate as tuition for a course taken for credit. Undergraduates are not permitted to register for audit except by permission of the Director of the Summer School.

## APPLICATION FOR ADMISSION

Application for admission to the Summer School of 1961 must be made on an application form furnished by the Director of the Division of Summer Session and Extramural Courses on request. In most cases the information called for on this form will be sufficient. When requesting an application, please indicate whether for undergraduate, graduate, or special student status.

Registration coupons, necessary for registration in the Summer School, will be mailed to the applicant after favorable action on the application has been taken. Included is a Certificate of Admission.

## ACADEMIC CREDIT

All courses offered in the Summer School are assigned appropriate hours of credit. Students are not to register for any course work which normally cannot be completed by the end of the Summer School term.

There is, in general, no sharp distinction between undergraduate and graduate courses. In this Announcement each course is marked immediately after the title in one of three ways:

(U): These courses carry undergraduate credit. Students registered in the Graduate School of Cornell University will not receive credit toward advanced degrees for these courses unless such credit is specifically recommended by the committees in charge of their work.

(U,G): These courses are offered both at the graduate and undergraduate levels. Graduate students who are candidates for advanced degrees or who wish certification for work done at the graduate level must indicate at the time of registration their intention to complete the course at the graduate level and must be prepared to do any additional work that may be required. Such students registered in "U,G" courses should consult with their instructors early in the session to see that the level is properly recorded. Accuracy of final grade reporting depends upon such action.

(G): These courses are intended primarily for students who are candidates for advanced degrees, for teachers, and for others who wish certification to accrediting agencies for work done at the graduate level. Undergraduates with

adequate preparation may register for these courses only after receiving permission from the instructors in charge.

### **CREDIT TOWARD DEGREES AT CORNELL UNIVERSITY**

A student matriculated in an undergraduate school or college of Cornell University will be admitted to the Summer School only after the appropriate officer from the following list has approved and signed his application for admission.

College of Agriculture: Professor J. P. Hertel.

College of Architecture: Dean Burnham Kelly.

College of Arts and Sciences: Associate Dean M. L. Hulse.

College of Home Economics: The student's counselor.

College of Engineering: *Chemical*, Professor C. C. Winding; *Civil*, Professor N. A. Christensen; *Electrical*, Professor W. H. Erickson; *Mechanical*, Professor G. R. Hanselman; *Engineering Physics*, Professor T. R. Cuykendall.

School of Hotel Administration: Dean H. B. Meek.

School of Industrial and Labor Relations: Professor James Campbell.

This approval will indicate that the school or college will accept credit in the designated courses as credit toward a degree.

### **GRADES**

All course grades are reported on the basis of a numerical scale from 0 to 100. The only exceptions permitted are for registrations for audit and for those offerings for graduate students involving individual work such as in research and special problems. In the case of auditors the record for satisfactory completion will be "V" ("Visitor") to be recorded on the official transcript. A mark of "Satisfactory" (S) or "Unsatisfactory" (U) may be used for graduate students registered for research and other individual work.

If a student is prevented, for medical or other reasons acceptable to the instructor, from completing the work in any course before the last day of the session, he may request the instructor to report his grade as "Incomplete." In such case the instructor may report the mark as "Inc" together with a conditional numerical evaluation of the work completed. This will become the final recorded grade for the course if the work is not completed by January 1, 1962. It is the student's responsibility to make such specific arrangements with his instructors. Students are not to register for any work which normally cannot be completed by the end of the Summer School term.

A student who drops a course without official change in registration will automatically receive a failing grade.

The colleges of Cornell University regard the grade of 60 as the lowest passing grade.

### **REGISTRATION**

Registration for the Summer School Session will take place on Wednesday, June 28, in Barton Hall. The certificate of admission, sent to each pre-admitted student, will give the hour of the day at which he will be admitted to the Hall.

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Directions for registration procedure will be issued at the entrance. Students who, for any reason, have not received a certificate of admission will report to the Admissions table in Barton Hall after 9 a.m. Persons who fail to appear for registration in Barton Hall on June 28, during the scheduled registration hours, will be charged a fee of \$10 for late registration unless the fee is waived through prior approval.

Registration in the University is required for admission to any of the classes of the Summer School.

### CHANGES IN REGISTRATION

All changes in registration after Wednesday, June 28, must be made by appearing at the Summer Session Office, 117 Day Hall, before 4 p.m. on July 21. (See below for penalty fees.) *No change in registration will be permitted after 4 p.m. on July 21.* When a change in registration involves enrollment in another course, the permission of the instructor of the new course is necessary.

*Changes in registration include cancellation of a course, change from one course to another, change in graduate or undergraduate level, addition of a course to a program, or change from credit to auditor's status in a course or vice versa.*

*Changes in registration cannot be effected by notifying the instructor of a given course. Students must appear at the Summer Session Office in order to make program changes.*

### WITHDRAWAL FROM SUMMER SCHOOL

A student may arrange for withdrawal at any time by canceling his registration at the Summer Session Office, 117 Day Hall. In such cases the Treasurer may refund a part of the tuition and general fee or cancel a part of the obligation which the student has incurred for tuition, provided the reason for withdrawal is stated in writing and is satisfactory to the Treasurer and the Registrar. The student is required to pay 20 per cent of the term's tuition and general fee 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 by Friday, June 30.

### TUITION AND FEES

Tuition and fees are due and payable at the Treasurer's Office in Day Hall on registration day, June 28. The last day for payment without penalty is Monday, July 3. A penalty of \$10 is charged if payment is made after that date. The Treasurer's Office closes at 4:30 p.m.

### TUITION

Tuition is charged according to the credit hours for which the student is registered. For courses with a number prefixed by the letter *A*, the tuition is \$30 per credit hour, and for courses with a number prefixed by the letter *S*, tuition is \$20 per credit hour.

Tuition in the Summer School of Hotel Administration is \$30 a week. (Health and hospital services are not available to students in this program.)



## FEES AND DEPOSITS

All students in the Summer School session will pay, in addition to tuition, a general fee of \$4 per week, which entitles them to health and infirmary services (see page 12), administration services, and student union membership. Fees for laboratories, field trips, and incidental expenses are charged in certain courses and are indicated by asterisks in the course descriptions. A student who finds it necessary to register after the regular registration day must pay a \$10 late registration fee. A student who wishes to make a change in program after 4 p.m. on July 7 must pay a \$10 fee. *No change in program will be permitted after 4 p.m. on July 21.*

## GRADUATE REGISTRATION DEPOSIT

A deposit of \$28 must be made by every applicant for admission to the Graduate School after the applicant has received notice of acceptance, unless the candidate has previously matriculated as a student at Cornell University. Upon the first registration the deposit is used to pay the matriculation fee and covers certain expenses incidental to graduation if the student receives a degree. The deposit is not refundable.

## OTHER REGULATIONS CONCERNING FEES

Any student, graduate or undergraduate, who fails to pay his tuition, fees, and other indebtedness, or, if entitled to free tuition fails to claim it at the Treasurer's Office and pay his fees within the time prescribed by the University, will be 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 an extension, the student will be assessed a fee of \$5. A reinstatement fee of \$10 will be assessed 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 Treasurer and the Registrar, which must be presented in writing, the latter assessment may be waived in any individual case.

*The amount, time, and manner of payment of tuition, fees, or other charges may be changed at any time without notice.*

## FINANCIAL AID

Normally students registered in the Summer School are not eligible for University financial aid. In special cases, however, when the student applicant is a regular full-time student at Cornell and the Summer School curriculum has the full approval of his faculty adviser, he will be considered for loan assistance. There are no University scholarships for Summer School study.

## 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

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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 to provide themselves with travelers' checks, drafts on New York City banks, money orders, or other forms of credit instruments such as a bank will cash in the ordinary course of business.

### VETERANS

Veterans who plan to study under Veterans Administration educational benefits during the Summer School should observe the following instructions.

Veterans enrolling for the first time under educational benefits, or veterans whose last period of training was not at Cornell, must present a Certificate of Eligibility for the course of study they plan to pursue. Application for the certificate should be made to the local Veterans Administration Regional office, or, in the case of veterans who have had previous training, to the office where their records are located.

Veterans enrolled and using benefits at Cornell during the spring term, 1961, may use their benefits during the Summer School, providing there is no change of course or objective, by completing enrollment forms in the Treasurer's Office. Veterans making a change of course or objective must apply to the Veterans Administration for approval of the change. Application forms are available at the Treasurer's Office.

Veterans under *Public Law 894* must arrange for approval by the Veterans Administration prior to registration in the Summer School.

All questions concerning eligibility for Veterans Administration educational benefits should be directed to the nearest Veterans Administration Office.

### THE GRADUATE SCHOOL

The Graduate School is an administrative unit entirely separate from the administration of the Summer School. *Only candidates for advanced degrees at Cornell University are registered in the Graduate School in the summertime.* Students who take course work at the graduate level in the Summer School, but who are not candidates for advanced degrees at Cornell University, have no connection with the Graduate School.

### CREDIT FOR ADVANCED DEGREES

Summer School credits may be used for fulfillment of requirements for the following advanced degrees, under regulations of the faculty of the Graduate School: Master of Arts (M.A.); Master of Science (M.S.); Master of Science for Teachers (M.S.T.); Master of Education (M.Ed.); Master of Industrial and Labor Relations (M.I.L.R.); Doctor of Education (Ed.D.); and Doctor of Philosophy (Ph.D.).

A program of six or more credit hours in the Summer School Session, approved in advance and reported as acceptable by the Special Committee, is counted as two-fifths of a residence unit, if the candidate has registered in both the Summer School and the Graduate School. Requirements for Masters' degrees may be completed solely during the summer period if instruction in the chosen major and minor subjects is offered. Only two residence units (in exceptional instances,

three) for study in the Summer School may be accepted in fulfillment of requirements for the doctorate. In order to help a student become acquainted with the School and faculty before entering candidacy, *the faculty allows the transfer of one Cornell Summer School of residence earned prior to admission to candidacy upon recommendation of the Special Committee and approval of the Dean.*

## ADMISSION

Students intending to become candidates for advanced degrees at Cornell should write to the Dean of the Graduate School, 125 Day Hall, for application forms and for the *Announcement of the Graduate School*. Applications received before May 1 will be acted upon in time for the accepted candidate to register in the Graduate School on registration day, June 28. The Admissions Committee cannot give assurance that an application received after May 1 will receive the same consideration that it would receive if filed before this date.

## REGISTRATION DEPOSIT

On admission to the Graduate School, the applicant is required to pay the sum of \$28 within twenty days of notification of admission, unless he has matriculated previously at Cornell (see also page 7).

## REGISTRATION

*Students matriculated in the Graduate School must register in both the Summer School and the Graduate School.* Full information and proper forms for registering in the Graduate School are to be obtained at the Graduate School table in Barton Hall on registration day. The registration must be completed within *one week* of registration day. To register, each candidate must file a Registration-of-Courses form, properly approved by his Special Committee. Each new candidate must file a Nomination-of-Committee form.

*Such registration is regarded in the same fashion as registration for a regular semester and affects the deadlines for fulfillment of requirements. For instance, a new candidate must complete his first language requirement the second day of classes following Summer School registration day.*

Candidates registered in the Summer School who were not registered in the preceding spring term, but who expect to register in a succeeding regular term for continuation of their candidacy, must arrange with the Dean of the Graduate School for permission to register in the regular term.

## COMPLETION OF REQUIREMENTS

Candidates for advanced degrees who expect to complete requirements and to take their final examinations at the end of the Summer School should call at the Office of the Graduate School not later than the third week of the session for the necessary instructions and forms.

## CANDIDATES IN THE SCHOOL OF EDUCATION

Students interested in the degrees of Master of Education (M.Ed.) or Doctor of Education (Ed.D.) should consult the *Announcement of the School of Educa-*

tion, which may be obtained by writing to the Announcements Office, Day Hall. The faculty of the School of Education, functioning as a division of the faculty of the Graduate School, has special jurisdiction over these degrees.

## HOUSING AND DINING

Rooms are available to both graduate and undergraduate men and women in University-operated housing units. A leaflet giving detailed information on housing, *Residential Halls for Men and Women*, may be secured by writing to the Department of Residential Halls, 223 Day Hall.

### RESIDENTIAL HALLS

#### UNDERGRADUATE WOMEN

All undergraduate women, with the exception of those students whose homes are in Ithaca, are required under University policy to live and take their meals in a University dormitory. Prudence Risley Hall will be used for undergraduate housing, and there will be a uniform charge of \$184 for board, room, and an allowance for personal fluff-dry laundry for the Summer School period.

Rooms are furnished with desk, desk chair, desk lamp, bookcase, reading chair, chest of drawers, bed, bed linens (laundered by the University), blankets, and bedspread. Individual rooms are cleaned weekly, including replacement of bed linens. Daily bedmaking is the responsibility of the occupant.

There is a head resident in Prudence Risley Hall who, in cooperation with the counseling staff of the Office of the Dean of Students, is responsible for the conduct and social life of the students. The dormitory opens at 6 a.m. daily and closes at midnight Sunday through Thursday, and at 1 a.m. Friday and Saturday.

#### GRADUATE WOMEN

Graduate women under twenty-one are required to live and take meals in the undergraduate dormitory unless special permission to make other arrangements is secured by written application to the Office of the Dean of Students, 133 Day Hall. Graduate women over twenty-one may make application for space in the graduate unit of Residential Halls or make arrangements to live off campus.

Clara Dickson Hall will be reserved for graduate women's housing. The rates for the Summer School period are \$66 for single and \$48 per person for double accommodations. For periods of three weeks or less the rates are \$12 single and \$9 double per person per week or part of a week. All rates cover the cost of room only. Rooms are completely furnished, including bed linen, with maid service provided Monday through Friday. There are no prescribed hours for the daily closing of the graduate dormitory.

#### MEN STUDENTS

Single and double rooms in the Baker group of dormitories will be available to both undergraduate and graduate men. Rates for the Summer School period are \$66 for single and \$48 per person for double accommodations. For periods



of three weeks or less the rates are \$12 single and \$9 double per person per week or part of a week. All rates cover the cost of room only. Rooms are completely furnished including bed linens, with maid service provided Monday through Friday.

Insofar as is practical, all men students are left to the regulation of their own affairs, subject to the University's general rules with regard to student conduct. There are no prescribed closing hours for men's dormitories.

#### OPENING-CLOSING DATES

All Residential Halls will open for occupancy Tuesday, June 27, at 3 p.m.; they will close at 2 p.m., Saturday, August 12. *Earlier or later occupancy will not be possible under any circumstances.*

#### APPLICATIONS FOR ROOMS

An application for a room assignment in Residential Halls cannot be given consideration unless it is submitted on an official application form to the Department of Residential Halls. Room application forms are distributed *only* by the Office of Summer Session and Extramural Courses *after* admission has been approved, and each student will automatically receive one with his Summer School registration coupons.

#### ASSIGNMENTS

Assignments for both men and women are made in order of receipt of application, and the earliest mailing date will be approximately May 15. Since requests for the Summer School period must take precedence over those for shorter periods, it may be impossible to forward actual assignments until ten days prior to short-course registrations.

#### ROOM DEPOSITS

A \$5 room deposit check or money order, drawn to the order of Cornell University, should be attached to the room application to ensure prompt action. *This deposit is not applied on the residence charge.* The deposit, less any miscellaneous charges on the student's account, is refunded approximately September 15, even though the student terminates residence prior to the end of the session.

The deposit will also be refunded if the applicant files with the Director of Residential Halls written intention to withdraw the application for a room by June 6, or within two weeks of applications dated June 1 or later. *The deposit will not be refunded on cancellations received on or after the day of registration.*

#### OFF-CAMPUS AND MARRIED-STUDENT HOUSING

Information concerning married-student or off-campus accommodations will be mailed upon request. Address inquiries to Residential Halls, 223 Day Hall. The Off-Campus Housing Office in Day Hall is maintained by the Depart-

ment of Residential Halls. This office is a bureau of information only, maintaining files of voluntarily listed accommodations for the use of students who call at the office. Such lists cannot be mailed to prospective students.

Students wishing to sublet houses or apartments off campus, or married-student apartments operated by the University on campus, are advised to arrive in Ithaca in advance of registration in order to secure such quarters. Sublet rentals for the Summer School range from \$65 to \$175 a month.

There is normally an adequate supply of rooms available in off-campus locations for the Summer School. These rooms vary considerably in comfort, convenience, and safety. Before leasing a room careful consideration should be given such details as distance from campus and dining facilities, price, ventilation, sanitation, furnishings, and fire escapes. Arrival in Ithaca a few days in advance of registration will assure students of a better selection of off-campus rooms.

### DINING SERVICES

Willard Straight Hall, the student union building, offers complete cafeteria and snack bar service as do Baker Cafeteria in University Hall I and Noyes Lodge on Beebe Lake. The College of Home Economics operates a cafeteria in Martha Van Rensselaer Hall, and the Department of Dairy Industry offers cafeteria and soda bar service in Stocking Hall. Meals obtained in these places, or in the cafeterias, dining rooms, and restaurants near the campus, will cost approximately \$2 to \$3 a day.

### HEALTH SERVICES

The facilities of the students' medical clinic (Gannett Medical Clinic) are available to all students registered in the Summer School.

#### *Clinic Hours*

Monday through Friday	9 a.m.-4:30 p.m.
Saturday	9 a.m.-12 noon
Sunday	10-11 a.m.

(Physicians are not on duty from 12 noon until 2 p.m. A nurse will be in attendance during those hours.)

### AFTER CLINIC HOURS

In the event of serious illness or accident when the Gannett Medical Clinic is closed, students may go directly to the Tompkins County Hospital, Trumansburg Road. This service is not intended for conditions that could have been treated at the Clinic during the regular Clinic hours noted above.

### EMERGENCY SERVICE

A doctor is always available for calls of an emergency nature when an accident has occurred or when the student is too ill to come to the Clinic or the Hospital. (In the women's dormitories these calls should be made by the Head Resident

whenever possible.) Telephone calls for this service should be made through the Cornell Operator or the Medical Clinic, Ithaca 4-3211, Ext. 4518, when the Clinic is open, or Ithaca 4-9508 after Clinic hours. This service is not designed to care for students in their rooms. A charge of \$3 in the daytime and \$5 at night is made for these calls.

The Summer School health fee entitles students to the following services:

(1) Unlimited visits to the Gannett Medical Clinic.  
 (2) Hospitalization with medical care for two days at the Tompkins County Hospital; a per diem charge, according to accommodations occupied, is made if hospitalization extends beyond two days.

(3) Emergency surgical care. This is defined as initial surgical procedures which are necessary for the immediate welfare and safety of the patient.

If a student elects to consult a private physician, the cost of this service is not covered by the health fee.

## **COUNSELING SERVICES**

### **INDIVIDUAL COUNSELING**

The Office of the Dean of Students, 133 Day Hall, has a trained guidance and counseling staff to serve students in personal, educational, and social areas.

### **FOREIGN STUDENTS**

The Foreign Student Office, 142 Day Hall, maintains a staff prepared to assist all students from other countries who may need information about living quarters, immigration matters, personal and social problems, or other questions.

## **LIBRARIES**

The University libraries in Ithaca comprise the central University Library (the John M. Olin Library), the Mann Library of Agriculture and Home Economics, the Fine Arts Library, the Business and Public Administration Library, the Engineering Library, the Library of the School of Hotel Administration, the Library of the School of Industrial and Labor Relations, the Law Library, and the Veterinary Library. In addition there are numerous departmental libraries in the separate schools and colleges.

The general collection of reference books and documents, the chief bibliographical publications, and the principal series of academy and learned society publications are located in the University Library. Specialized reference materials will be found in the various college and department libraries. The Reference Department of the University Library and the librarians of the college, school, and department libraries are prepared to assist students in the effective use of the libraries and in the location of research materials.

The total library resources on the Ithaca campus exceed 2,000,000 volumes. The number of periodicals, transactions, and other serials currently received is over 10,000.

In the course of their development the libraries have received and have built up special collections. Some of the most significant collections are the American Civil War, American History, Agriculture, Architecture, Botany, China, Dante,

Dramatic Literature, Egyptology, English and French Revolutions, Entomology, Freemasonry, History of Science, History of Superstition, Icelandic, Legal Trials, Pascal, Petrarch, Reformation, Regional History, Rhaeto-Romanic, Slavery, Spinoza, and Zoology.

Cards of admission to the stacks are issued to graduate students for the purpose of consultation and research. Carrels and study spaces in the stacks are available to graduate students upon application. The privilege of borrowing books for home use is granted to all students who comply with the library regulations.

*The Basic Library Handbook* and the *Handbook of the Libraries for Graduate Students and Faculty* are available at the University Library, and the latter is also available at the Mann Library.

## SPECIAL REGULATIONS

### CONDUCT AND SCHOLARSHIP

The Summer School is administered under the general regulations governing conduct and scholarship which apply to all sessions of the University. Students are expected to familiarize themselves with dormitory and other rules and to abide by them. The Student Government rule concerning student conduct is:

"At all times and in all relationships a Cornell student should conduct himself in a decent and respectable manner. A Cornell student is expected to conduct himself in accordance with the obligation recognized by the student body of unfailing respect for the integrity of the individual and the best interests of the community."

Undergraduate disciplinary cases are reviewed by the Men's or Women's Judiciary Boards or by the Freshman Residence Judiciary Board; these boards make recommendations to the University Faculty Committee on Student Conduct for final action. A student may at any time be removed from the University if, in the opinion of the Committee, such action is in the University's best interests.

### AUTOMOBILE REGULATIONS

The University does not encourage student use of automobiles but recognizes that in certain cases there may be important reasons why a student needs an automobile. Any student who owns, maintains, or for his or her own benefit operates a motor-driven vehicle in Tompkins County must do the following: (1) he must register the vehicle with the Traffic Bureau of the Safety Division at the time of Summer School registration, or within 48 hours after bringing it to Tompkins County during the term; (2) he must pay a fee of \$1 and display, as directed, a registration sticker; (3) he must be legally qualified to operate a motor-driven vehicle in New York State; (4) the vehicle must be registered in New York State or legally qualified to be operated on the highways of New York State; (5) the vehicle must be effectively insured against public liability for personal injury and property damage for the minimum of \$10,000-\$20,000-\$5,000.

Motorcycles and motor scooters must be registered but may not be used on campus during class hours. Trailers, as family units, are not allowed on any University property. Campus parking during class hours is restricted to certain



areas except when permission has been granted in cases of physical disability or extreme hardship.

## **THE WEEKLY CALENDAR AND ANNOUNCEMENTS**

A weekly calendar, issued and posted on each Saturday of the Summer School, contains not only all official notices but details of public events and also news about special activities on the campus. Copies may be obtained without charge at the desk in Willard Straight Hall, at the Summer School Office, in the Home Economics Cafeteria, and in Noyes Lodge. Students are advised to secure copies regularly.

## **EXTRACURRICULAR ACTIVITIES**

The Summer School, in cooperation with departments and agencies of the University, arranges a balanced extracurricular program of public events and recreation designed to enrich the campus experience of its students, especially those who are not at the University during the academic year.

### **WILLARD STRAIGHT HALL**

The student union of Cornell University provides meal service, snacks for late afternoon and evening, lounges, rooms for student meetings, dancing, the University Theatre, a billiards and games room, a barber shop for men, a browsing library well stocked with books of general interest, a craftshop, a music room, and an art lounge. On the upper floors of the Hall are sleeping rooms used principally by parents and guests of students, by alumni, and by guests of the University.

In addition to regular meal service, the Willard Straight dining department is equipped to serve informal parties, teas, receptions, private luncheons and dinners, and barbecues, and to provide picnic box lunches.

The Main Desk is a focal point of campus information and services. Newspapers, current magazines, postcards, candy, and cigarettes, as well as tickets to all campus functions are available. The daily tours of the campus originate here. Travel information and road maps may be procured from the desk.

### **NOYES LODGE**

Noyes Lodge, located on Beebe Lake, near the Balch Dormitories, is operated by Willard Straight Hall and provides regular cafeteria service as well as snack service during the morning, afternoon, and evening hours. Space is also available for special luncheons and dinners and for social and recreational functions of all types.

The Willard Straight Summer Student Committee arranges for dances, open houses, games, art exhibits, and other recreation and entertainment at Willard Straight and Noyes Lodge. Membership on this committee is open to all students. A detailed calendar is published, listing all events of the Summer School. Copies will be available at the Main Desk.

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### INFORMAL TALKS

On Sunday evenings in the Memorial Room at Willard Straight, members of the faculty present informal talks on topics of current or special interest, with discussion following.

### RECORDED MUSIC

In addition to the daily record request program in the Music Room, a weekly concert is broadcast on the Library Slope. Each Saturday evening a special program of recorded music is broadcast in the Music Room.

### RECREATIONAL FOLK AND SQUARE DANCING

For students and faculty members on Friday evenings on the University Halls' tennis courts. An instructor is present.

### CONCERTS

The Cornell University Trio, resident ensemble of the University, will present three concerts in the *Summer Session Artists Series*. Other concerts in the series include a recital by a visiting soloist and an organ recital in Sage Chapel by Rudolph Kremer, University Organist. A chamber music program is planned in which advanced students in music will perform.

### SAGE CHAPEL

Religious services are conducted in Sage Chapel throughout the academic year by visiting clergymen of various denominations. A similar series is provided in the Chapel on six Sundays during the Summer School period, July 2-August 6, inclusive.

### SUMMER SCHOOL CHOIR

Music for the Sage Chapel services is provided by the Summer School Choir directed by Rudolph Kremer, University Organist. The Choir rehearses in Sage Chapel one evening each week, the dates to be announced. All students and other interested persons are invited to participate.

### PUBLIC LECTURES

A varied program of lectures, open to students in the Summer School as well as to members of the University community at large, is a feature of the Summer Session.

### SUMMER THEATRE

A program of informal laboratory performances, open to the public without charge, will be given from time to time during the session by regularly enrolled members of the classes in Speech and Drama and by other interested students. Details of tryouts will be announced in the various classes, and performance dates will appear in the weekly calendar.

## FILMS

Noteworthy European and American films are presented by the University Theatre during the Summer School. Admission is charged.

## ANDREW DICKSON WHITE MUSEUM OF ART

Cornell's Art Museum houses the University art collections and presents loan exhibitions as well.

Recent summer exhibitions, in addition to material from the Museum's collection, have included paintings from private collections, bird paintings by Louis Agassiz Fuertes, Currier and Ives prints from the Warfield collection, and contemporary oriental and Western painting. Featured during the summer of 1961 will be an exhibition entitled "The Hudson River School."

The museum is open daily, except Monday, from 12 to 4; Sunday from 2:30 to 4:30.

## SPORTS

Softball diamonds on Upper Alumni Field, tennis courts conveniently situated around the campus, and an 18-hole golf course on Warren Road are available for the use of Summer School students. A gorge at one end of Beebe Lake on the campus forms a natural swimming pool where two guards are on duty every day of the session from 1 to 6 p.m.

Private lessons in golf, tennis, and swimming, and an intramural softball league are sponsored by the Department of Physical Education and Athletics.

## SWIMMING

Opportunity will be available each week, on an evening to be announced, for both men and women to swim in the Teagle Hall pool. Students will be admitted upon presentation of Summer Session registration coupon. Swimmers will supply own swim suits (bathing caps optional). A towel may be obtained upon presentation of registration coupon.

## INTRAMURAL SOFTBALL LEAGUE

Groups or individuals who wish to participate in softball competition should see Mr. Hanley W. Staley, Teagle Hall, Ext. 4514 or Ithaca 4-1526.

## PRIVATE LESSONS

The Department of Physical Education and Athletics sponsors private lessons in golf, tennis, and swimming.

**TENNIS.** Hours to be arranged. Call Mr. Jess Sison, Ext. 3610 or Ithaca 2-2962.

**GOLF.** Hours to be arranged. Call Mr. George Hall at the University Golf Course, Ext. 4411.

**SWIMMING.** Hours to be arranged. See Mr. Hanley W. Staley at Beebe Lake, or call Ext. 4514 or Ithaca 4-1526.

# CURRICULUM

THE COURSES of instruction are listed under departmental headings arranged alphabetically with few exceptions. For offerings in particular subject fields consult the Index. Because of demands that may be placed upon the instructing staff, it may be necessary to substitute instructors for the ones named in the course descriptions. *The Director reserves the right to cancel any course for which, through unforeseen circumstances, satisfactory instruction cannot be provided.*

*UNIT COURSES*, more or less than six weeks in length, are indicated by a *u* following the course number, and their dates are given in the descriptions. (See page 6 for tuition charges.)

*COURSES REQUIRING LABORATORY OR OTHER FEES* are marked by asterisks.

*CLASS SCHEDULES*...In most courses of instruction, classes will meet five times a week, on each weekday except Saturday. Unless otherwise specified, all courses extend through the regular six week session June 28–August 11.

The hours of class meetings are specified in the description of each course. Courses carrying 2 credit hours meet daily for 50 minutes unless otherwise specified.

*MEETING PLACES* of courses are given in the course descriptions. Any changes in room assignments will be found in a supplementary announcement which will be distributed to students at the time of registration.

*EXAMINATIONS*...With a few exceptions, examinations will be held on Thursday, August 10, and Friday, August 11, at the hours indicated by the schedule below. The usual classrooms will be used unless a change is announced by the instructor. In courses in which no examination is to be given, an announcement to that effect will be made by the instructor; in such cases the last meeting of each course will be held in the examination period for that course.

Deviations from the following schedule are permitted only if all class members and the instructor agree on the change and if no student in the class has a conflict in time.

*Examinations will be held as follows:*

- 8 o'clock classes, Thursday at 8.
- 9 and 9:30 o'clock classes, Friday at 8.
- 10 o'clock classes, Thursday at 10:30.
- 11 and 11:30 o'clock classes, Thursday at 2.
- 12, 12:30, and 1 o'clock classes, Friday at 10:30.
- 1:40 and 2 o'clock classes, Friday at 2.



## AGRICULTURAL ECONOMICS

(See *Other Programs*, page 45.)

## AGRICULTURAL EDUCATION

(See *Other Programs*, page 45.)

## AGRICULTURAL ENGINEERING

\* Ag.Eng. S206. **FIELD PROBLEMS IN AGRICULTURAL ENGINEERING.** (U) 6 hours credit. June 12-July 21. Limited to students in the five-year agricultural engineering curriculum. M T W Th F 8-5. Messrs. MILLIER, LEVINE, LORENZEN, SHEPARDSON.

Practice in applying engineering analysis and

design to typical field problems encountered in professional agricultural engineering assignments. The work is distributed in the fields of power and machinery, electrification, structures, and soil and water. Laboratory fee, \$5.

(For other Agricultural Engineering courses, see *Other Programs*, page 45.)

## AGRONOMY

(See *Other Programs*, page 45.)

## ANTHROPOLOGY

(See *Sociology*, page 42.)

## ART

### DRAWING AND PAINTING

The 1961 Summer Session in Art will concentrate on aspects of figure and landscape. Contemporary concepts of form and space will be brought to bear on the study of these traditional themes of Western Art.

Panel discussions, group criticisms, and lectures by visiting critics will supplement the regular course instruction.

Art A12. **SPATIAL CONCEPTS IN FIGURE DRAWING AND PAINTING.** (U,G) 3 hours credit. Open to all students. M T W Th F 8-9:50. Franklin 316. Mr. DALY.

A study of the use of the human figure in drawing and painting relative to the changing concept of space and form in art.

Art A14. **PORTRAIT PAINTING.** (U,G) 3 hours credit. Open to all students. M T W Th F 10-11:50. Franklin 216. Mr. EVETT.

Study of various models in a range of media including pencil, ink, and oil.

Art A16. **SPATIAL CONCEPTS IN LANDSCAPE PAINTING.** (U,G) 3 hours credit. Open to all students. M T W Th F 10-11:50. Franklin 316. Mr. DALY.

Studio and outdoors work dealing with the evolution of spatial and color theories in landscape painting.

Art A18. **LANDSCAPE PAINTING IN WATER COLOR.** (U,G) 3 hours credit. Open to all students. M T W Th F 8-9:50. Franklin 325. Mr. EVETT.

Improvisations and direct water-color painting from characteristic local landscape themes.

### HISTORY AND APPRECIATION

Fine Arts A102. **INTRODUCTION TO RENAISSANCE AND MODERN ART.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 190. Mr. WAAGE.

A survey of the more important paintings

and sculptures by the major artists in Europe and the United States from about A.D. 1400 to the present. Those artists will be treated who have proved to be the most pioneering and inventive and who therefore have had

the greatest influence upon the subsequent course of art. The purpose is not only to make the student aware of this influence but, even more, to acquaint him with the individual styles of these masters so that he can identify their works upon sight. No practice of art is involved.

Fine Arts A507. **TWENTIETH CENTURY ART.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 190. Mr. WAAGE.

Modern art, primarily painting, from the

Post-Impressionists to the present. An attempt is made to explain why the modern movement of art arose in the first place; then the course of its development is traced in the works of the more talented and influential artists. Since the period under study is much shorter, a more precise and thorough treatment of the individual styles of the artists and of the formal, or aesthetic qualities of their creations is possible than in Fine Arts A102. No art practice is involved.

## ASTRONOMY

Astron. A102. **INTRODUCTION TO ASTRONOMY.** (U,G) 3 hours credit. Lectures, M T W Th F 10. Laboratory, T Th 2-4:30. Astronomy Building 100. Mr. KETCHAM.

Fundamentals of astronomy with emphasis on the sun, the stars, the Galaxy, the sidereal universe, and spectroscopy. Night observation at Fuertes Observatory.

## BACTERIOLOGY

\* Bact. S1. **GENERAL BACTERIOLOGY.** (U,G) 5 hours credit. Prerequisite, a beginning course in chemistry. Lectures, M T W Th F 1:45-3. Stocking 119. Laboratory, daily 3-5. Stocking 301. Mr. VANDEMARK and assistant.

A general survey of the field of bacteriology, with fundamentals essential to further work in the field as well as the application of the basic principles of bacteriology in agriculture, home economics, industry, and public health. Laboratory fee, \$10.

Bact. S2. **GENERAL BACTERIOLOGY.** (U,G) 3 hours credit. Lectures, M T W Th F 1:45-3. Stocking 119. Mr. VANDEMARK.

The lecture part of course S1. Registration with permission of the instructor.

\* Bact. S6. **GENERAL BACTERIOLOGY LABORATORY.** (U,G) 2 hours credit. Prerequisite, a lecture course in introductory bacteriology. Laboratory, M T W Th F 3-5. Stocking 301. Mr. VANDEMARK and assistant.

The laboratory part of course S1. Laboratory fee, \$10.

## BIOCHEMISTRY

Bioch. S101. **GENERAL BIOCHEMISTRY.** (U,G) 4 hours credit. Prerequisite, organic chemistry. Lectures, M T W Th F 8-10. Savage 100. Mr. NEAL.

A basic course dealing with the chemistry of biological substances and their transformations in living organisms.

\* Bioch. S102. **GENERAL BIOCHEMISTRY.** (U,G) 2 hours credit. Prerequisite, quantitative

analysis and, parallel, Course 101. Laboratory, M T W Th F 10-12:30. Savage 230. Mr. NEAL and assistant.

Laboratory practice with biochemical substances and experiments designed to illustrate chemical reactions which may occur in biological systems. Laboratory fee, \$15.

## BIOLOGY

\* Biology S105. **LABORATORY METHODS IN BIOLOGY.** (U,G) 3 hours credit. Prerequisites, Biology 1-2, Botany 1-2, or Zoology 102 or 104 or their equivalents. Lecture and laboratory, M T W Th F 1:40-4:30. Roberts 302. Mr. UHLER.

For students who intend to teach or follow some phase of biology as a profession. Subjects covered: collection, preservation, and storage of materials; the preparation of bird

and mammal skins for study; injection of blood vessels and embalming; clearing and staining of small vertebrates; and the preparation and staining of smears, whole mounts, and sections. Laboratory fee, \$10.

Biology S307. **RESEARCH IN BIOLOGY.** (U,G) Credit and hours to be arranged. Prerequisite, adequate preparation and permission of the instructor.

## BOTANY

To permit students, particularly those working for graduate degrees, to plan their programs beyond the 1961 session, a three-year rotation of courses is made available as follows: Botany 31 and 123 in 1961, Botany 31 and 124 in 1962, and Botany 31 and 123 in 1963.

\*Bot. S31. **PLANT PHYSIOLOGY.** (U,G) 4 hours credit. Prerequisite, general botany or biology and elementary chemistry. Lectures, M T W Th F 9. Plant Science 141. Laboratory, daily 10-12. Plant Science 227. Mr. ———.

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 lectures, on discussion of the principles and their applications to living plants. Fee, \$8.

\*Bot. S123. **PLANT ANATOMY.** (U,G) 4 hours credit. Prerequisite, a course in General Botany. Lectures, M T W Th F 9. Plant Science 211. Laboratory, daily 10-12. Plant Science 211. Mr. BIERHORST.

A detailed study of the internal structure of vascular plants. Fee, \$8.

## CHEMISTRY

\*Chem. A105u. **GENERAL CHEMISTRY.** (U) 3 hours credit. June 28 to July 21. Prerequisite, at least two units of mathematics. Lectures and recitations, M T W Th F 8-10. Baker 207. Laboratory, M T W Th F 10-1. Baker 150. Mr. HULL and assistants.

For those students who intend to take more chemistry, this course serves as a prerequisite to more advanced courses. Secondary-school chemistry is not a prerequisite. The course may also be elected by students who do not intend to take more chemistry. The important chemical principles and facts will be covered, with attention to the scientific method, the quantitative aspects and techniques which are important for further study of chemistry, and the relation of chemistry to the other fields of knowledge and to everyday life. Registration permitted only to students who register also for A106u. Texts: Sienko and Plane, *Chemistry*; Sienko and Plane, *Experimental Chemistry*. Laboratory fee, \$5.

\*Chem. A106u. **GENERAL CHEMISTRY.** (U) 3 hours credit. July 24 to August 11. Lectures and recitations, M T W Th F 8-10. Baker 207. Laboratory, M T W Th F 10-1. Baker 150. Mr. HULL and assistants.

A continuation of Chemistry A105u. Chemistry A105u or its equivalent is prerequisite for Chemistry A106u. Laboratory fee, \$5.

\*Chem. A201. **INTRODUCTORY QUALITATIVE ANALYSIS.** (U,G) 4 hours credit. Prerequisite, general chemistry. Lectures, M T W Th F 8, Baker 7. Laboratory, any three hours daily except Saturday between 9 and 1. Baker 50. Mr. REYNOLDS and assistant.

A study of the properties and reactions of the common elements and acid radicals and their detection in various solutions and solids.

Text: King, *Qualitative Analysis and Electrolytic Solutions*. Laboratory fee, \$10.

\*Chem. A224. **INTRODUCTORY QUANTITATIVE ANALYSIS.** (U,G) 4 hours credit. Prerequisite, qualitative analysis. For majors in chemistry and premedical students. Lectures, M T W Th F 8. Baker 206. Laboratory, any three hours daily except Saturday between 9 and 1. Baker 252. Mr. WEST and assistant.

A study of the fundamental theory and experimental techniques of gravimetric, volumetric, and colorimetric analysis, with practice in stoichiometry. Also, a brief survey of selected topics of modern analytical techniques. Text: Blaedel and Meloche, *Elementary Quantitative Analysis*. Laboratory fee, \$15.

Chem. A303. **ELEMENTARY ORGANIC CHEMISTRY.** (U,G) 4 hours credit. Prerequisite, general chemistry. Qualitative analysis is desirable but not required. Chemistry 305 must be taken with Chemistry 303. This combination satisfies the organic chemistry requirement of most medical schools, but the student should ascertain the entrance requirements for the particular medical schools to which he is applying. Lectures, M T W Th F 8-10. Baker 107. Mr. FARNUM.

An integrated study of aliphatic and aromatic organic compounds, their occurrence, methods of preparation, reactions, and uses. The relationship of organic chemistry to the biological sciences is stressed. Text: Hansch and Helmkamp, *Organic Chemistry, An Outline*.

\*Chem. A305. **ELEMENTARY ORGANIC LABORATORY.** (U,G) 2 hours credit. Prerequisite, general chemistry; qualitative analy-

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sis is desirable but not required. Must be taken with Chemistry 303. Laboratory, M T W Th F 10-12:30. Baker 250. Mr. FARNUM and assistants.

Laboratory experiments on the preparation

and reactions of typical organic compounds. Text: Adams and Johnson, *Laboratory Experiments in Organic Chemistry*. Laboratory fee, \$15.

(See also Chemistry 401, page 48.)

## CONSERVATION

\*Cons. S7-8. **ELEMENTARY TAXONOMY AND NATURAL HISTORY OF THE VERTEBRATES.** (U,G) 4 hours credit. Prerequisite, general zoology or biology. Lectures, laboratory, and field work, M T W Th F 8-10:30. Fernow 14. Mr. EADIE.

Lectures on fish, amphibians, reptiles, and mammals; their habits, life histories, coloration, behavior, reproduction, and adaptations, together with their classification, nomenclature, characters, and relationships. Laboratory study of the parts employed in the classification of these groups with special training on the identification of the vertebrates of eastern United States. Field work is partly to give practice in field observations and in ready identification of local vertebrates in their natural environment and to introduce ecological methods. Fee, \$4.50.

\*Cons. S25. **MAMMALOLOGY.** (U,G) 2 hours credit. Prerequisite, Course 8 or permission of instructor. Lectures and laboratory, M T W Th F 10:30-12. Fernow 14. Mr. EADIE.

Principal phases of mammalian life; origin, distribution, habits, and literature. Laboratory periods are devoted to methods of field collecting, census taking, life history studies, preparation of skins and skeletons, and identification of North American species. Fee, \$3.

Cons. S401-405. **RESEARCH PROBLEMS.** (U,G) Credit and hours to be arranged. Prerequisite, adequate preparation and permission of the instructor.

Several staff members who will be on campus during the summer are willing to direct research.

## ECONOMICS

Econ. A103. **MODERN ECONOMIC SOCIETY.** (U) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 256. Mr. LIGGETT.

A survey of the existing economic order with particular emphasis on the salient characteristics of the modern American economy. The concentration is on explaining and evaluating the operation of the price system as it regulates production, distribution, and consumption, and as it is modified and influenced by private organizations and government policy.

Econ. A104. **MODERN ECONOMIC SOCIETY.** (U) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 256. Mr. CAMPBELL.

Concentration on the determinants of aggregate economic activity. The main areas studied are the monetary and banking systems, the composition and fluctuations of national income, the major determinants of economic growth, all as influenced by monetary, fiscal, and other policies.

Econ. A206. **AMERICAN ECONOMIC HISTORY.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 264. Mr. DOWD.

An examination and analysis of significant processes and relationships in the economic development of the United States from the colonial period to the present.

Econ. A401. **LABOR ECONOMICS, LABOR MOVEMENTS, AND GOVERNMENT LABOR POLICY.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 264. Mr. MONTGOMERY.

An analytical and descriptive treatment of wage, employment, and other basic labor problems; a study of the policies, methods, and aims of organized labor; and an examination of the main components of American government policy toward labor.

Econ. A811. **INTERMEDIATE ECONOMIC THEORY.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 256. Mr. CAMPBELL.

An analytical view of consumer demand and the pricing process in a free market economy under different competitive conditions. The role of the market in resource allocation and the distribution of income.

Econ. A825. **BUSINESS CYCLES.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 264. Mr. DOWD.

A study of the nature and causes of business recessions, revivals, and booms, and of recent business cycle history, together with a brief introduction to methods of current business analysis and forecasting.



## EDUCATION

### ADMINISTRATION AND SUPERVISION

R.E. S243. **PRINCIPLES AND PROCEDURES IN SUPERVISION.** (G) 3 hours credit. M T W Th F 12-1:15. Warren 37. Miss WARDEBERG.

A basic course in the nature and scope of supervision; fundamental principles and various procedures will be considered. Open to those already in supervisory positions, either in school work or elsewhere, and experienced teachers aspiring to become supervisors.

R.E. S261. **THEORY AND PRACTICE OF ADMINISTRATION.** (G) 3 hours credit. M T W Th F 8-9:15. East Roberts 223. Mr. McCARTY.

A basic course in the theory and processes common to a variety of administrative positions within the school system and elsewhere. Both the science and the art of administration are emphasized; theory is employed in group analysis of case studies.

R.E. S262. **SECONDARY SCHOOL PRINCIPALSHIP.** (G) 3 hours credit. M T W Th

F 10-11:15. East Roberts 223. Mr. McCARTY.

The responsibilities of the secondary school principal within the school building. Special attention will be given to the problems of the six-year high school.

R.E. S264. **SCHOOL FINANCE AND FACILITIES.** (G) 3 hours credit. M T W Th F 10-11:15. Warren 232. Mr. NUCCIO.

Typical problems: how local school funds are levied, collected, and disbursed; budget making; bonding; state funds and their distribution; planning, utilization, and upkeep of school facilities.

Ed. A267. **SCHOOL LAW FOR ADMINISTRATORS AND TEACHERS.** (G) 3 hours credit. M T W Th F 8-9:15. East Roberts 222. Mr. HIXON.

A study of school law with particular emphasis on New York State legislation, court decisions, opinions, and regulations which affect the schools of the state.

### EIGHTH ANNUAL CONFERENCE FOR SCHOOL ADMINISTRATORS

The Eighth Annual Conference for School Administrators will be held during the fourth week of the Summer School, July 25-27, 1961. The theme of the conference is "Vocational Education and the Practical Arts in the Modern School Program." The three-day session is designed primarily for chief school administrators, secondary school principals, and guidance counselors.

For further information, write to VINCENT C. NUCCIO, Co-ordinator, 103 Stone Hall, Cornell University.

### AGRICULTURAL EDUCATION

(See *Other Programs*, page 45.)

### DEVELOPMENT OF HUMAN RESOURCES

Information concerning the nature and extent of graduate instruction available in the subject, *Development of Human Resources*, may be obtained from the Office of Resident Instruction, School of Industrial and Labor Relations, Cornell University, Ithaca, N.Y.

### EDUCATIONAL PSYCHOLOGY AND MEASUREMENT

R.E. S111. **EDUCATIONAL PSYCHOLOGY.** (U) 3 hours credit. Prerequisite, a course in general psychology. M T W Th F 8-9:15. Comstock 245. Mr. GLOCK.

Consideration of the outstanding facts and principles of psychology bearing upon classroom problems.

R.E. S117. **PSYCHOLOGY OF ADOLESCENCE.** (U,G) 2 hours credit. Prerequisite, a course in general psychology. M T W Th F 10. Warren 37. Mr. ANDRUS.

A survey of the nature of adolescent growth and development, with emphasis on some of the causal factors pertaining to adolescent behavior.

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R.E. S211. **EDUCATIONAL PSYCHOLOGY.** (U,G) 3 hours credit. Permission of instructor required. M T W Th F 11-12:15. Comstock 145. Mr. PETERSON.

For mature students with teaching experience. Special emphasis will be given to the topics of learning, social organization of the classroom, and evaluation, and their relationship to the teacher's problems.

R.E. S251. **EDUCATIONAL MEASUREMENT.** (G) 3 hours credit. Prerequisite, a course in educational psychology or permission of instructor. M T W Th F 8-9:15. Warren 132. Mr. SCHMITT.

A study of the construction and administration of achievement tests and the use of aptitude tests, achievement tests, and other measuring instruments in the classification and guidance of pupils and improvement of instruction.

R.E. S253. **INTRODUCTION TO EDUCATIONAL STATISTICS.** (G) 3 hours credit.

M T W Th F 8-9:15. Comstock 145. Mr. MILLMAN.

A study of common statistical procedures encountered in educational literature and research. Includes the computation and interpretation of descriptive measures and tests of significance.

Ed. A255. **USE AND INTERPRETATION OF TESTS IN GUIDANCE AND PERSONNEL ADMINISTRATION.** (G) 3 hours credit. Lectures. M T W Th F 8. Laboratory, to be arranged. Caldwell 143. Mr. ANDRUS.

Open to students in guidance or personnel administration and to classroom teachers who expect to work with standardized group tests. Deals with the historical development, use, and interpretation of aptitude tests as a basis for guidance and selection in public schools, colleges, and/or industry. Designed to meet the New York State certification requirement for guidance counselors.

## ELEMENTARY EDUCATION

Elementary education at Cornell is offered only at the graduate level. Teachers are encouraged to select offerings in other departments of the University to extend their knowledge and depth of understanding in the content areas of the elementary school curriculum. Students have a wide selection of courses during the Summer School in addition to courses designed to increase competence in elementary school teaching. (See offerings in biological sciences; the social sciences: government, history, sociology, anthropology; English; Speech and Drama; and the Fine Arts.)

Courses in methods and materials designed specifically for the elementary school teacher are listed below.

R.E. S215. **MATHEMATICS FOR ELEMENTARY TEACHERS.** (G) 3 hours credit. M T W Th F 8-9:15. Warren 37. Mr. GEISELMANN.

Deals with number systems, both historically and logically, the rationale behind the four fundamental operations, a meaningful approach to fractions and decimals, theory and history of measurement, exponents and powers of ten, and other selected topics as a means of strengthening the background of the teacher and of providing him with new methods of presenting mathematics in the elementary school.

Ed. A224. **SOCIAL STUDIES IN THE ELEMENTARY SCHOOL.** (G) 3 hours credit. M T W Th F 12:30-1:45. Warren 232. Mrs. SMITH.

The curriculum, methods, and materials in teaching the social studies.

R.E. S202. **NATURE LITERATURE.** (See page 26.)

C.D.&F.R. S351. **CHILDREN'S LITERATURE.** (See page 33.)

C.D.&F.R. S314. **PSYCHOLOGY OF ELEMENTARY SCHOOL CHILDREN.** (See page 33.)

F.&Ntr. S346. **NUTRITION INFORMATION FOR ELEMENTARY TEACHERS.** (See page 34.)

Music A109. **MUSIC IN THE ELEMENTARY SCHOOL.** (See page 40.)

Sp.&Dr. A231. **SPEECH FOR THE CLASSROOM TEACHER.** (See page 43.)

Sp.&Dr. A351. **FUNCTIONAL SPEECH DISORDERS.** (See page 43.)

Sp.&Dr. A361. **DISORDERS OF SPEECH RECEPTION.** (See page 43.)

## EXTENSION EDUCATION

(See *Other Programs*, page 49.)

## GUIDANCE AND PERSONNEL ADMINISTRATION

R.E. S282. **EDUCATIONAL AND VOCATIONAL GUIDANCE.** (G) 2 hours credit. M T W Th F 12. Warren 132. Mr. BRESEE.

Historical and theoretical background of the guidance movement; educational, vocational, and community information needed; the study of the individual; group methods; counseling; placement; and the organization and evaluation of guidance programs. An introductory survey course.

R.E. S284. **GROUP TECHNIQUES IN GUIDANCE.** (G) 2 hours credit. M T W Th F 10. Warren 245. Mr. NELSON.

Methods and materials for providing various types of group guidance. Occupations courses, orientation procedures, extracurricular activities, school handbooks, and other media are evaluated.

R.E. S286. **ORGANIZATION AND ADMINISTRATION OF GUIDANCE PROGRAMS.** (G) 2 hours credit. M T W Th F 10. Warren 345. Mr. BRESEE.

Principles and practices in planning and conducting a guidance program and other

pupil personnel services. This is one of the courses required for permanent certification in guidance in New York State.

R.E. S288. **CASE STUDIES IN COUNSELING.** (G) 2 hours credit. Prerequisite, Courses 255, 282, 283, and 285, or their equivalents. M T W Th F 9. Warren 14. Mr. NELSON.

An advanced course in counseling in which actual cases are used for demonstration purposes. Preparation for and conduct of counseling interviews; the making of case studies; referral and other procedures.

Prev. Med. Al. **PRINCIPLES AND PRACTICES IN MENTAL HEALTH.** (See page 39.)

See also course offerings in *Educational Psychology and Measurement*; *Child Development and Family Relationships*; and *Psychology*.

Guidance courses tentatively scheduled for the Summer Session of 1962: *Educational and Vocational Guidance*, *Counseling*, *Occupational and Educational Information*, *Practicum in Measurement and Appraisal for Counselors*.

## HISTORY AND PHILOSOPHY OF EDUCATION

Ed. A244. **PHILOSOPHY OF EDUCATION.** (G; U by permission) 3 hours credit. M T W Th F 8-9:15. Plant Science 37. Mr. GANDERS.

Criticism will be made of educational assumptions, policies, and practices recommended by leading philosophers of education. Philosophic justification for these suggestions will be sought in selected essays of the great philosophers. Credit in the course is acceptable in meeting certification requirements at both elementary and secondary school levels.

R.E. S295. **COMPARATIVE EDUCATION.** (G; U by permission) 3 hours credit. M T W Th F 11-12:15. Plant Science 37. Mr. GANDERS.

Educational purposes, systems, and practices of selected countries will be compared. Variations will be related to economic conditions, social needs, and political aspirations. Emphasis will be placed on American and British school systems.

R.E. S297. **HISTORY OF EDUCATION.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Warren 145. Miss PEARD.

Concerned with some of the principal ideas and methods which have affected educational practice from the time of the ancient Greeks until the present day. Opportunity will be given to students to select topics or epochs which they wish to study in depth.

## HOME ECONOMICS EDUCATION

H.E. Ed. S403. **SPECIAL PROBLEMS FOR GRADUATE STUDENTS.** (G) Credit and hours to be arranged. Van Rensselaer East Wing 5. Department staff.

For graduate students recommended by their chairmen and approved by the instructor in charge for independent, advanced work.

H.E. Ed. S407. **THESIS AND RESEARCH.** (G) Credit and hours to be arranged. Registration with permission of the instructor. Van Rensselaer East Wing 5. Department staff.

\*H.E. Ed. S433. **TEACHING HOMEMAKING AT THE SECONDARY SCHOOL LEVEL.** (G) 2 hours credit. M T W Th F 11. Van Rensselaer East Wing 5. Miss MOSER.

Designed for students who have had experience in teaching homemaking in secondary schools. Consideration will be given to program planning, teaching procedures, materials, and other pertinent problems related to the teaching of homemaking at the secondary school level. Opportunity will be provided for work on individual problems. Fee, \$2.

\*H.E. Ed. S456u. **CURRENT DEVELOPMENTS AND HOME ECONOMICS EDUCATION.** (See page 49.)

\*H.E. Ed. S459. **EVALUATION.** (G) 3

## NATURE STUDY AND SCIENCE EDUCATION

\*R.E. S108. **FIELD NATURAL HISTORY.** (U,G) 3 hours credit. Lectures, T W Th 1:30-3. Field trips, T Th 3-5:20. Stone 7. Mr. FISCHER.

Designed to assist and enrich the teaching of general science and biology; involves studies of local plants and animals, their ecology, and relations to humans. Extensive field work stresses the outdoors as a laboratory and teaching resource. This course may serve as an elective education course in the professional N.Y. State requirements for science teachers. Fee, \$1.

R.E. S202. **NATURE LITERATURE.** (U,G) 2 hours credit. M T W Th F 11. Stone 7. Miss GORDON.

## READING AND STUDY SKILLS

(See Other Programs, page 49.)

## RESEARCH AND GENERAL

R.E. S199. **INFORMAL STUDY IN EDUCATION.** (U) Credit as arranged. Members of the staff of the Department of Rural Education.

R.E. S204. **AUDIO-VISUAL METHODS IN TEACHING.** (U,G) 2 hours credit. M T W Th F 9. Roberts 131. Mr. PHILLIPS.

A review of the theory of communications with special emphasis on a study of pictures, posters, graphs, models, slides, films, and other audiovisual materials in their relation

to instruction. While emphasis will be on effective methods and techniques for using audiovisual materials and devices, there will also be many opportunities to prepare materials for classroom use and for mass communication.

hours credit. M T W Th F 9:30-10:45. Van Rensselaer East Wing 5. Mrs. NELSON.

For high school and college teachers, administrators, extension agents, and educational research workers; students without experience in any of these professional positions are admitted by permission of the instructor. Basic principles of evaluation studied in relation to specific methods of appraising educational programs or individual achievement. Opportunities will be given for constructing and using evaluation instruments. Fee, \$2.

\*H.E. Ed. S478. **RESEARCH IN EDUCATION.** (G) 1 hour credit. M W F 12. Van Rensselaer East Wing 5. Mrs. NELSON.

For degree candidates in home economics education. Planned to acquaint students with some of the research in the field. It is suggested that students take this course soon after they matriculate in the Graduate School. Fee, \$1.

A survey of nature and science prose and poetry, with attention to their significance at elementary and secondary school levels and for leisure reading.

R.E. S207G. **METHODS AND MATERIALS FOR TEACHING GENERAL SCIENCE.** (U,G) 3 hours credit. Prerequisite, experience in teaching general science or biology, or consent of instructor. M T W Th F 8-9:15. Stone 7. Mrs. HADLOCK.

A study of materials useful in teaching general science and a consideration of plans that will make the instruction effective. Special attention will be given to demonstrations and projects.

to instruction. While emphasis will be on effective methods and techniques for using audiovisual materials and devices, there will also be many opportunities to prepare materials for classroom use and for mass communication.

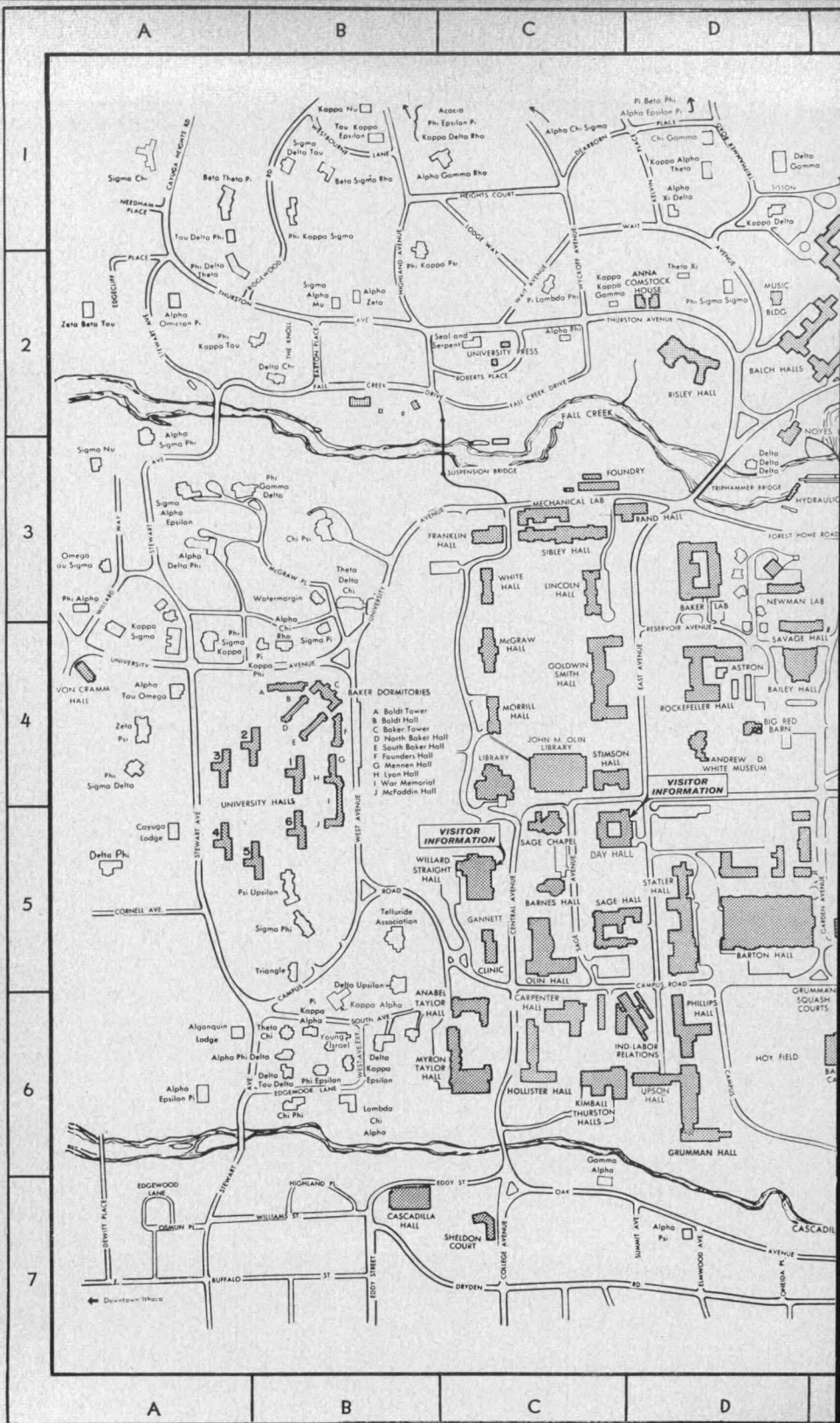
R.E. S299. **EDUCATIONAL RESEARCH METHODS.** (G) 2 hours credit. Recommended for Master's degree candidates. Alternates with R.E. 251. M T W Th F 10. Comstock 145. Mr. MILLMAN.

Continued on page 30



## KEY TO THE CAMPUS MAP ON THE PAGES FOLLOWING

- Alumni (Athletic) Fields F5  
 Anabel Taylor Hall C6, interfaith center  
 Animal Husbandry H5  
 Artificial Breeders H7  
 Astronomy D4; Fuertes Observatory F2  
 Bacon Athletics Cage E6  
 Bailey Hall D4, auditorium  
 Baker Dormitories B4, men's residences  
 Baker Laboratory D3, chemistry  
 Balch Halls E2, women's residences  
 Barnes Hall C5, campus store, auditorium  
 Barton Hall D5, military training  
 Big Red Barn D4, alumni center  
 Caldwell Hall E4, agronomy  
 Carpenter Hall C6, engineering library & administration  
 Cascadilla Hall B7, graduate residence  
 Clara Dickson Hall E1, women's residence  
 Collyer Boat House, Cayuga Lake Inlet  
 Comstock Hall E4, entomology, limnology  
 Comstock House D2, women's residence  
 Cornell Quarters G7, student families  
 Crescent E6, football stadium  
 Dairy Bar Cafeteria G5  
 Day Hall C5, administration  
 Fernow Hall F4, conservation  
 Filter Plant J3  
 Food Storage and Laundry F7  
 Foundry D3  
 Franklin Hall C3, Far Eastern Studies, art  
 Gannett Medical Clinic C5  
 Goldwin Smith Hall C4, arts and sciences  
 Graphic Arts Services G6  
 Greenhouses F4, H4  
 Grumman D6, aero. engineering  
 Grumman Squash Courts E6  
 Heating Plant F6  
 High Voltage Lab. H7, 909 Mitchell St.  
 Hollister Hall C6, civil engineering  
 Hoy Field D6, baseball  
 Hydraulic Laboratory D3  
 Industrial and Labor Relations D6  
 Judging Pavilion H5  
 Kimball and Thurston Halls C6, engineering mechanics & materials  
 Library Clock Tower C4  
 Lincoln Hall C3  
 Lua A. Minns Garden E4  
 Lynah Hall E5, ice skating  
 Mann Library F4, agriculture-home economics library, regional history, Bailey Hortorium  
 Mary Donlon Hall E1, women's residence  
 McGraw Hall C4, geology; business & public administration  
 Moakley House H2, recreation center, golf  
 Morrill Hall C4, sociology, anthropology, modern languages, psychology  
 Music D2 (moves to Lincoln, fall, 1961)  
 Myron Taylor Hall C6, law  
 Newman Laboratory D3, nuclear studies  
 Noyes Lodge E2, recreation, cafeteria  
 Olin Hall C5, chemical & metallurgical engineering  
 Olin Library C4  
 Ornithology, Sapsucker Woods Rd. via Warren & Hanshaw Rds. H1-2  
 Phillips Hall D6, electrical engineering, radio-physics & space research  
 Plant Science Building E4  
 Pleasant Grove Apts. F1, student families  
 Poultry Research F4  
 Poultry Virus Disease Laboratory J5  
 Radiation Biology Lab., Warren Rd. H1  
 Rand Hall D3, hospital administration  
 Rice Hall F4, poultry husbandry  
 Riding Hall and Stables F6  
 Riley-Robb Hall G5, agricultural engineering  
 Risley Hall D2, women's residence  
 Roberts Hall E4, agriculture administration  
 Rockefeller Hall D4, physics  
 Rose Gardens, road to, J3  
 Sage Chapel C5  
 Sage Hall D5, women's residence  
 Savage Hall E3, nutrition  
 Schoellkopf Field and Hall E6, athletics  
 Service Building F7  
 Sibley Hall C3, architecture, history, government  
 Statler Hall D5, hotel administration  
 Stimson Hall C4, zoology  
 Stocking Hall G5, dairy & food science, bacteriology  
 Stone Hall E4, education  
 Suspension Bridge C3  
 Teagle Hall E5, men's physical ed. & sports  
 Thurston Hall (see Kimball)  
 Triphammer Bridge D3  
 University Halls B4, men's residences  
 University Press C2  
 Upson Hall D6, mechanical engineering  
 U. S. Nutrition Laboratory J4  
 Van Rensselaer Hall E3, home economics  
 Vegetable Gardens G7  
 Veterinary College J4  
 Veterinary Virus Research Laboratory H7  
 Visitor Information C5  
 von Cramm Scholarship Residence (men) A4  
 Warren Hall E4, agricultural economics, rural sociology  
 White Hall C3, mathematics  
 White Museum of Art D4  
 Willard Straight Hall C5, student union  
 Wing Hall G5



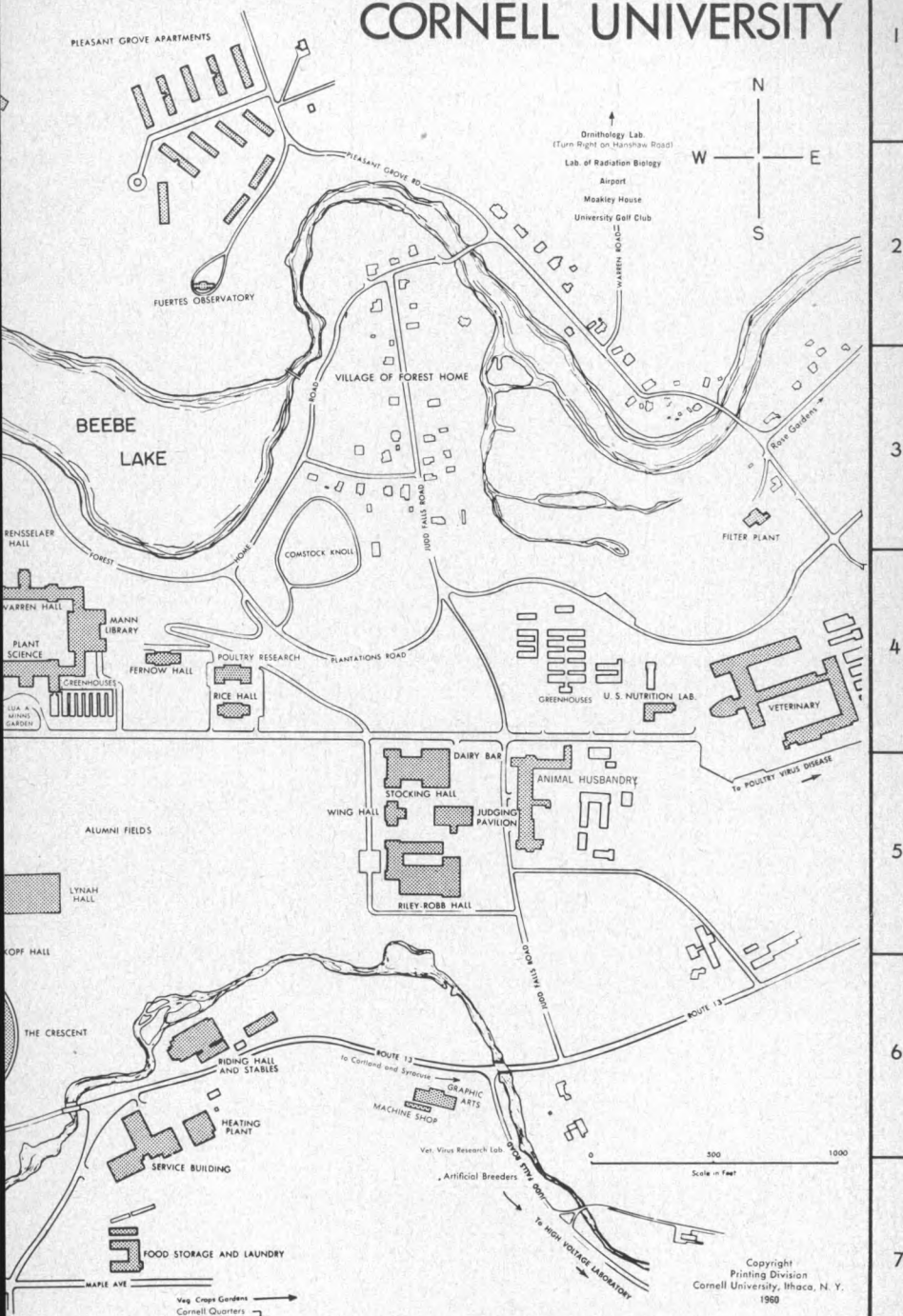
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# CORNELL UNIVERSITY



F

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J

*Continued from page 26*

Consideration of the basic research methods as applied to education and the principles of thesis writing.

R.E. S300. **SPECIAL STUDIES IN EDUCATION.** (G) Credit as arranged. Members of the staff of the Department of Rural Education.

## SECONDARY EDUCATION AND CURRICULUM

For students with a major interest in secondary school teaching, courses in secondary education as well as in teaching programs and techniques in the several fields will be offered. In addition, students are urged to carry supporting work in one of the teaching fields and in such fields as educational psychology, history, philosophy, and guidance.

Ed. A130. **THE ART OF TEACHING.** (U,G) 3 hours credit. M T W Th F 11-12:15. East Roberts 222. Mr. HIXON.

Designed for experienced high school teachers and teachers in service who have not met full certification in an academic area of teaching. The emphasis will be placed on techniques of teaching, old and new, which are appropriate for classroom use.

Topics selected have general significance for all academic subjects. Opportunity given for exploration and discussion of related special methods. Only in the academic areas may this course be applied for special methods certification, although it may be used for general methods credit in both academic and special areas.

Ed. A130E. **THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS.** (U,G) 3 hours credit. M T W Th F 12:30-1:45. Warren 145. Miss PEARD.

To meet teacher certification requirements and needs of experienced teachers. Study of content and material appropriate to the teaching of high school English will be emphasized.

Ed. A130S. **THE TEACHING OF SOCIAL STUDIES IN SECONDARY SCHOOLS.** (U,G) 3 hours credit. M T W Th F 2-3:15. Warren 132. Mr. LOWE.

Planned to meet the needs of those preparing for certification as well as those more experienced teachers with interests in special problems. Instruction, curriculum work, evaluation, materials, and learning problems will be considered. Maximum opportunity for individual work on special problems in social studies teaching will be afforded.

R.E. S276. **THE CURRICULUM OF AMERICAN SCHOOLS.** (G) 2 or 3 hours credit. M T W Th F 9 (additional time to be arranged for third hour of credit). Stone 310. Mr. STUTZ.

Ed. A499. **INFORMAL STUDIES IN EDUCATION.** (U) Credit as arranged. Members of the staff of the School of Education.

Ed. A500. **SPECIAL STUDIES IN EDUCATION.** (G) Credit as arranged. Members of the staff of the School of Education.

Students working on theses or other research projects may register after consulting the staff members concerned.

A consideration of issues and questions affecting the curriculum of American schools, with emphasis on elementary and secondary schools, and with attention to such questions as establishing aims, meeting problems of organization and sequence, selection of content materials, carrying on curriculum work, and appraisal of the curriculum. A chance will be afforded for work on curriculum problems or assignments of individual class members to earn the third hour of credit.

Ed. A315. **READING AND STUDY SKILLS IN THE SECONDARY SCHOOLS.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. E. Roberts 222. Mr. PAUK.

Designed for all teachers of the content subjects as well as for administrators and supervisors. The psychology, philosophy, and pertinent research in developmental reading will be explored. Emphasis will be placed on demonstration and discussion of practical teaching methods and practice materials used in classroom teaching.

R.E. S391. **THE JUNIOR HIGH SCHOOL.** (U,G) 3 hours credit. M T W Th F 8-9:15. Warren 132. Mr. VARS.

A study of the junior high school as applied to the general movement toward reorganization. Topics discussed will include the basic philosophy of junior high schools, articulation, pupil guidance and differentiation, and new forms of organization such as multiple period planning and integrated and core programs.

R.E. S394. **SEMINAR IN JUNIOR HIGH SCHOOL EDUCATION.** (G) 1 hour credit. Open only to interns in the Junior High School Project. W 12-2:15. Stone 310. Mr. JOHNSON.

Consideration of various approaches to the professional growth of teachers and the improvement of educational programs at the junior high school level.



## ENGINEERING

### CIVIL ENGINEERING

Engr. A2902. **ENGINEERING LAW.** (U) 3 hours credit. M T W Th F 8-9:15. Hollister 314. Mr. ———.

Basic features of laws and practices relating to contracts, torts, agency, property, water rights, forms of business organizations, sales, insurance, utilities, labor, government regula-

tion of business, negotiable instruments, workmen's compensation, liens, bankruptcy, patents, copyrights, trademarks; work of the expert witness; ethical responsibilities; professional registration; special emphasis on contract documents used in construction work.

### ENGINEERING MECHANICS AND MATERIALS

Engr. A1153. **MECHANICS OF MATERIALS.** (U) 3 hours credit. Prerequisite, 1151 or equivalent. Lecture and laboratory, M T W Th F 9:30-10:45. Thurston 304. Mr. ———.

Stress and strain, tension, compression and shear, generalized plane stress, and Mohr's circle; riveted and welded joints; bending and torsion in elastic and plastic ranges; deflections of beams; theories of failure; columns; energy methods and Castigliano's theorem.

Engr. A1155. **APPLIED DIFFERENTIAL EQUATIONS.** (U) 3 hours credit. Prerequisite, 1151 and Math. 163 or equivalent. M T W Th F 8-9:15. Thurston 305. Mr. ———.

Formulation and solution of engineering problems which involve the use of ordinary differential equations, Fourier Series, partial differential equations, and matrices. In addition to classical analytical methods, numerical methods are introduced.

For the *Engineering Industrial Co-operative Program*, see *Other Programs*, page 46.

## ENGLISH

Engl. A252. **GREAT ENGLISH WRITERS.** (U) 3 hours credit. M T W Th F 1:30-2:45. Goldwin Smith 156. Mr. FERRIS.

Studies in selected works of great English writers, Wordsworth to the twentieth century.

Engl. A302. **MODERN DRAMA.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 242. Mr. WHICHER.

Selected modern plays, European and American, from Ibsen to Miller.

Engl. A333. **MAJOR AMERICAN WRITERS OF THE NINETEENTH CENTURY.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 242. Mr. WHICHER.

A study of selected American writers from Poe to James. Preliminary reading list on request from Goldwin Smith 245.

Engl. A343. **THE SHORT STORY.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 156. Mr. FLETCHER.

Selected short stories: American, German, and Russian, with special emphasis on Hawthorne, Chekhov, and Mann. German and Russian stories will be read in translation.

Engl. A385. **CREATIVE WRITING.** (U,G) 3 hours credit. M T W Th F 1:30-2:45. Goldwin Smith 236. Mr. RAY.

Particular emphasis upon writing short stories and poetry, though other kinds of writing may be undertaken. Analysis of students' writing, study of models and trends, personal conferences.

Engl. A413. **THE EIGHTEENTH-CENTURY NOVEL.** (U,G) 3 hours credit. M T W Th F 1:30-2:45. Goldwin Smith 128. Mr. FLETCHER.

A critical study of selected novels. Works to be read and recommended editions: Defoe, *Robinson Crusoe* (Bantam); Richardson, *Pamela* (Norton); Fielding, *Joseph Andrews* (Rinehart); Lewis, *The Monk* (Evergreen); Smollett, *Humphrey Clinker* (Rinehart); Sterne, *Tristram Shandy* (Odyssey); Austen, *Emma* (Rinehart).

Engl. A420. **ELIZABETHAN AND JACOB-  
BEAN DRAMA.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 236. Mr. NOVARR.

A critical study of plays by Marlowe, Marston, Jonson, Webster, Beaumont, Fletcher, Ford, and others.

Engl. A422. **TENNYSON, BROWNING, AND ARNOLD.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 242. Mr. FERRIS.

A study of the poetry and poetic theory of the three principal Victorian poets, with special attention to the dramatic monologue, the reflective-philosophical poem, and the narrative poem.

Engl. A449. **MODERN AMERICAN POETRY.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 128. Mr. RAY.

A critical study of modern American poetry, concentrating on central trends embodied in the work of Pound, Eliot, Stevens, Crane, and Auden, and on shifting or new trends represented in the work of younger poets.

Engl. A466. **CHAUCER: THE CANTERBURY TALES.** (U,G) 3 hours credit. M T

W Th F 9:30-10:45. Goldwin Smith 236. Miss FISHER.

A primarily literary study; brief reports; background reading.

Engl. A472. **MILTON.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 156. Mr. NOVARR.

An intensive study of Milton's poetry and selected prose, with special attention to *Paradise Lost*.

Engl. A920. **SPECIAL TOPICS FOR INVESTIGATION.** (G) Hours and credit to be arranged. Miss FISHER.

For graduate students engaged in writing the M.A. essay or Ph.D. dissertation. Informal reports and conferences.

## GEOLOGY

\*Geol. A101u. **GENERAL GEOLOGY.** (U) 3 hours credit. *June 28 to July 19.* Registration limited to 24 students and permitted only to students who register also for A102u. Lectures, M T W Th F 8-9:50. McGraw 150. Laboratory, M T W Th F 2-4:30. McGraw 265. Mr. FERNOW.

An introduction to the various branches of geologic science: mineralogic, lithologic, geomorphic, glacial, structural, historic, and economic. Field trips will be given during certain laboratory periods.

The area surrounding Ithaca abounds in the illustrations of geologic science used in the field trips for which the summer period

is particularly effective. Text: Gilluly, Waters, Woodford (second ed.), *Principles of Geology; Geology 101 Laboratory Manual.* Laboratory fee, \$10.

\*Geol. A102u. **GENERAL GEOLOGY.** (U) 3 hours credit. *July 20 to August 11.* Geology A101u or its equivalent is prerequisite for Geology A102u. Lectures, M T W Th F 8-9:50. McGraw 150. Laboratory, M T W Th F 2-4:30. McGraw 265. Mr. FERNOW.

A continuation of Geology A101u. Text: Dunbar (second ed.), *Historical Geology; Geology 102 Laboratory Manual.* Laboratory fee, \$10.

## GOVERNMENT

Govt. A101. **AMERICAN GOVERNMENT.** (U) 3 hours credit. M T W Th F 8-9:15. B-1 West Sibley. Mr. LONGAKER.

A general introduction to American national government and politics. Emphasis will be placed on historical development, organization, powers, practical working, and problems of federalism.

Govt. A104. **COMPARATIVE GOVERNMENT.** (U) 3 hours credit. M T W Th F 2-3:15. B-1 West Sibley. Mr. CURTIS.

A comparative study of major contemporary political currents and of governmental institutions and processes.

Govt. A216. **THE AMERICAN PRESIDENCY** (formerly American Studies 312). (U,G) 3 hours credit. M T W Th F 11-12:15. B-1 West Sibley. Mr. LONGAKER.

Analysis of the office and powers of the President, with emphasis on his activities as administrator, diplomat, commander, legis-

lator, politician, and head of state. The lives and accomplishments of the important Presidents are studied at length.

Govt. A322. **CONTEMPORARY POLITICAL THOUGHT.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. B-1 West Sibley. Mr. CURTIS.

Political thought from the industrial revolution to the present. Special emphasis will be placed on the historical and theoretical development as well as on the current significance of Marxism.

Govt. A411. **INTERNATIONAL RELATIONS.** (U) 3 hours credit. M T W Th F 9:30-10:45. West Sibley. Mr. WEISSBERG.

An analysis of the basic issues, concepts, contents, and methods which characterize relations among states. Ideological, legal, military, and economic elements which may contribute to harmony and dissent will be discussed in terms of both international society and na-

tional foreign policies. The over-all frame of reference will consist chiefly of theories, practices, and institutions developed during the twentieth century.

Govt. A414. **INTERNATIONAL ORGANIZATION.** (U,G) 3 hours credit. M T W Th F 11-12:15. West Sibley. Mr. WEISSBERG.

## HISTORY

Hist. A106. **WESTERN CIVILIZATION: RECENT PERIOD.** (U,G) 3 hours credit. M T W Th F 8-9:15. West Sibley B-2. Mr. CARLSON.

A survey of European history since the middle of the seventeenth century.

Hist. A157. **TWENTIETH - CENTURY AMERICA.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. West Sibley B-2. Mr. BRUNGER.

The industrial-urban complex and American society: social problems and programs, intellectual movements and achievements, adjustment in a changing world community, America as an emergent world power, the unsolved and unexplored problems.

Hist. A735. **HISTORY OF NEW YORK STATE.** (U,G) 3 hours credit. M T W Th F 2-3:15. West Sibley B-2. Mr. BRUNGER.

## HOME ECONOMICS

### CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

\*C.D.&F.R. S314. **PSYCHOLOGY OF THE ELEMENTARY SCHOOL CHILD.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Van Rensselaer 117. Mrs. MELVILLE.

The personal and social development of children 6-12 years old will be presented through lectures, discussions, and readings. Such topics as motor skills, problem solving abilities, over-and-under achievers, and peer relationships will be discussed in the light of current psychological research. Fee, \$2.

\*C.D.&F.R. S351. **CHILDREN'S LITERATURE.** (U,G) 3 hours credit. M T W Th F 8-9:15. Van Rensselaer 117. Miss REEVES.

Literature as a resource in the child's living. The relation of children's literature to world literature. Traditional and modern forms. Illustrations in children's books. The student is expected to read widely in the literature for children two to twelve years of age, to participate in a story-telling group, and to

An analysis of international governmental procedures and institutions; international administration; international legislation; power politics and collective efforts to maintain and restore international peace and security; the League of Nations; the United Nations and specialized agencies; the judicial functions of the International Court of Justice.

Beginning with an analysis of the geographic factors, the various cultures, Indian, European, and American will be traced. The emergent state through its agricultural, commercial, and industrial phases will be treated with some special attention to intellectual currents, particularly as reflected in literature.

Hist. A802. **THE FAR EAST IN THE TWENTIETH CENTURY.** (U,G) 3 hours credit. M T W Th F 11-12:15. West Sibley B-2. Mr. CARLSON.

An analysis of the modern transformation of Eastern and Southeastern Asia, with coverage of such subjects as the impact of the West, forces and problems of modernization, nationalist movements, the Far East in world conflict, and the rise of Asian Communism.

work intensively on a problem of her own selection. Fee, \$2.

\*C.D.&F.R. S363. **HUMAN RELATIONS IN THE FAMILY.** (U,G) 3 hours credit. M T W Th F 8-9:15. Van Rensselaer 124. Mr. PEISNER.

A consideration of the interpersonal relations in the family basic to an intelligent understanding of the attitudes and behavior of its members. Special attention will be given to husband-wife, parent-child, and sibling relationships, and to the interrelations of the younger, middle, and older generations at successive stages in the family cycle. Fee, \$2.

\*C.D.&F.R. S370. **MARRIAGE.** (U,G) 3 hours credit. M T W Th F 11-12:15. Van Rensselaer 124. Mr. BOYD.

Designed to acquaint the student with the growing body of scientific knowledge concerning marriage, the experiences that precede it, and the adjustments, satisfactions, and prob-

lems growing out of it. Such topics as the following will be discussed: emotional and social maturity and readiness for marriage, personality and social factors in marriage adjustment, sex life in marriage, pregnancy and parenthood, the married woman and outside employment, marital failure and divorce, sources of help for troubled marriages. Fee, \$2.

\*C.D.&F.R. S403. **SPECIAL PROBLEMS FOR GRADUATE STUDENTS.** (G) Credit and hours to be arranged. Department staff.

For graduate students recommended by their chairmen and approved by the head of the department and the instructor in charge for independent, advanced work. Fee dependent upon the nature of the problem.

\*C.D.&F.R. S407. **THESIS AND RESEARCH.** (G) Credit and hours to be arranged. Registration with permission of the student's

chairman. Department staff. Fee dependent upon the nature of the problem.

\*C.D.&F.R. S475. **PERSONAL-SOCIAL RELATIONSHIPS OF ADOLESCENTS.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Van Rensselaer 124. Mr. PEISNER.

Intended to offer junior and senior high school teachers of marriage and family life subject matter the opportunity to broaden and deepen basic knowledge, to develop further fundamental skills and techniques in teaching, and to build curriculum materials appropriate to their particular situations. Among the topics considered are the contemporary American family; the family cycle and developmental task concepts; the goals of family life education; social relationships of young people—theories and practices; and a review of teaching methods, materials, and current research. Fee, \$2.

## FOOD AND NUTRITION

\*F.&Ntr. S326. **MODERN THEORY AND PRACTICE IN FOOD PREPARATION.** (U,G) 3 hours credit. Prerequisite, a college course in food preparation. Lectures, M W F 8-9:15. Van Rensselaer 339. Laboratory, T Th 1-3:30. Van Rensselaer 356. Miss BRIANT.

Planned primarily for teachers, extension workers, and dietitians who wish to increase their understanding of the principles and modern concepts of food preparation. Laboratory experiments illustrate selected effects of different procedures and ingredients. Fee, \$10.

F.&Ntr. S340. **FAMILY NUTRITION.** (U,G) 3 hours credit. Prerequisite, a college course in nutrition. M T W Th F 9:30-10:45. Van Rensselaer 339. Miss NEWMAN.

Nutritional needs of various family members with special emphasis on the physiological stress periods of pregnancy, lactation, and childhood.

F.&Ntr. S346. **NUTRITION INFORMATION FOR ELEMENTARY TEACHERS.** (U,G) 3 hours credit. M T W Th F 8-9:15. Van Rensselaer 301. Miss NEWMAN.

## HOUSEHOLD ECONOMICS AND MANAGEMENT

\*HEM S130. **ECONOMIC CONDITIONS IN RELATION TO THE WELFARE OF FAMILIES.** (U,G) 3 hours credit. M T W Th F 11-12:15. Van Rensselaer 121. Miss ROLLINS.

For teachers in extension, secondary schools, and colleges, and for others working with families and their problems, who wish some

Basic nutrition information, and the necessary underlying sciences, useful for the teaching of units on food, health, or hygiene. Designed for elementary school and science teachers who have had no formal training in nutrition.

\*F.&Ntr. S403. **SPECIAL PROBLEMS FOR GRADUATE STUDENTS.** (G) Credit and hours to be arranged. Open only to graduate students with a major or minor in the field of food and nutrition. Registration with permission of the student's chairman. Department staff.

Independent advanced work. Fee dependent upon the nature of the problem.

\*F.&Ntr. S407. **THESIS AND RESEARCH.** (G) Credit and hours to be arranged. Open only to graduate students with a major in the field of food and nutrition. Registration with permission of the student's chairman. Department staff.

Fee dependent upon the nature of the problem.

understanding of the way in which outside economic conditions affect the level of living of families. The total amount produced, the distribution of income, the level of prices, and such factors as specialization, money, taxation, and marketing will be considered in



relation to their effects on the way families can live. Fee, \$1.

\*HEM S311. **HOME MANAGEMENT AND ITS TEACHING.** (U,G) 3 hours credit. M T W Th F 1-2:15. Van Rensselaer G-19. Miss KNOLL.

For teachers in extension, secondary schools, and colleges who wish experience in teaching home management. The theory of management will be illustrated with experiences in home management drawn from observation in homes and in home management houses. Observation, field trips, and opportunities for the preparation of illustrative material will be available. Fee, \$6.

\*HEM S403. **SPECIAL PROBLEMS IN HOUSEHOLD ECONOMICS AND MANAGEMENT.** (G) Credit and hours to be arranged. Registration by permission. Department staff.

For graduate students recommended by their

chairmen and approved by the head of the department and the instructor in charge for independent, advanced work. Fee will be dependent on the nature of the problem.

\*HEM S407. **THESIS AND RESEARCH IN HOUSEHOLD ECONOMICS AND MANAGEMENT.** (G) Credit and hours to be arranged. Registration with permission of the instructor. Department staff. Fee will be dependent on the nature of the problem.

\*HEM S430. **READINGS IN FAMILY ECONOMICS.** (G) Credit and hours to be arranged. Household Economics and Management 130 prerequisite or to be taken concurrently. Van Rensselaer 121. Miss ROLLINS.

Opportunity will be given to amplify certain topics covered in Household Economics and Management S130 with additional reading and some discussion. Fee, \$1.

## HOME ECONOMICS EDUCATION

(See page 25.)

### HOUSING AND DESIGN

The courses in Housing and Design are planned in a three-year sequence of which the 1961 program is the second year of the sequence. H&D 100, 147, 220, 403, and 447 are given every year and supplemented with advanced courses on a rotating basis. The rotation for 1961 and 1962 advanced courses follows:

#### 1961

- 322 Historic Furniture and Interior Design (beginning with the eighteenth century)
- 325 Interior Design
- 349 Housing: Supply

#### 1962

- 319 Contemporary Designers
- 339 Seminar in Design
- 348 Human Factors in Housing

\*H.&D. S100. **FUNDAMENTALS OF DESIGN.** (U) 2 hours credit. Lectures and laboratory, M T W Th F 10-12. Van Rensselaer 408. Miss CADY.

An exploration of the basic elements of design (volume, plane, line, texture, color, motion, light, etc.) through an analytical examination of their varied properties and qualities. Studio assignments are intended to develop consciousness of these elements and sensitivity in their use. The student is encouraged to develop his visual experience by investigating the vast possibilities in the organization of lines, planes, textures, and colors, and to exercise his intellectual curiosity in the search for universal principles of design. Fee, \$9.

\*H.&D. S147. **FUNDAMENTALS OF HOUSING.** (U) 2 hours credit. M T W Th F 8. Van Rensselaer 318. Mr. BOWER.

A general survey of housing designed to

acquaint the student with contributions the house and its environment can make to individual and family living. The roles the home-maker plays in the housing process as consumer and citizen are examined in relation to such human factors as the family life cycle, socio-economic status, attitudes, and values. Consideration is given to the housing market and building industry, selecting and financing the home, the part played by various housing specialists in the housing process, problems of home ownership, the implementation and effects of current housing legislation, and future housing needs. Fee, \$9.

\*H.&D. S220. **FUNDAMENTALS OF INTERIOR DESIGN.** (U) 2 hours credit. Prerequisite, H.&D. 100 or equivalent. Lectures and discussion, M T W Th F 2-4. Van Rensselaer 327. Mr. MILLICAN.

A study of design as applied to residential architectural space. Interior designing based

on family and individual needs involving the combination of furniture, fabrics, lighting, accessories, color, and architectural materials. Illustrated lectures, discussions, and drafting techniques offered as background information and tools for solving interior design problems. Fee, \$9.

\*H.&D. S322. **HISTORIC FURNITURE AND INTERIOR DESIGN.** (U,G) 3 hours credit. Prerequisite, H.&D. 320, or equivalent. M T W Th F 9:30-10:45. Van Rensselaer 317. Mr. MILLICAN.

A critical examination (beginning with the eighteenth century) of the emergence and development of contemporary furniture and interior design, with special consideration of technological growth. Fee, \$13.50.

\*H.&D. S325. **INTERIOR DESIGN.** (U,G) 3 hours credit. Prerequisite, H.&D. 240, or equivalent. Limited to 15 students. M T W Th F 1-4. Van Rensselaer 408. Miss CADY.

Problems in interior designing which involve form, scale, corrective design; also color, fabrics, and evaluation of design quality in furniture. Sketches, plans, and working drawings are made for built-in furniture and storage units. Treatment of background of rooms

is stressed in accordance with their architectural design and family use. Field trip to New York City (approximate cost, \$30). An equivalent experience may be arranged. Fee, \$13.50.

\*H.&D. S349. **HOUSING: SUPPLY.** (U,G) 3 hours credit. Prerequisite, H.&D. 147, or equivalent. M T W Th F 11-12:15. Van Rensselaer 318. Mr. BOWER.

Certain theories and concepts in housing. Problems of suburbanization and city growth; neighborhood factors and community facilities; importance of housing finance; influence of government policies. Fee, \$13.50.

\*H.&D. S403. **SPECIAL PROBLEMS FOR GRADUATE STUDENTS.** (G) Hours and credit to be arranged. Department staff.

For graduate students recommended by their chairmen and approved by the head of the department and the instructor in charge for independent, advanced work. Fee, \$4.50 per credit hour.

\*H.&D. S447. **FUNDAMENTALS OF HOUSING.** (G) 3 hours credit. Consult instructor prior to registration. M T W Th F 8-9:15. Van Rensselaer 318. Mr. BOWER.

Graduate section of H.&D. 147. Fee, \$13.50.

## INSTITUTION MANAGEMENT

\*Inst.Mgt. S403. **SPECIAL PROBLEMS FOR GRADUATE STUDENTS.** (G) Credit and hours to be arranged. Members of department staff.

For graduate students recommended by their chairmen and approved by department head and the instructor in charge. Students will

engage in independent, advanced work. Fee dependent upon the nature of the problem.

\*Inst.Mgt. S407. **THESIS AND RESEARCH.** (G) Credit and hours to be arranged. Registration with permission of the student's chairman. Fee dependent upon the nature of the problem.

## TEXTILES AND CLOTHING

\*T.&Clo. S374. **TEXTILES.** (U,G) 3 hours credit. Prerequisite, an introductory course in textiles; general chemistry or organic chemistry is recommended but not required. Lecture, M T W Th F 8. Laboratory, T Th 9-11. Van Rensselaer 278. Miss BONÈS.

A study of the physical and chemical properties of textile fibers, yarns, fabrics, and finishes as related to use and care. Current legislation important to the consumer; aesthetic qualities of fabrics; laboratory work emphasizing standard test methods employed in the end-use evaluation of textile materials. A lecture-laboratory course. Fee, \$5.

T.&Clo. S401. **RESEARCH METHODS IN TEXTILES AND CLOTHING.** (G) 3 hours credit. M T W Th F 4. Van Rensselaer 215. Miss SROUT.

A review of various areas for research in textiles and clothing and consideration of appropriate techniques. Each student will carry out a minor research problem under the direction of the staff member and report her progress to the class at various stages.

\*T.&Clo. S407. **THESIS AND RESEARCH.** (G) Credit and hours as arranged. Registration by permission. Department staff. Fee will be dependent on the nature of the problem.

## HOTEL ADMINISTRATION

(See Other Programs, page 50.)

## INDUSTRIAL AND LABOR RELATIONS

I.&L.R. S293. **SURVEY OF INDUSTRIAL AND LABOR RELATIONS.** (U,G) 3 hours credit. M T W Th F 8-9:15. —. Mr. —.

An analysis of the major problems in industrial and labor relations; labor union history, organization, and operation; employment practices; industrial and labor legislation and social security; personnel management and human relations in industry; collective bargaining; mediation and arbitration; the rights and responsibilities of employers and employees; the major governmental agencies concerned with industrial and labor relations.

I.&L.R. S461. **PERSONNEL ADMINISTRATION IN SUPERVISION.** (U,G) 3 hours

credit. M T W Th F 9:30-10:45. —. Mr. —.

A review of the personnel function in business and industry with emphasis on the personnel responsibilities of the line supervisor. Topics for discussion will include selecting, inducting, training, motivating, rating, and compensating employees; developing techniques for interviewing, adjusting complaints and grievances, and aiding in the solution of employee problems; understanding aspects of protective labor legislation, labor relations law, and social security affecting employees supervised; and maintaining adequate personnel records and reports. Selected readings, case studies, discussions, and problems.

## GRADUATE PROGRAM IN INDUSTRIAL AND LABOR RELATIONS

Information concerning the nature and extent of graduate instruction in the field of industrial and labor relations is available from the Office of Resident Instruction of the School of Industrial and Labor Relations, Cornell University, Ithaca, N.Y.

## DEVELOPMENT OF HUMAN RESOURCES

(See *Education*, page 23.)

## SPECIAL NONCREDIT SEMINARS AND WORKSHOPS

In the summer of 1961 the School is again offering a series of one-week noncredit seminars and workshops. These units are designed for practitioners, and consequently each will give specific emphasis to an operational area in the field. A partial list of offerings follows: *Wage and Salary Administration*, *Employee Communications*, *Community Relations for Business and Industry*, *Industrial Training Techniques*, and *The Critical Problems of the Grievance Process and Collective Labor Contract Administration*.

A number of conferences and institutes will also be conducted by the School. A special announcement covering the summer program of the School, including details of cost and content, may be obtained by writing to the Coordinator of Special Programs, School of Industrial and Labor Relations, Cornell University, Ithaca, N.Y.

## LANGUAGES

High school students who have been admitted to a college for the coming academic year may take any language as undergraduate students. All students who have had no previous preparation in the language they elect will register for Course A101, except graduate students who may elect A151-2. Students who have taken previous course work in the language they elect will be placed in A101 or A102 on the basis of College Entrance Examination Achievement scores which they must make available before registration.

### FRENCH

Fr. A101. **FRENCH.** (U) 6 credit hours. Students who have previously studied any French must take the qualifying examination

before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. LEONARD and staff.

## 38 SUMMER SCHOOL

Fr. A102. **FRENCH.** (U) 6 credit hours. Students who have not completed French 101 must take the qualifying examination before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. LEONARD and staff.

Fr. A151u. **FRENCH.** (G) 3 credit hours. For graduate students acquiring reading proficiency. *June 29 through July 21.* Twenty

hours of instruction each week. Morrill Hall. Mr. LEONARD and staff.

Fr. A152u. **FRENCH.** (G) 3 credit hours. For graduate students acquiring reading proficiency. Prerequisite, French 151, or one year of college French, or two years of high school French. *July 24 through August 11.* Twenty hours of instruction each week. Morrill Hall. Mr. LEONARD and staff.

## GERMAN

Germ. A101. **GERMAN.** (U) 6 credit hours. Students who have previously studied any German must take the qualifying examination before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. KUFNER and staff.

Germ. A102. **GERMAN.** (U) 6 credit hours. Students who have not completed German 101 must take the qualifying examination before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. KUFNER and staff.

Germ. A151u. **GERMAN.** (G) 3 credit hours. For graduate students acquiring reading proficiency. *June 29 through July 21.* Twenty hours of instruction each week. Morrill Hall. Mr. KUFNER and staff.

Germ. A152u. **GERMAN.** (G) 3 credit hours. For graduate students acquiring reading proficiency. Prerequisite, German 151 or one year of college German or two years of high school German. *July 24 through August 11.* Twenty hours of instruction each week. Morrill Hall. Mr. KUFNER and staff.

## RUSSIAN

Russ. A101. **RUSSIAN.** (U) 6 credit hours. Twenty hours of instruction each week. Morrill Hall. Mr. LEED and staff.

Russ. A151u. **RUSSIAN.** (G) 3 credit hours. For graduate students acquiring reading proficiency. *June 29 through July 21.* Twenty

hours of instruction each week. Morrill Hall. Mr. LEED and staff.

Russ. A152u. **RUSSIAN.** (G) 3 credit hours. For graduate students acquiring reading proficiency. *July 24 through August 11.* Twenty hours of instruction each week. Morrill Hall. Mr. LEED and staff.

## SPANISH

Span. A101. **SPANISH.** (U) 6 credit hours. Students who have previously studied any Spanish must take the qualifying examination before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. SOLÁ and staff.

Span. A102. **SPANISH.** (U) 6 credit hours.

Students who have not completed Spanish 101 must take the qualifying examination before registering for this course. Twenty hours of instruction each week. Morrill Hall. Mr. SOLÁ and staff.

*All modern language courses are equivalent to those offered in the academic year.*

## MATHEMATICS

Math. A161. **ANALYTIC GEOMETRY AND CALCULUS.** (U) 3 hours credit. Prerequisite, three years of college preparatory mathematics. M T W Th F 8-9:15. White B 29. Mrs. HERTZIG.

Plane analytic geometry through conics. Differentiation and integration of polynomials with applications to rates, maxima, volumes, pressures, etc. Text: Taylor, *Calculus with Analytic Geometry.*

Math. A162. **ANALYTIC GEOMETRY AND CALCULUS.** (U) 3 hours credit. Prerequisite, Mathematics 161 or the equivalent. M T W Th F 9:30-10:45. White B 37. Mr. GAVIN.

Differentiation and integration of algebraic, trigonometric, logarithmic, and exponential functions with applications. Related topics, including polar coordinates, parametric equations. Text: Taylor, *Calculus with Analytic Geometry.*



Math. A163. **ANALYTIC GEOMETRY AND CALCULUS.** (U) 3 hours credit. Prerequisite, Mathematics 162 or the equivalent. M T W Th F 11-12:15. White B 37. Mr. GAVIN.

Infinite series, solid analytic geometry, partial derivatives, multiple integrals. Text: Taylor, *Calculus with Analytic Geometry*.

Math. A181-182. **ANALYTIC GEOMETRY AND CALCULUS.** (U) 6 hours credit. Prerequisite, a thorough knowledge of trigonometry and exceptional aptitude for mathematics. M T W Th F 9-10:45 and 2-3:15. White B 15. Mr. AGNEW.

Emphasis on the mastery and techniques needed for further preparation in the sciences, including engineering and advanced mathematics. Consists of plane analytic geometry through conics; differentiation and integration of polynomials with applications to rates, maxima, volumes, pressures, etc.; differentiation and integration of algebraic, trigonometric, logarithmic, and exponential functions,

with applications. Related topics include polar coordinates, parametric equations, and vectors.

Math. A241. **SURVEY OF MATHEMATICS.** (U,G) 3 hours credit. Prerequisite, Mathematics 163. M T W Th F 9:30-10:45. White B 29. Mrs. HERTZIG.

Selected topics of elementary mathematics from a more advanced viewpoint. Introduction to the general character of higher mathematics. Text: Courant and Robbins, *What is Mathematics?*

Math. A405. **HIGHER GEOMETRY.** (U,G) 3 hours credit. Prerequisite, Mathematics 163 or the equivalent or consent of the teacher. M T W Th F 11-12:15. White B 25. Mr. WALKER.

Topics in synthetic and analytic euclidean geometry from the point of view of advanced mathematics, and their relationships with affine, projective, and noneuclidean geometries.

(See also Engineering A1153, *Applied Differential Equations*, page 31.)

## MENTAL HEALTH

\*Prev. Med. A1. **PRINCIPLES AND PRACTICES IN MENTAL HEALTH.** (U,G) 3 hours credit. Lectures, M T W Th F 10. Laboratory, T 2-4:30 and additional hours to be arranged. Phillips Hall. Dr. WALDMAN.

Deals with some basic concepts of emotional adjustment, mental health, and illnesses. The more common behavioral and emotional disorders; current policies and practices with regard to referral, diagnosis, and treatment; the role of the teacher and parent in promoting mental health. Emphasis is on attitudes

and procedures related to adjustment problems in the school and community. Laboratory sessions will include mental health films and plays for educational purposes. Visits to various agencies dealing with mental health problems will be arranged at the mutual convenience of the students and the instructor. Attendance at these meetings is required.

Credit in this course may be applied toward the provisional certificate for guidance counselors. Fee, \$1.

## MUSIC

The Summer School of Cornell University will introduce a new program of chamber music activities for the summer session of 1961. The Cornell University Trio (Professors Daniel Eller, piano; Sheldon Kurland, violin; John Hsu, cello), resident ensemble of the University during the school year, will be in residence during the summer session. The Trio, now in its fifth year, is increasingly active on tour, performing at other colleges, universities, and museums, and for various musical organizations. Besides presenting a series of concerts during the summer session of 1961, members of the Trio will offer individual instruction in stringed instruments and piano, and a course in chamber music performance.

The purpose of this new program in chamber music is to encourage instrumentalists from all walks of life to participate in music making at Cornell during the summer. Less advanced players will be able to have private instruction to enable them to take part in informal chamber music sessions. Advanced instrumentalists and students pursuing careers as performers will be given opportunities to perform in public concerts as well as in informal programs, both in chamber music and solo capacities. Members of the Trio will coach those preparing for public appearances.

Courses in music appreciation and music theory and a course for elementary school teachers will also be offered during the summer session.

Music A101. **THE ART OF MUSIC.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Music Building 6. Mr. KREMER.

An approach to the understanding and rational enjoyment of the art of music. Offered especially for students who have had no technical training in the subject. Most of the outside work consists of listening to phonograph records.

Music A107. **MUSIC THEORY.** (U,G) 3 hours credit. Prerequisite, consent of the instructor. M T W Th F 11-12:15. Music Building. Mr. Hsu.

An integrated course which includes a review of the fundamentals of music; practice in sight singing, keyboard harmony, sight reading, score reading, and analysis; study of technique and choice of music in arranging for school orchestras; writing of simple four-part texture and simple accompaniment; and an introduction to instrumental composition.

Music A109. **MUSIC IN THE ELEMENTARY SCHOOL.** (U,G) 3 hours credit. M T W Th F 8-9:15. Music Building. Mr. CAMPBELL.

Designed for elementary teachers who are required to teach music with or without the

assistance of the music supervisor. Includes survey of literature, rote singing, sight reading and part singing, elementary theory and appreciation, and simple piano accompaniment.

\*Music A401. **INDIVIDUAL INSTRUCTION.** Without credit. Stringed instruments and piano. One-hour lesson weekly (or two half-hours). Members of the resident Trio (violin and viola, Mr. KURLAND; violoncello, Mr. Hsu; piano, Mr. ELLER).

Fee for one-hour lesson weekly, \$45. Fees for a practice schedule of twelve hours weekly: \$10 for a practice room with piano; \$5 for a practice room without piano. Fees for a practice schedule of six hours weekly: \$5 for a practice room with piano; \$2.50 for a practice room without piano.

Music A403. **CHAMBER MUSIC ENSEMBLE.** (U,G) 1 hour credit. Consent of the instructor required. T F 2-3:15. Music Building. Members of the resident Trio (Messrs. Hsu, KURLAND, and ELLER).

An informal study and reading of chamber music for strings, woodwinds, and piano. Advanced instrumentalists will be given the opportunity to perform in public concerts.

## PHILOSOPHY

Phil. A101. **PHILOSOPHICAL CLASSICS.** (U) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 227. Mr. TAYLOR.

A study of several Socratic dialogues, Bertrand Russell's *The Problems of Philosophy*, and J. S. Mill's *Utilitarianism*.

Phil. A322. **PHILOSOPHY OF RELIGION.** (U) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 227. Mr. TAYLOR.

The nature of religious faith and its relation to science and reason; the comparison of the religious and secular world views, and the problem of the justification of each; the religious concepts of good and evil, sin, virtue, love, the eternal, and the holy; the human soul, its nature and destiny; the role of the supernatural in religion, and the place of the miraculous.

## PHYSICS

\*Physics A101. **TOPICS IN PRESENT-DAY PHYSICS.** (U,G) 3 hours credit. (Graduate credit limited to secondary school teachers in the sciences who already have a Bachelor's degree.) Prerequisites, 3 units of college-preparatory mathematics with introductory knowledge of trigonometry and of quadratic equations, and a year course in college physics or a year course in high school physics taken within the last two years. M T W Th F 10-11:50. One two-hour lecture per week (usually on Mondays), one two-hour class meeting on each of three days of the week, and one meeting a week (usually Wednesdays) either for additional lectures or to view pertinent instructional movies. Lectures and movies in Rockefeller B. Mr. GREISEN.

The weekly Monday lecture, on a selected topic of current active interest in physics, is given by a mature teacher who has specialized in both the teaching and the research of the topic he discusses. Generally there are a different lecturer and a different topic each week. Demonstration experiments accompany the lecture. Prepared lecture notes, including diagrams, sketches, photographs of demonstration equipment, and references to further reading, will be given to each student before each lecture so as to minimize the note taking by the student during the lecture. These notes, in greater detail than the lecture, serve as a guide for the week's work.

Typical topics are relativity, elementary particles, wave-particle duality, semiconductor physics, gravity, low-temperature physics, properties of the nucleus, nuclear and electron-spin magnetic

resonance, X-ray diffraction and the solid state, mass spectrometry, ultraviolet absorption and photoconductivity, high-energy accelerators, experiments on the scattering of protons by nuclei, phenomena attending extremely high magnetic fields, physics of the upper atmosphere including the aurora, radio-astronomy, cosmology, etc. Some attempt is made to have an early topic introduce material that is assumed to be understood in later topics.

Typical lecturers are Professors H. A. Bethe, T. Gold, K. I. Greisen, J. Orear, J. A. Krumhansl, R. L. Sproull, P. Morrison, P. L. Hartman, D. F. Holcomb, B. D. McDaniel, L. G. Parratt, E. E. Salpeter, R. R. Wilson, etc.

Except for the common Monday lectures and for the Wednesday lectures or movies, students will be subdivided into class-study groups according to interests, background preparation, etc. If the enrollment justifies, at least four different group levels will be formed. Each group, limited in size to 12 to 15 students, will have its own instructor who will make reading and problem assignments, lead the classroom discussion, give examinations, and be in charge of his group for the entire 6 weeks. The work of each group is designed to increase the students' comprehension of the Monday topic (and of relevant matters, including the movies) as far as the particular group can go in the time allowed. In some instances, discussion of a particular topic may extend beyond the allotted week. At the instructor's discretion the group may anticipate the Monday lecture by taking up pertinent background material before the lecture.

Emphasis is placed on the relatively few fundamental principles and concepts underlying all topics in physics, e.g., the conservation of energy and of momentum, the dual wave-particle nature of radiation and matter, the probabilistic nature of science, the resort to experiment as the final arbiter of the reliability of a theory, etc.

Either 6 credit hours of Physics A101-102, or 3 credit hours of A101 and 3 of Physics A109, will satisfy the requirements of the College of Arts and Sciences at Cornell for the "group requirement," viz., a 6-hour course of a natural science.

Physics A101 is not the equivalent of Physics 107 or 121 of the academic year; however, students who have done very well in 6 credit hours of A101-A102 or in 3 of A101 and 3 of A109 may proceed directly into Physics 207 and 209 by passing an advanced-placement examination. Fee, \$5.

\*Physics A102. **TOPICS IN PRESENT-DAY PHYSICS.** Continuation of Physics A101. Fee, \$5. (Not offered in summer, 1961.)

\*Physics A109. **GENERAL PHYSICS LABORATORY.** (U,G) 1 to 3 hours credit. (Graduate credit limited to secondary school teachers in the sciences who already have a Bachelor's degree.) Prerequisites, 3 units of college-preparatory mathematics with introductory knowledge of trigonometry and of quadratic equa-

tions, and a year course in college physics or a year course in high school physics taken within the last two years. Laboratory, M T W Th F 2-4:30, Rockefeller 364. Mr. GREISEN.

Emphasis is placed on "open-ended" experiments. Students are encouraged to work individually with a minimum of supervision. Experiments are available in each of several fields and are assigned to fit the student's interests and background preparation. Fee, \$5 per credit hour.

(See also *Physics 214 and 225, page 48.*)

## PSYCHOLOGY

Psych. A101. **INTRODUCTION TO PSYCHOLOGY.** (U) 3 hours credit. M T W Th F 8-9:15. Morrill 340. Mr. GOLDSTEIN.

An introduction to the scientific study of behavior and experience, covering such topics as perception, motivation, emotion, learning, and the higher thought processes, personality, and individual differences.

Psych. A116. **PSYCHOLOGY OF HUMAN LEARNING.** (U,G) 3 hours credit. Prerequisite, an elementary course in psychology. Lectures, M T W Th F 11-12, plus laboratory hours to be arranged. Morrill 340. Mr. ZIMMERMANN.

The fundamental conditions and principles

of human learning with particular reference to academic learning. Recent developments in the automation of teaching methods will be discussed. Part of the laboratory will be devoted to the comparison of teaching and learning techniques and the development of teaching programs.

Psych. A120. **BIOLOGICAL FACTORS IN HUMAN BEHAVIOR.** (U,G) 3 hours credit. Prerequisite, introductory psychology. M T W Th F 9:30-10:45. Morrill 340. Mr. GOLDSTEIN.

Intended for students who wish to learn about general biological factors important in human behavior. Topics covered will include anatomy of the brain, neurophysiology, emo-

tion, motivation, learning, and psychosomatic interrelationships. Similarities and differences in human and animal behavior will be discussed. Intended for psychology students as well as students in the physical and natural sciences who wish an introduction to psychology as a biological science.

Psych. A352. **TESTS OF PERSONALITY: THEIR CHARACTERISTICS AND THEIR USES.** (U,G) 3 hours credit. M T W Th F 11-12:15. Morrill 310. Mr. FREEMAN.

Psychological principles underlying personality tests; their uses and interpretation in schools, guidance centers, mental health centers, and industry. Rating scales, personality

inventories, and projective techniques will be studied.

Psych. A412. **INDIVIDUAL DIFFERENCES AND EXCEPTIONAL CHILDREN.** (U,G) 3 hours credit. M T W Th F 8-9:15. Morrill 310. Mr. FREEMAN.

The nature and causes of differences in intelligence and special aptitudes. Special consideration will be given to the mentally superior, the mentally inferior, and those with behavioral problems, as well as to procedures in clinical psychology employed with these groups. Educational implications and provisions will be considered.

## SOCIOLOGY, ANTHROPOLOGY, AND RURAL SOCIOLOGY

Soc. A101. **INTRODUCTION TO AMERICAN SOCIETY.** (U,G) 3 hours credit. M T W Th F 11-12:15. Morrill 240. Mr. WILLIAMS.

Application of sociological concepts and principles to analysis of basic social structures and trends in the United States. Emphasis is placed on major institutions: family, social stratification, education, religion, and social aspects of economic and political organization. Special treatment of changing values and of groups and associations.

Anth. A111. **MAN AND CULTURE.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 124. Mrs. MAHAR.

An introduction to cultural anthropology. Similarities and differences in the organization of human behavior in a variety of cultures, including social, economic, and political relations, and perception, thought, feeling, and expression in language, the arts, and religion; cultural systems and group personality types; processes involved in changing cultures; applications of anthropology in the world today. Materials from non-Western cultures and civilizations give the student working in the social sciences or humanities some cultural perspective on the problems of his own and other complex civilizations.

R.Soc. S112. **SOCIAL CHANGE IN RURAL-URBAN SOCIETY AND ITS IMPLICATIONS.** (U,G) 3 hours credit. M T W Th F 8-9:15. Warren 31. Mr. REEDER.

Some of the major social changes occurring in the United States and in the world will be studied. Consideration will be given to the factors which bring about these changes and the stages or processes through which they pass. Special emphasis will be placed on the social changes which are occurring within communities in the United States and the im-

plications which these changes have for those responsible for community institutions, such as schoolteachers, school administrators, county agents, farm organization leaders, religious leaders, civic leaders of youth groups, and city, town, and county government officials.

R.Soc. S129. **THE SOCIOLOGY OF YOUTH.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Warren 31. Mr. TAIETZ.

Juvenile delinquency, school adjustment, occupational choice, educational aspiration, parent-child conflict, and marriage selection will be discussed in the light of pertinent sociological and social-psychological concepts and research.

Anth. A204. **CULTURE AND PERSONALITY.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 124. Mrs. MAHAR.

A study of the individual in his society, emphasizing the relationship between social structure, cultural context, and human behavior. Attention is given largely to the study of personality, "normal" and "abnormal," in non-Western societies.

R.Soc. S219. **SCHOOL-COMMUNITY RELATIONS.** (U,G) 3 hours credit. M T W Th F 11-12:15. Warren 232. Mr. ELLENBOGEN.

The relation the school has with the family, formal organizations, and other social institutions within the community system will be analyzed. Consideration will be given to the power-structure, value-orientation, and decision-making process within the community system and to how these factors influence the norms and goals of the school.

R.Soc. S250. **SPECIAL PROBLEMS.** (G) Credit and hours to be arranged. Permission of staff member who will supervise the study required.



Soc. A506. **INTERGROUP RELATIONS.** (U,G) 3 hours credit. M T W Th F 8-9:15. Morrill 240. Mr. WILLIAMS.

The identification and analysis (age, race, class, ethnic, language, religious, caste, re-

gional, kin, etc.) of groups or social units in society, and the consideration of the problems of intergroup relations, prejudice, integration, accommodation, and national unity to which they give rise.

## SUMMER FIELD STUDIES PROGRAM

(See Other Programs, page 46.)

## SPEECH AND DRAMA

Sp.&Dr. A190. **DIRECTED STUDY IN SPEECH AND DRAMA.** (U,G) 2 or 3 hours credit. Open to undergraduates and graduates prepared for advanced studies in speech or drama and theatre. Permission of the instructors required for registration. Hours to be arranged. Messrs. ALBRIGHT, ARNOLD, and SCHEIDEL.

Individual and informal seminar study of special topics concerning theory, history, or criticism of dramatic or rhetorical communication. Each student will be assigned to an adviser according to his special interest and, with the adviser's consent, will select a program of directed reading and research to be pursued individually or in collaboration with others.

Sp.&Dr. A201. **PUBLIC SPEAKING.** (U) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 24. Mr. WILSON.

Designed to help the student communicate his ideas and convictions effectively in oral discourse. Study of basic principles of expository and persuasive speaking with emphasis on finding, evaluating, and organizing materials, and on simplicity and directness in style and delivery. Practice in preparing and delivering speeches of various types on current issues; study of examples; conferences.

Sp.&Dr. A231. **SPEECH FOR THE CLASSROOM TEACHER.** (U,G) 2 hours credit. M T W Th F 8. Goldwin Smith 26. Mr. SCHEIDEL.

Designed to help teachers in elementary and secondary schools improve command of the speech skills and forms of communication they constantly use: oral exposition, group discussion, reading aloud, public speaking. Study of principles; constant practice; conferences on individual needs.

Sp.&Dr. A351. **FUNCTIONAL SPEECH DISORDERS.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 21. Mr. NUTTALL.

An exploration of the problems that interfere with normal development of speech. Special attention will be given to disorders of voice and articulation.

**SUMMER THEATRE.** Open to students enrolled in classes in Speech and Drama and to other interested students. Two programs of readings, scenes, and one-act plays will be publicly presented. Mr. CARLSON. No credit.

Sp.&Dr. A361. **DISORDERS OF SPEECH RECEPTION.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 26. Mr. NUTTALL.

An introduction to the causes and problems of hearing loss and deafness with special emphasis on hearing loss in the young and its effects upon speech behavior. Methods of testing hearing and of interpreting test results will be explored through study and practice.

Sp.&Dr. A403. **METHODS IN PLAY PRODUCTION.** (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 24. Mr. ALBRIGHT.

Principles and standard practice in play production, with emphasis on directorial viewpoints and objectives. Special attention to problems of organization, play selection, casting, and producing in school and community. Students matriculated for a degree in Cornell University may offer this course as equivalent of Speech and Drama 401.

Sp.&Dr. A411. **ORAL INTERPRETATION OF LITERATURE.** (U,G) 3 hours credit. M T W Th F 11-12:15. Goldwin Smith 21. Mr. GOLDEN.

An introductory course intended to help the student communicate accurately and expressively in reading aloud. Study of principles and criteria of good reading; analysis and delivery of selected materials from prose and poetry. If taken for graduate credit, special research projects will be assigned.

Sp.&Dr. A455. **AMERICAN DRAMA AND THEATRE.** (U,G) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 236. Mr. GOLDEN.

A study of the American theatre and of representative American plays from the Colonial period to the present, with emphasis on the drama as an experience of the national life and culture. The works of principal playwrights, from Royall Tyler ("The Contrast") to Tennessee Williams and Arthur Miller, will be examined, correlating the study of plays with leading developments in acting, stagecraft, and aesthetics of the theatre.

## ZOOLOGY

\*Zool. A103u. **GENERAL ZOOLOGY.** (U) 3 hours credit. *June 29 to July 21.* Lectures, M T W Th F 9 and 11. Stimson G25. Laboratory, M T W Th F 1-3:20. Stimson 102. Mr. LEONARD and assistant.

A survey of the animal kingdom, observations and dissection of representative species, beginning with single-cell organs up to vertebrate animals. Text: Storer and Usinger, *General Zoology*. Laboratory fee: \$7.50.

\*Zool. A104u. **GENERAL ZOOLOGY.** (U) 3 hours credit. *July 24 to August 11.* Pre-

quisite, Zoology A103u or its equivalent. Lectures, M T W Th F 9 and 11. Stimson G25. Laboratory, M T W Th F 1-3:20. Stimson 102. Mr. LEONARD and assistant.

A continuation of Zoology A103u. Emphasis placed on the biology of the vertebrate animals, including references to man. Various zoological principles such as evolution, development and genetics will be considered. Text: Storer and Usinger, *General Zoology*. Laboratory fee: \$7.50.

*These courses serve as a prerequisite to advanced zoological studies.*

# OTHER PROGRAMS OF THE SUMMER SESSION

The following programs are offered during the Summer Session period, June 13 to approximately September 15. Some occur during the period of the Summer School session, June 28 to August 11. Note the dates scheduled for each program.

## AGRICULTURAL EDUCATION, JULY 10-28

Three-week unit courses are being made available to teachers of agriculture in technical agriculture and agricultural education. These courses may apply toward a Master of Education degree and/or to a teaching certificate. The three-week courses provide the opportunity for professional improvement without taking extended leaves of absence from positions.

Graduate credit earned in three-week unit courses may be applied toward the residence requirement for only the Master of Education degree at Cornell. Students desiring to become candidates for this degree should register also in the Graduate School.

Registration for the three-week session will take place July 10, 1961, at a time and place to be announced. Tuition and fees are the same as for the Summer School.

For further information, address Professor C. W. Hill, 204 Stone Hall, Cornell University, Ithaca, N.Y.

Ag.Ec. S107u. **FARM FINANCIAL MANAGEMENT.** (U,G) 2 hours credit. M T W Th F 10-12. Warren 14. Mr. BRATTON.

Provides a working knowledge of the management process; use of credit by the farm family; farm business insurance; life insurance, social security and retirement planning for farmers; partnerships, incorporations, and other farm business arrangements; savings and investments; and estate planning. Designed especially for high school teachers of agriculture, extension workers, and others conducting educational programs with farmers.

Ag.Ec. S126u. **FARMERS' COOPERATIVES.** (U,G) 2 hours credit. M T W Th F 8-10. Warren 245. Mr. CARPENTER.

What cooperatives are, what they have tried to do, have done, and are doing; their legal status and organization, finance, control, and membership relations. Special emphasis on the extent and nature of agricultural cooperation in New York State as well as development of techniques and materials for use in teaching students in vocational agriculture about farmer cooperatives.

\*Ag.Eng. S146u. **AGRICULTURAL METAL SHOP PRACTICES.** (U,G) 2 hours credit. Lecture, M T W Th F 8-10. Laboratory, M F 1-4. Riley-Robb 60, 64. Mr. LECHNER.

Includes instruction and practice in typical kinds of farm machinery repair skills; metal lathe working operations related to machinery repair; selection of power transmission components such as belts, chains, shafts, bearings

etc.; welding design as it applies to new construction of equipment; and some field machinery calibration and adjustment. Fee, \$5.

\*Ag.Eng. S147u. **PRINCIPLES OF AND DEVELOPMENTS IN FARMSTEAD MECHANIZATION.** (U,G) 2 hours credit. Lectures, M T W Th F 10-12. Laboratory, T Th 1-4. Riley-Robb Hall 15. Mr. LUDINGTON.

Consideration of principles and their application to mechanizing the handling of some farm products and materials. Emphasis will be directed to those operations applicable to dairy and poultry farms. Field trips will be taken to study a few mechanized operations that will illustrate factors necessary in planning the mechanized system. Fee, \$2.

Agron. S112u. **PASTURE AND HAY CROPS.** (U,G) 2 hours credit. Prerequisite, Courses 1 and 11 or their equivalent, or Courses 2 and 6 by permission. Lectures M W F 10-12. Discussion and field trips, T Th 1-5. Caldwell 143. Mr. GRIFFETH.

The establishment, maintenance, productivity, use, and quality of various pasture and hay crops will be discussed with emphasis on those adapted to the northeast. Practical application of principles will be emphasized.

R.E. S133u. **SPECIAL PROBLEMS IN VOCATIONAL AGRICULTURE.** (U,G) 2 hours credit. Experience as a teacher of agriculture or consent of instructor required. M T W Th F 8-10. Riley-Robb 225. Mr. CUSHMAN.

Designed to develop proficiency in advising

a local chapter of the Future Farmers of America. Emphasis will be placed on the role of the teacher of agriculture in connection with the program of work, budgets and financing, leadership training, publicity, degrees, contests and awards, chapter meetings, special activities, and evaluation of the chapter's effectiveness.

R.E. 233u. **PLANNING FARMING PROGRAMS IN VOCATIONAL AGRICULTURE.** (U,G.) 2 hours credit. Prerequisite, experience

as a teacher of agriculture or consent of instructor. M T W Th F 10-12. Riley-Robb 225. Mr. HILL.

Will include the concepts, principles, functions, methods, practices, and evaluation of individual farming programs. Special emphasis will be given to methods and techniques to use in initiating and developing farming programs with pupils as a means of instruction.

## CORNELL-COLUMBIA-HARVARD SUMMER FIELD STUDIES PROGRAM

An interuniversity program for advanced undergraduate students in which training is offered in the social sciences at foreign field stations. The purpose is to introduce advanced college students of any discipline to a foreign culture through supervised guidance and study under the direction of professional anthropologists. During the summer of 1961 there will be three parties of six students each, studying for approximately two and a half months in Mexico, Ecuador, and Peru. For completion of the course, a satisfactory paper must be presented by each student on his individual research in the field. Students for this program have already been selected for the summer of 1961, but the program will continue during the summers of 1962 and 1963. Applications from Cornell undergraduate students may be made to Professor Allan R. Holmberg, Department of Sociology and Anthropology, 241 Morrill Hall, Cornell University, Ithaca, N.Y. A limited number of scholarships were made available for 1961.

Soc. 291-292. **FIELD RESEARCH**, (U) 6 hours credit. Mr. HOLMBERG and staff.

## ENGINEERING INDUSTRIAL COOPERATIVE PROGRAM

*Admission.* Selected courses of the regular curricula in the College of Engineering are offered in the summer to accommodate the schedule of Cornell students in the Cooperative Program. Within the enrollment capacity of each course other students may be admitted to these courses provided that they present satisfactory evidence of being prepared and a letter of authorization from a college or university in which they are enrolled. Applications should be addressed to Director of Engineering Industrial Cooperative Program, Phillips Hall, Cornell University, Ithaca, N.Y.

*Calendar.* Courses are scheduled in two separate but consecutive seven-week periods: first period, June 12 to July 29; second period, July 31 to September 16.

*Tuition and Fees.* Because the Cooperative Program's Summer Term is essentially a curriculum term in the College of Engineering, tuition and fees are not those of the 6-week Summer School but are based upon the regular tuition and fees for a semester in the academic year.

*Regulations and Services.* In general the regulations described for the Summer School apply also to the Engineering Cooperative Summer Term.

Health services and library facilities are available during the Engineering Cooperative Summer Term.

*Double Registration.* Insofar as they can be scheduled, courses of the regular Summer School may be arranged for students admitted to the Engineering Cooperative Summer Term.



## ENGINEERING MECHANICS AND MATERIALS

Engr. 1151. **ENGINEERING MECHANICS—STATICS**. 3 hours credit. Prerequisites, Physics 121 and parallel registration in Mathematics 163. First period. Mr. ———.

Engr. 1152. **ENGINEERING MECHANICS—DYNAMICS**. 3 hours credit. Prerequisites, 1151 and Mathematics 163. First period. Mr. ———.

Engr. 1154. **ADVANCED STRENGTH OF MATERIALS**. 3 hours credit. Lectures. Recitations. Prerequisites, 1153 and 1155. Second period. Mr. ———.

Engr. 1241. **ENGINEERING MATERIALS**. 3 hours credit. Lectures. Recitations. Laboratory. Prerequisites, 1153 and Chemistry 401 or 402. Second period. Mr. ———.

## HYDRAULICS AND HYDRAULIC ENGINEERING

Engr. 2331. **FLUID MECHANICS**. 3 hours credit. Recitations. Prerequisite, 1152. Second period. Mr. ———.

## INDUSTRIAL AND ENGINEERING ADMINISTRATION

Engr. 3246. **PRINCIPLES OF INDUSTRIAL ACCOUNTING**. 2 hours credit. Lectures. Computings. First period. Mr. ———.

Engr. 3264. **PRODUCTION ENGINEERING**. 3 hours credit. Lectures. Computings. Prerequisite, 3263. Second period. Mr. ———.

Engr. 3281. **COMPUTING EQUIPMENT AND INDUSTRIAL APPLICATIONS**. 3 hours credit. Recitations. Computings. Prerequisites, 3247, 3262, or permission. Second period. Mr. ———.

## MACHINE DESIGN

Engr. 3341. **MACHINE DESIGN**. 4 hours credit. Recitations. Computings. Prerequisites, 1153, 1241, 3118, 3402, and 6110 or equivalent. Second period. Mr. ———.

Engr. 3351. **MECHANISM**. 3 hours credit. Recitations. Laboratories. Prerequisites, 3112, 1151. Second period. Mr. ———.

Engr. 3354. **DESIGN OF MACHINES**. 3 hours credit. Lectures. Laboratories. Prerequisites, 3353, 3404; prerequisite or parallel, 1242. First period. Mr. ———.

## MATERIALS PROCESSING

Engr. 3404. **PRODUCTION MACHINE TOOLS**. 2 hours credit. Lectures. Laboratories.

Prerequisites, 3406, 3262. First period. Mr. ———.

## THERMAL ENGINEERING

Engr. 3601. **ENGINEERING THERMODYNAMICS**. 3 hours credit. Lectures. Recitations. Prerequisites, Mathematics 163, Physics 122, Chemistry 106. First period. Mr. ———.

Engr. 3603. **FLUIDS ENGINEERING 1**. 3 hours credit. Recitations. Prerequisites, 3601, 1152. Second period. Mr. ———.

## GENERAL ELECTRICAL ENGINEERING

Engr. 4021. **ENGINEERING REPORTS**. 3 hours credit. Lectures. Recitations. First period. Mr. ———.

## BASIC ELECTRICAL ENGINEERING

Engr. 4112. *ALTERNATING CURRENT CIRCUITS*. 3 hours credit. Lectures. Recitations. Computings. Prerequisites, 4102, 4103. First period. Mr. ———.

Engr. 4116. *ELECTRIC CIRCUIT LABORATORY*. 3 hours credit. Lectures. Laboratories. Prerequisites, 4102 or 4983. First period. Mr. ———.

Engr. 4121. *INTRODUCTION TO ELECTRONICS AND NONLINEAR ANALYSIS*. 4 hours credit. Lectures. Recitations. Labora-

tories. Prerequisites, 4116 and either 4112 or 4983. Second period. Mr. ———.

Engr. 4123. *ELECTRONICS OF SIGNAL TRANSMISSION*. 4 hours credit. Lectures. Recitations. Laboratories. Prerequisite, 4122. First period. Mr. ———.

Engr. 4226. *ELECTRICAL MACHINERY LABORATORY*. 4 hours credit. Lectures. Recitations. Laboratories. Prerequisite, 4221. Second period. Mr. ———.

## SERVOMECHANISMS

Engr. 4711. *FEEDBACK CONTROL SYSTEMS I*. 3 hours credit. Lectures. Recitations.

Laboratories. Prerequisites, 4122, 4216, 4221. Second period. Mr. ———.

## COURSES FOR STUDENTS NOT IN ELECTRICAL ENGINEERING

Engr. 4931. *ELECTRICAL ENGINEERING*. 3 hours credit. Lectures. Recitations. Computings. Prerequisites, Mathematics 163, Engr. 1132 or 1152. First period. Mr. ———.

Engr. 4932. *ELECTRICAL ENGINEERING*. 3 hours credit. Lectures. Recitations. Laboratories. Computing. Prerequisite, 4931. Second period. Mr. ———.

## METALLURGICAL ENGINEERING

Engr. 6112. *METALS TECHNOLOGY*. 2 hours credit. Lectures. Prerequisites, 6110, 1243. First period. Mr. ———.

## CHEMISTRY

Chem. 401. *INTRODUCTION TO PHYSICAL CHEMISTRY*. 3 hours credit. Lectures. Prerequisites, Chemistry 106, Mathematics 163,

183 or 193 and Physics 117. Second period. Mr. ———.

## MATHEMATICS

Math. 163. *ANALYTIC GEOMETRY AND CALCULUS*. 3 hours credit. Prerequisite, Mathematics 162 or 182. First period. Mr. ———.

Math. 613. *METHODS OF APPLIED MATHEMATICS*. 3 hours credit. Prerequisites,

Mathematics 183 and 612. Second period. Mr. ———.

Math. 616. *METHODS OF APPLIED MATHEMATICS*. 3 hours credit. Prerequisite, Mathematics 613 and 614. Second period. Mr. ———.

## PHYSICS

Phys. 214. *ATOM, NUCLEAR, AND ELECTRON PHYSICS*. 3 hours credit. Lectures. Recitations. Prerequisites, Physics 124 and Mathematics 607 or equivalents. First period. Mr. ———.

Phys. 225. *ELECTRICITY AND MAGNETISM*. 3 hours credit. Lectures. Prerequisites, Physics 123, or 208 and 209, or their equivalent. Second period. Mr. ———.

## REGIONAL EXTENSION SUMMER SCHOOL JULY 10-JULY 28

Cornell University conducts the Northeast Regional Extension Summer School for the professional improvement of Cooperative Extension workers. Twenty-six states, Puerto Rico, and eighteen foreign countries were represented in the enrollment last year. Nine courses are offered in the morning with afternoons devoted to optional activities such as field trips, recreation, or special seminars. Students may choose two courses for three hours credit at the graduate level. Tuition is \$40, with an additional \$10 fee if a third course is audited. For printed announcement with complete details, write to Professor Arthur E. Durfee, 102 Roberts Hall, Cornell University, Ithaca, N.Y.

## HIGH SCHOOL READING AND STUDY SKILLS PROGRAM, JULY 3-AUGUST 4

*Purpose.* The College Reading and Study Skills Center will provide a five-week summer program in reading, study, language, and speaking skills for high school students planning to attend college. This program is not for retarded readers or for young people with below-average ability. The objective is to help students who have completed their junior or senior years to be better qualified to meet the requirements for classwork and study at the college level.

*Instruction.* Through classwork and individual instruction, experienced instructors will work with students to improve academic skills by emphasizing reading comprehension, rate of reading, versatility of reading, vocabulary, understanding English and literature, scheduling time for study and recreation, concentration, note taking, and summarizing.

*Classes.* Meetings will be held on Monday through Friday from 8:30 to 12:30.

*Expenses.* The tuition for the course is \$150, with an additional University and laboratory fee totaling \$25. The fee will cover all the expenses of testing, laboratory, textbooks, and special mimeographed materials.

*Application.* Students seeking admission should write to Dr. Walter Pauk, 304 Rand Hall, Cornell University, Ithaca, N.Y.

## HOME ECONOMICS EDUCATION JULY 10-JULY 28

To provide teachers and extension workers with an opportunity to study for a short period of time during summer session, a three-week course has been made available which may be taken for 1, 2, or 3 credits. One credit will be allotted for each week of the course. The three-week session will start on July 10.

Registration for the three-week session will be on July 10 and for subsequent weeks on July 17 and 24, at a time and place to be announced, or at Summer School registration on June 28. Preregistration is strongly recommended.

\*H.E.Ed. S456u. **CURRENT DEVELOPMENTS AND HOME ECONOMICS EDUCATION.** (G) 1, 2, or 3 hours credit. *July 10-28.* Lecture, demonstration, and discussion, M T W Th F 1-3:30. Van Rensselaer Student Lounge. Miss RHODES, Miss BYMERS, Miss LOPEL, Miss BONÉS, and Mrs. BRATTON.

Planned primarily for teachers and extension workers. Students may take the course for 1, 2, or 3 weeks. Application of recent research to basic facts and principles in some

areas of home economics with suggestions for teaching at different age and ability levels. Attention will be given each week to one topic as follows: *July 10-14*, textile developments of importance to consumers; *July 17-21*, planning space for family living; *July 24-28*, consumer information and protection in relation to consumer choice. Class meetings will be devoted to presentation of significant subject matter followed by demonstration and discussion of teaching this at different levels. Fee, \$2.

## **HOTEL ADMINISTRATION JUNE 26–AUGUST 12**

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, the Summer School work in hotel administration is given in unit courses, one to three weeks in length. A circular giving full details of these courses has been issued and will be sent upon request. For this circular, for other information about the work in this School, and for admission to these courses, address Dean H. B. Meek, Statler Hall, Cornell University, Ithaca, N.Y.

## **JUNIOR HIGH SCHOOL WORKSHOP JULY 3–21**

A workshop directed toward the improvement of Junior High School Programs and teaching in small six-year secondary schools. Limited to thirty participants who will devote their entire time during the three weeks to courses, seminars, and work on special problems of their choice. Four hours of graduate level credit may be earned toward teacher certification.

For further information and application forms, address Professor Mauritz Johnson, Jr., School of Education, 105 Stone Hall, Cornell University, Ithaca, N.Y.

## **PROGRAMS SPONSORED BY THE NATIONAL SCIENCE FOUNDATION**

### **INSTITUTE FOR EARTH AND SPACE SCIENCES JULY 3–AUGUST 12**

The National Science Foundation will sponsor an Institute for junior and senior high school teachers of earth science concurrent with the University Summer School. Participants in the Institute may receive a stipend not to exceed \$75 per week, a dependency allowance, and travel reimbursement.

Objectives of the Institute for Earth and Space Sciences are: (1) to strengthen the subject matter background of teachers whose courses involve any aspect of these disciplines, and (2) to increase the teacher's capacity to motivate students to consider careers in earth or space science and in science in general.

Each participant will register for any two of the basic courses, astronomy, geology, meteorology, and soil science, and for the introduction to space science. Interested teachers who have had at least two years' teaching experience may apply for admission to Professor R. William Shaw, Director of the Institute for Earth and Space Sciences, Department of Astronomy, Rockefeller Hall, Cornell University, Ithaca, N.Y. Applications must be submitted before February 15, 1961.

### **TEACHER RESEARCH PARTICIPATION JUNE 12–AUGUST 12**

For secondary school teachers of science who wish to devote a summer to work on a research problem with a scientist. Work may begin as early as June 12 or as late as July 3 and must continue for at least six weeks. Address inquiries to Professor Philip G. Johnson, Stone Hall, Cornell University, Ithaca, N.Y.



## SCIENCE AND MATHEMATICS TRAINING PROGRAM FOR SECONDARY SCHOOL STUDENTS JUNE 28–AUGUST 11

Open to selected secondary school students of junior or senior standing in the school year 1960–1961. Criteria for selection include superior ability and interest in science and mathematics.

Each student will devote the full period of study to college-level course work in one of the following subjects: bacteriology, chemistry, mathematics, physics, or zoology. Course work will be supplemented by extracurricular activities appropriate to interests in science.

Students receive financial support toward the cost of room and board. Such support will be allocated on the basis of need. No charge is made for the tuition and fees regularly charged in the Summer school. Counseling services are provided in the living facilities to which the student group will be assigned.

For further information and application materials, address Dr. T. R. Nielsen, 192 Caldwell Hall, Cornell University, Ithaca, N.Y.

## SHELL MERIT FELLOWSHIP PROGRAM JULY 3–AUGUST 11

The Shell Companies Foundation, Incorporated, will sponsor a program, concurrent with the University Summer School, for teachers of chemistry, mathematics, and physics and a few supervisors of these subjects. Participants in the program will receive an allowance for travel, books, dormitory accommodations, and meals, together with a stipend of \$500.

Selection of persons for fellowship grants will be based on such factors as geographic location, leadership qualities, academic and professional preparation, teaching experience (at least five years), special project interests, and opportunities for leadership ahead. Additional information and applications may be secured by addressing Shell Merit Fellowship Program, 3 Stone Hall, Cornell University, Ithaca, N.Y.

The following specially designed courses will be offered:

Chem. A99. **PROBLEMS IN CHEMICAL EDUCATION.** (U,G) 3 or 4 hours credit. Registration restricted to Shell Merit Fellowship holders. Lectures, M T W Th F 8–10. Laboratory, M T 2–4:30 for those who elect 4 hours credit. Mr. WUNDERLICH and assistant.

Some basic concepts in chemistry with emphasis on modern trends in the interpretation of experimental data. Guest lecturers will discuss some recent developments in chemical research.

Educ. S226P. **SEMINAR IN SCIENCE AND MATHEMATICS TEACHING.** (U,G) 2 or 3 hours credit. Registration restricted to Shell Merit Fellowship holders. Lectures, T W Th F 10:30–11:50. Laboratory, M T 2–4:30. Field trips, Th afternoons. Messrs. JOHNSON and GEISELMANN.

Considers the over-all problems of science and mathematics teaching in secondary schools and deals with the ways and means for initiating widespread improvement programs in schools and school systems. Special assistance from the visiting lecturers, the resident staff, and the supervisors and teachers. Guidance to

groups and individuals who elect to work on special projects related to instruction.

Math. A223. **BASIC CONCEPTS OF SECONDARY SCHOOL MATHEMATICS.** (U,G) 3 or 4 hours credit. Registration restricted to Shell Merit Fellowship holders. Lectures, M T W Th F 8–10. Laboratory, M T 2–4:30 for those who elect 4 hours credit. Mr. POLLARD and assistant.

A critical examination of secondary school mathematics with the purpose of deepening the teacher's understanding of the mathematical and logical principles which underlie elementary algebra and geometry. Supplementary lectures on topics of current mathematical interest, in particular one or more lectures on modern computing machines with demonstrations.

Phys. A101. **TOPICS IN PRESENT-DAY PHYSICS.** (U,G) 3 hours credit. For a course description see Physics p. 40. One of the study groups will be restricted to Shell Merit Fellowship holders. Lecture, M 10–11:50. Study group, M T Th F 8–10. Film lecture, W 8–10. Mr. GREISEN and assistants.

## 52 OTHER PROGRAMS

Phys. A109. **GENERAL PHYSICS LABORATORY.** (U,G) 1 hour credit. For a description of Physics A109 see Physics p. 41. Registration in a special section of Physics A109 will be

restricted to Shell Merit Fellowship holders. This section will meet M T 2-4:30. Mr. GREISEN and assistants.

## OFFICERS

DEANE W. MALOTT, A.B., M.B.A., LL.D., D.C.S., President of the University.  
C. ARNOLD HANSON, Ph.D., Dean of the University Faculty.  
DAMON BOYNTON, Ph.D., Dean of the Graduate School.  
WILLIAM A. SMITH, Ph.D., Director of the Division of Summer Session and Extramural Courses.

## FACULTY

RALPH P. AGNEW, Ph.D., Professor of Mathematics.  
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