

CORNELL UNIVERSITY ANNOUNCEMENTS

SUMMER SCHOOL 1959

JULY 6 - AUGUST 15

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 six weeks of 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 Rural Education

John W. McConnell, Ph.D., Professor of Industrial and Labor Relations and Dean of the Graduate School

Francis E. Mineka, Ph.D., Professor of English and Dean of the College of Arts and Sciences

Everett M. Strong, B.S. in E.E., Professor of Electrical Engineering

Sedgwick E. Smith, Ph.D., Professor of Animal Husbandry

Robert F. Risley, Ph.D., Associate Professor and Acting Dean of the School of Industrial and Labor Relations

CONTENTS

CALENDAR	4
GENERAL INFORMATION	5
Admission	5
Academic Credit	7
Registration	9
Tuition and Fees	10
Veterans	11
The Graduate School	12
Living Accommodations	14
Health Services	16
Counseling Services	17
Libraries	18
Special Regulations	19
Program of Extracurricular Activities	19
THE CURRICULUM	22
Agriculture	23
Biological Sciences	25
Education	26
Map of Campus (<i>Key, page 35</i>)	36
Engineering	38
English, Speech and Drama	43
Fine Arts	46
Home Economics	47
Hotel Administration	53
Industrial and Labor Relations	53
Languages	55
Physical Sciences and Mathematics	56
Social Sciences	58
Extension Education	62
SPECIAL PROGRAMS	62
OFFICERS	66
FACULTY	66
INDEX	70

CALENDAR

REGULAR SIX-WEEK SESSION, 1959

- | | |
|----------------------------|---|
| July 6, <i>Monday</i> | Registration for the regular six-week Summer 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 Edmund Ezra Day Hall. Persons registering after this date will pay a \$10 fee for late registration. |
| July 7, <i>Tuesday</i> | Instruction begins at the time and place announced for each course. Late registrants report to the Summer School Office to complete registration. |
| July 8, <i>Wednesday</i> | Last day for withdrawal from Summer School without payment of a fraction of tuition and fees. |
| July 10, <i>Friday</i> | Last day for payment of tuition and fees at the Treasurer's Office, which closes at 4:30 p.m. |
| July 11, <i>Saturday</i> | All classes will be held on this Saturday <i>only</i> . |
| July 11, <i>Saturday</i> | Last day for making changes in registration <i>without payment of fee</i> at the Summer School Office, which closes at 12 noon. A \$10 change in registration fee will be charged after this date. |
| July 25, <i>Saturday</i> | Last day for making changes in registration. <i>No changes will be permitted after this date.</i> |
| July 27, <i>Monday</i> | Registration for the second three-week unit at the Summer School Office. |
| August 14, <i>Friday</i> | Final examinations begin; schedule on page 23. |
| August 15, <i>Saturday</i> | Summer School ends, 4 p.m. |

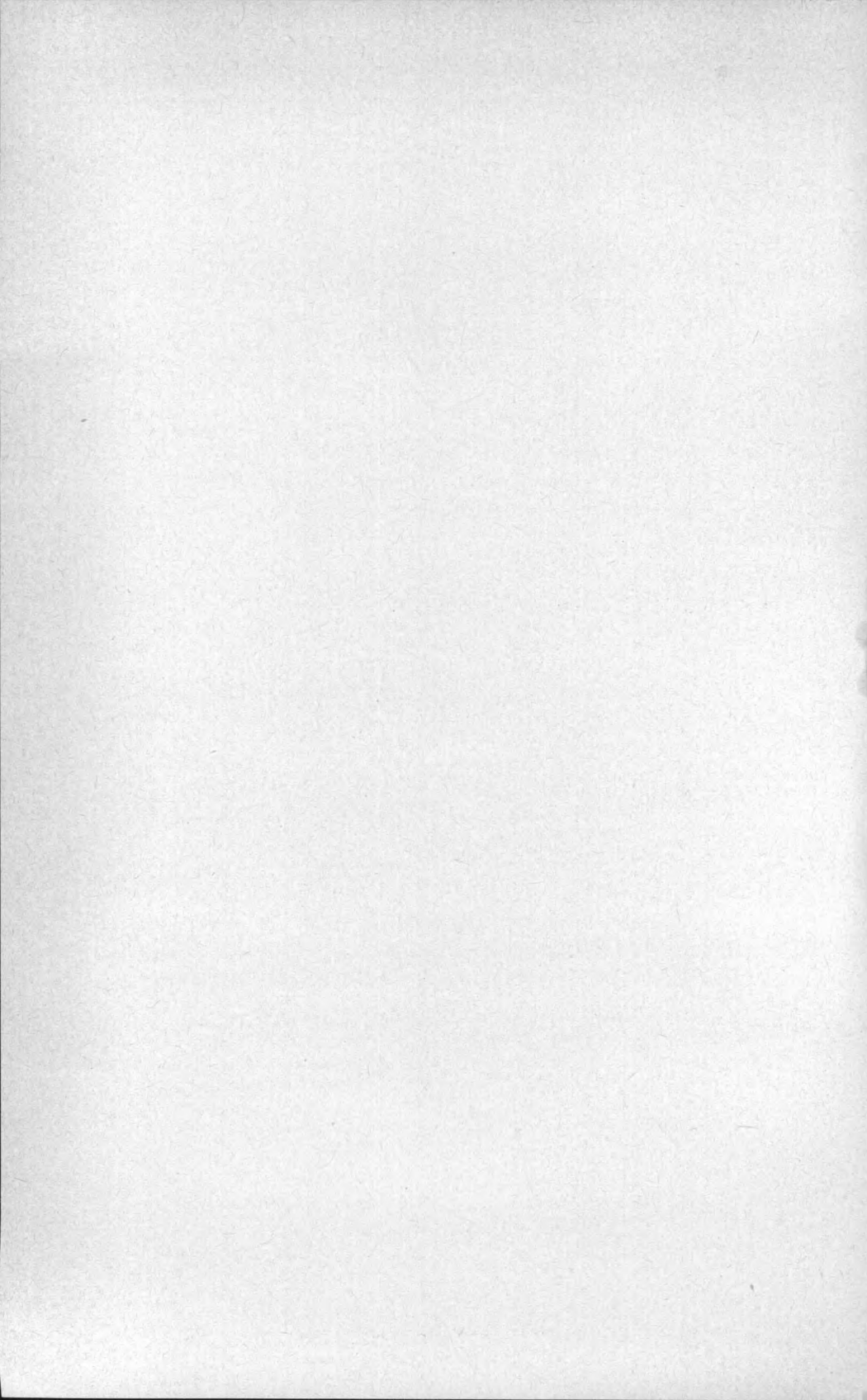
Be sure to bring this Announcement with you for use on registration day and throughout the Summer School.

SUMMER SCHOOL

JULY 6–AUGUST 15, 1959

CORNELL UNIVERSITY ANNOUNCEMENTS

Published by Cornell University at Edmund Ezra Day Hall, 18 East Avenue, Ithaca, New York, every two weeks throughout the calendar year. Volume 50. Number 19. March 11, 1959. Second-class mail privileges authorized at the post office at Ithaca, New York, December 14, 1916, under the act of August 24, 1912.



GENERAL INFORMATION

CORNELL UNIVERSITY is situated in Ithaca, in the beautiful Finger Lakes region of upstate New York. Its Summer School offers academic instruction for both graduates and undergraduates 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 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 wide number of subject fields. A number of unit programs and special courses are offered for professional workers other than teachers.

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 purpose 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 an undergraduate college in the fall should apply to the Director of Admissions, 239 Edmund Ezra Day Hall.

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

UNDERGRADUATES

An undergraduate candidate for the Bachelor's degree, at Cornell University or elsewhere, is required to preregister for a program of courses totaling between four and eight credit hours, all of which are approved by the dean or his representative. The maximum load of eight hours will be permitted only to students with high academic averages and with the special permission of their deans. Preregistration should be made by completing the undergraduate application form and can be changed only by filing a new application. The application form will be mailed on request.

June 20, 1959, is the closing date for admission of undergraduates.

GRADUATES

A graduate student at Cornell University or a recognized four-year college or normal school is eligible for admission to the Summer School upon receipt of a preregistration form by the Director of the Summer School. A graduate student may register as late as July 6 but is advised to select courses by June 20 in order to ensure a place in classes. A course program may be changed on registration day, July 6, in Barton Hall, if the student finds classes to which he can be admitted. 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. Four credit hours constitutes a minimum program for graduate students. See page 13 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 his Summer School work, does *not* register in the Cornell Graduate School but only in the six-week Summer School. Before so registering he should arrange for the accrediting of this work by the institution from which he plans to take his degree. Other students who hold Bachelors' degrees but who are not candidates for advanced degrees will also register only in the six-week Summer School.

SPECIAL STUDENTS

A 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 July 6 but is advised to select courses by June 20, in order to ensure a place in classes.

A high school graduate who has been accepted for admission to an undergraduate college at Cornell University may be admitted for summer study. The Director of the Division of Summer Session and Extramural Courses is also authorized to accept applications from students admitted to other colleges and universities. Such a person must preregister for a program of courses totaling between four and eight credit hours. Approval of the student's program by the dean of the school or college in which he intends to register in the fall should accompany the application. An application form for special students will be mailed on request and must be returned to the Summer School office by June 20.

AUDITORS

A 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 should preregister by completing the special student's application form, which will be mailed on request. An auditor may register as late as July 6 but is advised to select courses by June 20, 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.

APPLICATION FOR ADMISSION

Application for admission to the Summer School of 1959 must be made on an application form mailed 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.

Registration coupons, necessary for registration in the Summer School, will be mailed to the applicant after favorable action.

ACADEMIC CREDIT

All courses offered in the Summer School are assigned appropriate hours of credit. No student may receive credit for more than eight hours of work in a single six-week Summer School.

CREDIT

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 are intended primarily for undergraduates. Stu-

dents registered in the Graduate School of Cornell University will not receive credit for these courses toward an advanced degree 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 level. 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.

(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 T. W. Mackesey.

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. Christiansen; *Electrical*, Professor H. G. Smith; *Mechanical*, Professor G. R. Hanselman.

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 stipulated courses as credit toward a degree.

CREDIT IN INSTITUTIONS OTHER THAN CORNELL UNIVERSITY

An undergraduate enrolled in another institution, before admission to the Summer School, will submit as part of his application a program of courses approved for credit by an officer of the institution in which he is a candidate for a degree. When admitted, the student will be pre-registered for those approved courses. At the end of the session an official transcript of the Summer School record will be sent to the institution. The transcript will show what courses have been taken, the amount of credit in credit hours, and the grades received.

GRADES

All grades are reported in a numerical scale from 0 to 100. Courses which are audited appear as a "V" on the official transcript. If a student for *medical or other important reasons* must be absent from the last class meeting or examination and cannot make up the work before the last day of instruction, he may request the instructor to report his grade as *Absent*, together with a conditional numerical grade which may be used as the final recorded mark if the course work is not completed by January 1, 1960. It is the student's responsibility to make such specific arrangements with his instructors when necessary.

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

No other grades (for instance, *Incomplete*) are given in the Summer School.

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

REGISTRATION

Registration for the six-week Summer School will take place on Monday, July 6, in Barton Hall. Each student's certificate of admission, which is included with the registration coupons, will give the hour of the day at which he will be admitted. 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 July 6, during the scheduled registration hours, will be charged a fee of \$10 for late registration.

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

CHANGES IN REGISTRATION

All changes in registration after Monday, July 6, must be made by appearing at the Summer School Office, 117 Edmund Ezra Day Hall, before 12 noon on July 11. (See page 10 for fee charges.) *No change in registration will be permitted after 12 noon on July 25.* 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.

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

WITHDRAWALS FROM SUMMER SCHOOL

See page 11 for information concerning withdrawal.

TUITION AND FEES

Tuition and fees are due and payable at the Treasurer's Office in Edmund Ezra Day Hall on registration day, July 6. The last day for payment without penalty is Friday, July 10. 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 whose number is prefixed with the letter *A*, the tuition is \$30 per credit hour and for courses whose number is prefixed with 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.)

Tuition in the Extension Education regional summer program is \$40, with an additional fee of \$10 if a third course is audited. (Health and hospital services are not available to students in this program.)

FEES AND DEPOSITS

All students, except those in the summer School of Hotel Administration and the Extension Education summer program, will pay, in addition to tuition, a general fee of \$4 per week, which entitles them to health and infirmary services (see page 16), 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 desires 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 12 noon on July 11 must pay a \$10 fee. *No change in program will be permitted after 12 noon on July 25.*

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 incident to graduation if the student receives a degree. The deposit is not refundable.

WITHDRAWAL FROM THE SUMMER SCHOOL

A student may arrange for withdrawal at any time by canceling his registration *at the Summer School Office, 117 Edmund Ezra Day Hall*. In such cases, the Treasurer may refund a part of the tuition and general fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for withdrawal is stated in writing and is satisfactory to the Treasurer and the Registrar. In such cases 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 Wednesday, July 8.

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 the same at the Treasurer's Office and pay his fees within the time prescribed by the University, is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such 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.

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

CASHING OF CHECKS

The Treasurer of the University accepts checks in settlement of charges payable at his office, but a rule of the Board of Trustees forbids him to cash any credit instrument, even to the extent of accepting a check or draft in amount greater than the sum due and returning the excess in cash. Students are therefore advised to open an account in an Ithaca bank as soon as they arrive in town, or else 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.

PUBLIC LAW 550 VETERANS

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, 1959, 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.

PUBLIC LAW 894 VETERANS

Veterans under this law 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 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 normal program in the six-week Summer School, approved in advance and reported as satisfactory by the Special Committee, is accepted as two-fifths of a residence unit, providing 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 study earned prior to admission to candidacy.*

ADMISSION

Students intending to become candidates for an advanced degree at Cornell should write to the Dean of the Graduate School, 125 Edmund Ezra 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, July 6. 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 10.)

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 degree of Master of Education (M.Ed.) should consult the *Announcement of the School of Education*, which may be obtained by writing to the Announcements Office, Edmund Ezra Day Hall. The faculty of the School of Education, functioning as a division of the faculty of the Graduate School, has special jurisdiction over this degree.

LIVING ACCOMMODATIONS

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 Edmund Ezra Day Hall.

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. Sage Hall will be used for undergraduate housing, and there will be a uniform charge of \$168 for board, room, and an allowance for personal laundry for the six-week period.

There is a head resident in Sage Hall who, in cooperation with the counseling staff of the Office of the Dean of Women, 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 Women, 133 Day Hall. Graduate women over twenty-one may make application for space in the graduate unit of Residential Halls or may make arrangements to live off-campus.

Clara Dickson Hall will be reserved for graduate women's housing. The rate for a single room is \$61.20 for the six-week period. For graduate women registering for less than four weeks, the weekly rate for a single room is \$12.75. All rates cover the cost of room and an allowance for personal laundry. There are no prescribed hours for the daily clos-

ing of the graduate dormitory. The head resident's apartment is located on the first floor.

MEN

Single and double rooms in the Baker group of Residential Halls will be available to both undergraduate and graduate men. Rates for the six-week session range from \$36 to \$48, depending upon the type, desirability, and location of the accommodation. For men registering for less than four weeks, the rates range from \$7.50 to \$10 per week. All rates cover room only.

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 OF DORMITORIES

All Residential Halls will open for occupancy Sunday, July 5, at 9 a.m.; they will close at 2 p.m., Sunday, August 16. *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 six-week 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 15, 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 HOUSING

The Off-Campus Housing Office in Edmund Ezra Day Hall is maintained by the Department 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 \$60 to \$125 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. It is expected that in 1959 rentals will range from \$5 to \$10 weekly.

DINING ROOMS AND CAFETERIAS

The dining facilities of Willard Straight Hall (the student union building) and the cafeteria in Martha Van Rensselaer Hall, operated by the College of Home Economics, are open to both men and women students. Board may be obtained in these places, or in cafeterias, dining rooms, and restaurants near the campus, at 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 six-week 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 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

The Office of the Dean of Men and Dean of Women is on the first floor of Edmund Ezra Day Hall. This office maintains the following services:

INDIVIDUAL COUNSELING....A trained guidance and counseling staff serves students in personal, educational, vocational, and social areas.

TESTING....In cooperation with the University Testing Service, appropriate tests will be administered if, in the counseling process, a desire for them is expressed.

COUNSELING FOR FOREIGN STUDENTS....The Counselor to Foreign Students assists all students from other countries. It is suggested that all foreign students write to him before coming to Ithaca and call upon him soon after arrival.

LIBRARIES

The University libraries in Ithaca comprise the central University Library, the Mann Library of Agriculture and Home Economics, the Architecture 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 the following special department libraries: Air Science, Barnes (Religion), Browsing, Chemistry, Entomology, Geology, Goldwin Smith, Hart Memorial, Mathematics, Military Science, Music, Naval Science, Physics, Plant Pathology, Regional History and University Archives, and Zoology. Within the College of Agriculture there are also department library collections of material duplicated in the Mann Library. They are Agronomy, Animal Husbandry, Animal Nutrition, Agricultural Engineering, Dairy Industry, Nature Study, Plant Breeding, Poultry Husbandry, and Wiegand Herbarium.

The hours of opening for the University and Mann Libraries during the Summer School are 7:50 a.m. to 9:00 p.m. on Monday through Thursday; 7:50 a.m. to 6:00 p.m. on Friday; and Saturday morning. The schedules of other campus libraries will be found posted in each library.

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 are in 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 and to the White Historical Library are issued to graduate students for the purpose of consultation and research. A limited number of stalls and study spaces 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. A statement of the University rule governing student conduct follows:

"A student is expected to show both within and without the University unfailing respect for order, morality, personal honor, and the rights of others." The rule is construed as applicable at all times, in all places, to all students of the University.

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. Each student who owns, maintains, or for his or her own benefit operates a motor-driven vehicle in Tompkins County must do the following: (1) 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 by paying a fee of \$1 and displaying, as directed, a registration sticker; (2) produce evidence that he or she may drive in New York State and that the vehicle may be driven here; (3) produce evidence that the vehicle is insured at the standard minima 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.

PROGRAM OF 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.

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 interesting 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, and in the Home Economics Cafeteria. Students are advised to secure copies regularly.

LECTURES... Public lectures, open to all Summer School students, are given on selected Wednesday evenings of the session. Both non-resident lecturers and members of the faculty take part in the series, and the subjects are chosen for their general interest and timeliness. In 1958, the lecturers and their topics were:

Dr. F. F. Hill, Vice President, The Ford Foundation: "The United States and the Less Developed Countries"

Professor David Butler, Fellow and Dean of Nuffield College, Oxford University: "British Politics and the British Press"

Mr. Junichiro Sekino, President, Japan Printmakers Association: Lecture and Demonstration in Wood-block Printing

Dr. Finis Engleman, Executive Secretary, American Association of School Administrators: "Meet the New Day"

CONCERTS... A series of Thursday evening concerts is given, open without charge to students in the Summer School.

SAGE CHAPEL... Religious services are conducted in Sage Chapel throughout the academic year by clergymen of various religious denominations. There will be services in the Chapel on five Sundays during the Summer School, July 12 to August 9 inclusive.

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 music room, and an art room. 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.

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 program of recorded music is broadcast in the Music Room.

RECREATIONAL FOLK AND SQUARE DANCING. For students and faculty members on Monday evenings on the University Halls' tennis courts. An instructor is present.

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 lunches and dinners and 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 both the Straight and the Noyes Lodge. A detailed calendar is published, listing all events of the Summer School. Copies will be available at the Main Desk.

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. In 1958, the following films were shown: "The Court Jester," "Anthony Adverse," "A Day at the Races," "To Catch a Thief," "Dr. Jekyll and Mr. Hyde," "The Night My Number Came Up," and "An American in Paris."

ANDREW DICKSON WHITE MUSEUM OF ART....Cornell's art gallery 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 modern paintings from the Solinger collection, bird paintings by Louis Agassiz Fuertes, and Currier and Ives prints from the Warfield collection.

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.

TENNIS. Hours to be arranged. Call Ext. 3810.

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. 3706 or Ithaca 4-1526.

INTRAMURAL SOFTBALL LEAGUE. Groups or individuals who wish to participate in softball competition should see Mr. Hanley W. Staley, Teagle Hall, Ext. 3706 or Ithaca 4-1526.

For more detailed information, address Mr. R. J. Kane, Director of Athletics, Schoellkopf Hall.

CURRICULUM

COURSES OF INSTRUCTION...The listing is alphabetically by departmental subheadings under general fields of instruction. For offerings in particular subjects, 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...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 10 for tuition charges.)

COURSES WITH FEES ATTACHED...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, July 6–August 15. Class periods begin on the hour, unless otherwise indicated, and are fifty minutes in length. Laboratory periods are of various lengths, as indicated in the descriptions of courses which include laboratory work.

ROOM SCHEDULES...The 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 on registration day.

SCHEDULE OF EXAMINATIONS...With a few exceptions, examinations will be held on Friday, August 14, and Saturday, August 15,

at the hours indicated by the schedule below; in the exceptional cases, the examination will be held on Thursday, August 13, at 2. The usual classrooms will be used unless a change is announced by the instructor.

In courses which meet for more than one hour daily, the examination period is determined by the first hour at which they meet. For example, Economics 101 meets daily at 9 and at 10; the examination will be held on Saturday at 8. 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.

Examinations will be held as follows:

- 8 o'clock classes, Friday at 8.
- 9 o'clock classes, Saturday at 8.
- 10 o'clock classes, Friday at 10:30.
- 11 o'clock classes, Saturday at 10:30.
- 12 o'clock classes, Friday at 2.
- Afternoon classes, Saturday at 2.

AGRICULTURE

AGRICULTURAL EDUCATION

(See *Education*, p. 27)

AGRICULTURAL ECONOMICS

*Ag.Ec. S140u. *MARKETING FARM PRODUCTS*. (U,G) 2 hours credit. July 6-July 24. M T W Th F 10-12. Warren 260; and field trips on Thursday afternoon. Mr. How.

Marketing and farm prices. The market for farm products. Functions of marketing agencies and costs of marketing services. Government programs: marketing orders, market news, grading and inspection. Special problems of marketing particular commodities. The integration of production and marketing. Opportunities for improvement in farm product marketing. Fee, \$5.

Ag.Ec. S126u. *FARMERS' COOPERATIVES*. (U,G) 2 hours credit. July 27-August 15. M T W Th F 10-12. Warren 260. 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.

AGRICULTURAL ENGINEERING

*Ag.Eng. S143u. *ADVANCED WELDING*. (U,G) 2 hours credit. July 6-July 24. Prerequisite, Course 42 or permission of instructor. Limited to 20 students. Lecture and laboratory, M T W Th F 8-10; M F 1-4. Riley-Robb 64. Mr. LECHNER.

Designed for instruction and laboratory practice in principles, techniques, selection, and use of more advanced skills in both electric arc and oxyacetylene welding as they apply to farm operations. Laboratory fee, \$5.

*Ag.Eng. S144u. *FARM POWER PRINCIPLES AND APPLICATIONS*. (U,G) 2 hours credit. July 27–August 14. Lecture and laboratory, M T W Th F 8–10; M F 1–4. Riley-Robb 64. Mr. LECHNER.

Designed primarily to meet needs of present and future teachers of vocational agriculture as well as others in the principles, selection, safe operation, and preventive maintenance of farm power. Opportunity will be provided in laboratory for practical experience. Laboratory fee, \$3.

*Ag.Eng. S162u. *FARM CARPENTRY AND MASONRY*. (U,G) 2 hours credit July 6–July 24. Limited to 21 students. Lectures and laboratory, T Th 10–12; T W Th 1–5, Riley-Robb 64. Mr. FOSS.

Theory and practice in constructing simple concrete forms, placing concrete, laying concrete blocks, and constructing simple farm structures. Class time will be used in discussing the selection of materials, estimating cost, and securing teaching information. Laboratory will include the techniques of carpentry and masonry. Laboratory fee, \$3.

*Ag.Eng. S175u. *FARM MECHANICS PROJECTS*. (U,G) 1–3 hours credit. July 6–July 24 AND July 27–August 14. Time to be arranged. Riley-Robb 64. Mr. FOSS.

Special project work in any field of agricultural mechanics in which the teacher of agriculture feels he is deficient and desires to concentrate under personal direction. Laboratory fee, depending upon activity.

*Ag.Eng. S206. *FIELD PROBLEMS IN AGRICULTURAL ENGINEERING*. (U) 6 hours credit. July 6–August 14. Limited to students in the five-year agricultural engineering curriculum. M T W Th F 8–5. Selected staff.

Designed to apply basic engineering design and analytical principles to typical field problems encountered in professional agricultural engineering practice. The work will be distributed in the fields of power, machinery, structures, soil and water, and electrification. Laboratory fee, \$5.

AGRONOMY

*Agron. S102. *PRINCIPLES OF SOIL SURVEYING*. (U,G) 2 or 4 hours credit. Lectures, M T W Th F 11. Caldwell 143. Laboratories, T W Th 1–5, in the field. Mr. CLINE.

Designed for workers in Extension and Vocational Agriculture and for those interested in soil survey as a profession. Lectures deal with principles and methods used in soil surveys. Laboratories consist of field problems of soil description, correlation of soil and landscape, soil mapping, and soil survey interpretation. Students who have had Agronomy 101 or its equivalent may take the laboratory as scheduled without the lectures for two hours of credit or may substitute a special field problem for the lectures. Fee, \$5.

*Agron. S116u. *RECENT ADVANCES IN FIELD CROPS*. (U,G) 2 hours credit. July 6–July 24. Lectures, M W F 8–10. Laboratories, M F 1–5. Caldwell 143. Mr. KRENZIN.

New practices of sealed storage, heat drying, and pelleting of harvested forage will be evaluated. Rotation, strip and zero grazing of pastures will be discussed. Management of improved varieties of alfalfa and nitrogen fertilized grass pastures and meadows will be discussed. The new concepts in production and storage of corn for grain will be studied. Agronomic practices will be considered in relation to each other and to the entire business of farming. Fee, \$3.

*Agron. S121u. *FARM PRACTICE IN SOIL AND WATER CONSERVATION*. (U,G) 2 hours credit. July 27–August 15. Lectures, M W F 8–10. Laboratory, M W 1–4:30. Caldwell 143. Mr. ZWERMAN.

A beginning course in principles and methods used in soil and water conservation. Emphasis is placed on New York State conditions. Agronomic aspects of soil conservation receive primary consideration. Laboratories involve the analyses of practical farm situations. Laboratory fee, \$3.

BIOLOGICAL SCIENCES

BACTERIOLOGY

*Bact. S1. *GENERAL BACTERIOLOGY*. (U,G) 2 or 4 hours credit. Lectures, M T W Th F 1:40. Stocking 119. Laboratory, M T W Th F 2:30-4:30. Stocking 301. Mr. VANDEMARK.

An introductory course giving a general survey of the field of bacteriology, together with the fundamentals essential to further work in the subject. Laboratory fee, \$10, for those seeking four credit hours.

BIOCHEMISTRY

Bioch. S101. *GENERAL BIOCHEMISTRY*. (U,G) 4 hours credit. Prerequisite, organic chemistry. Lectures, M T W Th F 8-10. Savage 145. Mr. NEAL.

Discussion of the chemistry of plant and animal substances and the reactions occurring in biological systems.

*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 plant and animal materials and the experimental study of their properties. Laboratory fee, \$15.

BOTANY

*Bot. S31. *PLANT PHYSIOLOGY*. (U,G) 4 hours credit. Prerequisite, general botany or biology and elementary chemistry. Lectures, M T W Th F 8. Plant Science 141. Laboratory, 9-11. Plant Science 227. Mr. YOCUM.

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

*Bot. S124. *CYTOLOGY*. (U,G) 4 hours credit. Prerequisite, general botany or Zoology 102 or 104 or the equivalent. Lectures, M T W Th F 8. Plant Science 143. Laboratory, M T W Th F 9-11. Plant Science 219. Mr. UHL.

The principal topics considered are protoplasm, cells and their components, nuclear and cell division, meiosis and fertilization, and the relation of these to the problems of development, reproduction, taxonomy, and heredity. Both plant and animal materials are used. Microtechnique is not included. Fee, \$5.

[Bot. S31. *PLANT PHYSIOLOGY*. To be offered in the 1960 Summer School.]

[Bot. S117. *PLANT TAXONOMY*. To be offered in the 1960 Summer School.]

[Bot. S31. *PLANT PHYSIOLOGY*. To be offered in the 1961 Summer School.]

[Bot. S123. *PLANT ANATOMY*. To be offered in the 1961 Summer School.]

CONSERVATION

Cons. S3. *CONSERVATION OF NATURAL RESOURCES*. (U,G) 2 hours credit. M T W Th F 10. Fernow 122. Mr. SWANSON and Mr. HAMILTON.

The natural-resource problems of the United States; natural resources in national welfare; the conservation movement; public land policies; natural resources of major importance; use and exploitation; present inventories; problems of the future; essential points in a national conservation program.

ZOOLOGY

*Zoology. A103-104. *GENERAL ZOOLOGY*. (U) 6 hours credit. Lecture, M T W Th F 9 and 11. Laboratory, M T W Th F 1-3:20. Stimson G-1 and 102. Mr. LEONARD and assistant.

A survey of the animal kingdom, studying representative species in the laboratory, beginning with single celled organisms. Emphasis will be placed on the biology of the vertebrates. Various zoological principles such as evolution and certain aspects of development, genetics, etc., will be considered. The course also serves as a pre-requisite to advanced zoological studies. Text, Storer's *General Zoology*. Laboratory fee, \$20.

EDUCATION

ADMINISTRATION AND SUPERVISION

Educ. S243. *PRINCIPLES AND PROCEDURES IN SUPERVISION*. (G) 2 hours credit. M T W Th F 9. Warren 37. Miss WARDEBERG.

Nature and scope of supervision, fundamental principles, and basic procedures will be considered.

Educ. S262. *SECONDARY SCHOOL ADMINISTRATION*. (G) 2 hours credit. M T W Th F 10. Warren 160. Mr. MACDONALD.

Designed to show the organization and administration of modern secondary education and to analyze in detail basic problems confronted by the school principal; to develop the realization that school administration in our form of society must be viewed as a cooperative and collaborative process.

Educ. S264. *SCHOOL FINANCE*. (G) 3 hours credit. M T W Th F 8:30-10. Warren 160. Mr. GRAGG.

An exploration of theories of public finance; application of theory to problems of financing public schools; budgeting and accounting; borrowing; cost analysis; and special problems of school administration. Aimed at meeting needs of those upon whom will rest responsibility as chief school administrators or business managers.

[Educ. 267. *EDUCATIONAL LAW*. (G) 2 hours credit. M T W Th F 8. Mr. CURTIS. Given in 1960.]

Educ. S268. *SEMINAR IN SCHOOL ADMINISTRATION*. (G) 2 hours credit. M T W Th F 11. Warren 160. Mr. MACDONALD.

Designed for majors in administration and supervision, nearing the end of their formal course work. Attention is focused upon individualized research problems in educational administration.

SIXTH ANNUAL ADMINISTRATORS' CONFERENCE

The School of Education will sponsor the Sixth Annual Conference for Administrators during the fourth week of the Summer School, July 28, 29, and 30. This year's

conference will focus attention on modern developments occurring in the major curriculum areas and the administrative and teaching considerations related to these developments.

Further information may be obtained by writing to the Office of the Dean, School of Education, Stone Hall, Cornell University.

AGRICULTURAL EDUCATION

To provide teachers of vocational agriculture with an opportunity to obtain graduate work without taking extended leaves of absence from their positions, three-week unit courses are being made available in technical agriculture and agricultural education. Two three-week sessions will run concurrently with the regular six-week Summer School.

Cornell graduate residence credit earned in three-week unit courses may be applied toward the requirement for the Master of Education degree only. Registration for the first three-week session will be July 6, and for the second three-week session, July 27.

Educ. S133u. *SPECIAL PROBLEMS IN VOCATIONAL AGRICULTURE*. (U,G) 3 hours credit. July 6-July 24. Consent of instructor required. Mr. HILL.

Planned for persons with some teaching experience in agricultural mechanics as a part of vocational agriculture. The class will study and develop materials that may be used in a publication on teaching agricultural mechanics.

Consideration will be given to the philosophy and concepts of teaching agricultural mechanics in vocational agriculture. Special emphasis will be placed on the development of a course of study. Methods and techniques of teaching, organization and management of farm mechanics.

Educ. S134u. *ORGANIZATION AND DIRECTION OF YOUNG FARMER PROGRAMS*. (U,G) 2 hours credit. July 6-July 24. M T W Th F 10-12. Warren 14. Mr.

Emphasis will be placed on solving the problems encountered by teachers of agriculture in such phases of the young farmer program as making arrangements to have a program, determining instructional needs, and planning programs of instruction, teaching young farmers in groups, giving individual on-farm instruction, organizing and advising the local young farmer association, and evaluating the young farmer program.

Educ. S233u. *PLANNING COURSES OF STUDY AND FARMING PROGRAMS IN VOCATIONAL AGRICULTURE*. (U,G) 2 hours credit. July 27-August 14. M T W Th F 8-10. Warren 14. Mr. TOM.

Guiding principles, objectives, and sources of information will be developed for planning the courses of study and teaching calendar. Consideration will be given to principles, meaning, and function of farming programs and how they are planned and used as a means of instruction.

DEVELOPMENT OF HUMAN RESOURCES

I&L.R. S533u. *INDUSTRIAL EDUCATION AND TRAINING: DYNAMICS OF ADMINISTRATION*. (G; U by permission) 3 hours credit. July 6-July 17. M T W Th F 9-12 and 1-4 p.m. I&L.R. 10A. Mr. CAMPBELL.

A study of administrative processes and problems with special reference to the role and function of industrial education and training in a dynamic society. Review of theory and practice in developing effective organizational structure and relationships, planning and control, communications, and supervision; the process of decision making as related to morale efficiency and to social and economic factors both within

and external to the organization. Special emphasis will be given to case studies of the administration of industrial education and training programs in educational institutions and in business and industry.

I.&L.R. S534u. *LEARNING THEORY AND TEACHING IN INDUSTRIAL EDUCATION AND TRAINING*. (G; U by permission) 3 hours credit. July 20–July 31. M T W Th F 9–12 and 1–4 p.m. I.&L.R. 10A. Mr. CAMPBELL.

Analysis of educational programs and teaching methods commonly used in industry and in educational institutions for the development of manual, technical, and managerial personnel. Emphasis will be placed on learning concepts such as perception, feelings and emotions, habit formation and reinforcement as related to such methods as lecture, discussion, individual counseling, job instruction, role playing, case studies, incident process, and audio-visual aids. A significant part will be devoted to practice in the development of program content, construction of teaching materials, and the use of various teaching methods.

I.&L.R. S699. *SPECIAL STUDIES*. Credit and hours to be arranged. Directed research in special problems.

EDUCATIONAL PSYCHOLOGY AND MEASUREMENT

Educ. S211. *EDUCATIONAL PSYCHOLOGY*. (U,G) 2 hours credit. M T W Th F (two sections) 12 and 1. See instructor for assignment. Stone 201. Mr. GLOCK.

For teachers, supervisors, guidance workers, and administrators. Designed to help teachers with classroom problems related to motivation, learning, attitudes and interests, and individual differences.

Educ. S215. *PSYCHOLOGY OF ADOLESCENCE*. (U,G) 2 hours credit. 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.

Educ. S253. *INTRODUCTION TO EDUCATIONAL STATISTICS*. (G) 2 hours credit. M T W Th F 8. Warren 37. Mr. AHMANN.

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

Educ. S255. *USE AND INTERPRETATION OF TESTS IN GUIDANCE AND PERSONNEL ADMINISTRATION*. (G) 2 hours credit. Open to students in guidance or personnel administration and to classroom teachers who expect to work with standardized group tests. M T W Th F 9. Warren 232. Mr. ANDRUS.

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.

ELEMENTARY EDUCATION

Students in elementary education have a wide selection of courses during the Summer School at Cornell. In addition to courses designed to increase competence in elementary school teaching, students are encouraged to select courses in other departments of the University, to extend their knowledge and depth of understanding in the content areas of the elementary school curriculum. (See offerings in the Biological Sciences; the Social Sciences—Government, History, Sociology, Anthropology; English, Speech and Drama; and the Fine Arts.)

There are also excellent offerings in Educational Psychology and Measurement, History and Philosophy of Education, Child Development and Family Relationships, Mental Health, and Psychology.

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

Educ. S247. *SEMINAR IN ELEMENTARY EDUCATION*. (G) 2 hours credit. M T W Th F 11. Warren 37. Miss WARDEBERG.

Recent research and common problems in the organization and curriculum of the modern elementary school will be considered. Designed for experienced teachers and supervisors in the elementary field.

Educ. S414. *THE IMPROVEMENT OF MATHEMATICS INSTRUCTION IN THE ELEMENTARY SCHOOL*. (G) 2 hours credit. M T W Th F 8. Warren 260. Miss ARCHER.

Open to experienced teachers and supervisors only. Recent developments in teaching mathematics in the elementary school will be studied. Materials and techniques of teaching will be considered, with emphasis on meaning and understanding.

Educ. S107. *TEACHING OF NATURE STUDY AND ELEMENTARY SCHOOL SCIENCE*. (See page 31.)

Music A109. *MUSIC IN THE ELEMENTARY SCHOOL*. (See page 46.)

C.D. & F.R. S351. *CHILDREN'S LITERATURE*. (See page 48.)

Sp.&Dr. A231. *SPEECH FOR THE CLASSROOM TEACHER*. (See page 44.)

Sp.&Dr. A235. *TEACHING OF SPEECH AND DRAMA*. (See page 44.)

Sp.&Dr. A341. *FUNDAMENTALS OF SPEECH AND HEARING*. (See page 45.)

GUIDANCE AND PERSONNEL ADMINISTRATION

Educ. S282. *EDUCATIONAL AND VOCATIONAL GUIDANCE*. (G) 2 hours credit. M T W Th F 12. Warren 37. Mr. NELSON.

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

Educ. S283. *COUNSELING*. (G) 2 hours credit. Prerequisites, an introductory course in guidance and a course in psychological testing. M T W Th F 12. Warren 132. Mr. BRESEE.

Principles and techniques of counseling with students concerning educational, vocational, and social adjustment problems. Primarily for graduate students who wish to become certified as counselors.

Educ. S284. *GROUP TECHNIQUES IN GUIDANCE*. (G) 2 hours credit. M T W Th F 11. Warren 132. Mr. MINK.

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

Educ. S286. *ORGANIZATION AND ADMINISTRATION OF GUIDANCE PROGRAMS*. (G) 2 hours credit. M T W Th F 10. Warren 132. 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.

Educ. 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 260. 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.

Educ. S255. *USE AND INTERPRETATION OF TESTS IN GUIDANCE AND PERSONNEL ADMINISTRATION*. (See page 28.)

M. Health A1. *PRINCIPLES AND PRACTICES IN MENTAL HEALTH*. (See page 59.)

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 1960: *Educational and Vocational Guidance, Counseling, Occupational and Educational Information, Practicum in Measurement and Appraisal for Counselors*.

HISTORY AND PHILOSOPHY OF EDUCATION

Educ. A244. *PHILOSOPHY OF EDUCATION*. (G; U by permission), 2 hours credit. M T W Th F 10. Warren 31. Mr. HIXON.

A critical consideration of educational philosophies which are generally recognized as significant influences upon education, together with their application to current educational problems.

Educ. S295. *COMPARATIVE EDUCATION*. (G; U by permission). 2 hours credit. M T W Th F 9. Warren 31. Mr. DOBINSON.

A study of the educational philosophies, systems, and practices which are to be found today in the more important countries of the world. An attempt to relate the variations which exist to the needs of human societies and to the known facts concerning the development of children and adolescents. An attempt will be made to assess the possible contributions of the different systems to the creation of a harmonious cooperating world. Students will be expected to select special aspects of national systems or special areas of comparison which they will study in depth as part of their contribution to the common pool of work.

Educ. S297. *HISTORY OF EDUCATION*. (G; U by permission). 2 hours credit. M T W Th F 11. Warren 31. Mr. DOBINSON.

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

Educ. 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 instructor in charge for independent, advanced work.

Educ. S407. *THESIS AND RESEARCH*. (G) Credit and hours to be arranged. Registration with permission of the instructor. Department staff.

*Educ. S435. *METHODS AND MATERIALS IN TEACHING HOME ECONOMICS*. (G) 2 hours credit. M T W Th F 9. Van Rensselaer East Wing 5. Miss RHODES.

Planned for experienced teachers who wish to study and experiment with a variety of teaching procedures and teaching materials. An opportunity will be given for work on individual problems. Fee, \$2.

*Educ. S457. *HOME ECONOMICS AND BASIC EDUCATIONAL ISSUES.* (G) 2 hours credit. M T W Th F 11. Van Rensselaer East Wing 5. Miss PATTERSON.

The purpose is to examine some of the critical educational issues in relation to the teaching of home economics. Examples are (a) ability grouping, (b) increasing size of school population, (c) the upgrading of instruction, (d) emphasis on science, mathematics, and languages in current curriculum. Consideration will be given to the place of education for homemaking in the total program and to possible changes that might improve the teaching of home economics. Fee, \$2.

*Educ. S459. *EVALUATION.* (G) 3 hours credit. M T W Th F 9:30-11. Van Rensselaer 124. 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.

*Educ. S478. *RESEARCH IN EDUCATION.* (G) 1 hour credit. T 1, and other hours to be arranged. Van Rensselaer East Wing 5. Miss RHODES.

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, \$2.

Educ. S512u. *FIELD EXPERIENCE IN HOME ECONOMICS EDUCATION.* (G) 2 hours credit. July 6-August 7. Van Rensselaer Apartment B living room. Mrs. CORNELIUS.

Planned especially for New York State teachers of homemaking who are employed for the summer program in their school communities. Preregistration required. Workshop description and instructions for preregistration have been provided for eligible registrants by the Bureau of Home Economics Education, State Education Department.

NATURE STUDY AND SCIENCE EDUCATION

Educ. S107. *THE TEACHING OF NATURE STUDY AND ELEMENTARY SCHOOL SCIENCE.* (U,G) 2 hours credit. Lectures, M W F 10. Laboratory or field work, T Th 2-4:30. Stone 7. Miss GORDON.

The content and methods of nature study and of elementary school science, with field work and laboratory experience useful in classroom and camp.

Educ. S108. *FIELD NATURAL HISTORY.* (U,G) 2 hours credit. Lectures and field trips, M W 2-5:20. Stone 7. Mr. FISCHER.

Studies of local plants and animals, their ecology, and their relationship to humans. Applications to teaching science and conservation are emphasized.

Educ. S201. *PHOTOGRAPHY FOR TEACHERS.* (U,G) 2 hours credit. Lectures and demonstrations, M T W Th F 11. Stone 7. Mr. FISCHER.

Fundamentals of photography particularly useful to teachers, administrators, audio-visual specialists, writers, and others who use photography in teaching.

Educ. S204. *AUDIO-VISUAL METHODS IN TEACHING.* (U,G) 2 hours credit. M T W Th F 9. Stone 7. Mr. PHILLIPS.

A study of pictures, posters, graphs, models, slides, films, and other audio-visual materials in their relation to instruction. While emphasis will be on effective methods and techniques for using audio-visual materials and devices, there will also be many opportunities to prepare materials for classroom use and for mass communication.

Educ. S207G. *METHODS AND MATERIALS FOR TEACHING GENERAL SCIENCE*. (U,G) 2 hours credit. Prerequisite, experience in teaching general science or biology, or consent of instructor. M T W Th F 8. 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.

RESEARCH

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

Educ. S299. *EDUCATIONAL RESEARCH METHODS*. (G) 2 hours credit. Recommended for Master's degree candidates. Alternates with Educ. 251. M T W Th F 10. Stone 201. Mr. AHMANN.

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

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

Educ. S321. *SPECIAL STUDIES IN EXTENSION EDUCATION*. (G) 2 hours credit. Time to be arranged. Mr. FENLEY.

A graduate seminar intended primarily for degree candidates majoring in extension education who wish to register for thesis preparation during the summer session. Students will be assisted in delineation and development of thesis problems.

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

Educ. 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.

SECONDARY EDUCATION AND CURRICULUM

For students with a major interest in secondary school teaching, courses in secondary education and in teaching problems and techniques in the several fields will be regularly offered in the summer program. In addition, students are urged to carry supporting work in one of the teaching fields (English and Speech, Social Studies, Sciences, Mathematics, Languages) and in such supporting fields as educational foundations, measurement, guidance, administration, and supervision.

Educ. A33. *THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS*. (U,G) 2 hours credit. M T W Th F 9. Warren 132. Miss L'AMOREAUX.

Offered 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. Special attention will be given to discussion of new techniques and curricular aids.

Educ. A34. *THE TEACHING OF MATHEMATICS IN SECONDARY SCHOOLS*. (U,G) 2 hours credit. M T W Th F 11. Warren 232. Miss ARCHER.

Designed to meet certification requirements for the teaching of high school mathematics and to help, in as practical a way as possible, teachers already in the field. Special attention will be given to planning and materials of learning appropriate to junior and senior high schools.

Educ. A35. *TEACHING SOCIAL STUDIES AND CITIZENSHIP EDUCATION IN SECONDARY SCHOOLS.* (U,G) 2 hours credit. M T W Th F 9. East Roberts 223. Mr. PFAFF.

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.

Educ. S276. *THE CURRICULUM OF AMERICAN SCHOOLS.* (G) 2 hours credit. M T W Th F 11. Stone 201. Mr. STUTZ.

A consideration of the major problems, principles, and techniques in determining educational objectives and curriculum scope and content in elementary and secondary schools. Special attention will be given to recent developments in the curriculum.

Educ. S315. *READING IN THE SECONDARY SCHOOL.* (U,G) 2 hours credit. M T W Th F 12. Warren 31. Miss L'AMOREAUX.

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. A discussion of over-all school programs and policies will be included.

Educ. A391. *THE JUNIOR HIGH SCHOOL.* (U,G) 2 hours credit. M T W Th F 8. Warren 132. Miss STOUTENBURG.

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, integrated and core programs.

Educ. S204. *AUDIO-VISUAL METHODS IN TEACHING.* (See page 31.)

Educ. S207G. *METHODS AND MATERIALS FOR TEACHING GENERAL SCIENCE.* (See page 32.)

A FIVE-YEAR SUMMER PROGRAM FOR TEACHERS OF CITIZENSHIP EDUCATION AND SOCIAL STUDIES

Several divisions of the University: the Departments of Economics, History, Government, Sociology and Anthropology, Rural Sociology, the School of Education, and the School of Industrial and Labor Relations, will offer cooperatively a planned program, over a five-summer period, for teachers of citizenship education and the social studies. The program is designed to meet the needs of younger teachers who desire, through Summer Session study, to complete requirements for a Master's degree, or to complete thirty hours of work beyond the Bachelor's degree.

A sequence of offerings in each of the social sciences and in the teaching of social studies is proposed, this sequence to cover a period of five summers. Hence it is possible for the student to plan ahead for a balanced program of studies in the several social sciences and in teaching the social studies. Courses for 1959 are described in this Announcement.

Inquiries regarding this program should be directed to F. H. Stutz, 102 Stone Hall, Cornell University.

Following are statements indicating the *probable* course offerings in each field over a five-summer period. No future Summer School course can be guaranteed to be offered; staffing will determine the curriculum. Every effort will be made to

adhere to the proposed programs. Courses marked with the asterisk will be offered in 1959.

Economics

- *Elements of Economics (each summer)
- Money and Banking (nearly every summer)
- Competition and Monopoly, or *Public Regulation of Business or Government and Business (something in this area nearly every summer)
- Prosperity and Depression, or *Business Cycles (frequently)
- *Comparative Economic Systems (occasionally)
- Economic Policy (occasionally)
- World Population and Resources (possibly)
- Economic Development of Backward Areas (occasionally)

History

- American History (each summer)
- *Twentieth Century American History (every other summer)
- Modern European History (each summer)
- *Twentieth Century European History (every other summer)
- *Far Eastern History (twice in five summers)
- Russian History (twice in five summers)
- History of American Foreign Policy (twice in five summers)
- *New York State History (every other summer)

Government

- *American National Government (each summer)
- Advanced American National Government, e.g., legislative process, the Presidency, constitutional law (each summer)
- Political Theory (each summer)
- International Relations (twice in five summers)
- *Comparative Government (every other summer)
- *Political Parties (every other summer)

Sociology, Anthropology, Rural Sociology

- *Introduction to American Society (each summer)
- *Man and Culture (each summer)
- *Culture and Personality (each summer)
- *School-Community Relations (each summer)
- *The Sociology of Youth (every other summer)
- Research Design (every other summer)
- Techniques of Dealing with Groups (every other summer)
- Social Problems and Public Policy (every other summer)
- *Social Change and Social Problems (every other summer)
- Intergroup Relations (every other summer)

Education

- *Teaching Social Studies and Citizenship Education in Secondary Schools (each summer)

Industrial and Labor Relations

- *Survey of Industrial and Labor Relations (each summer)
- *Personnel Administration (each summer)
- *History and Development of Labor Unions (every other summer)
- Collective Bargaining (every other summer)
- *Economics of the Labor Market (every other summer)
- Industrial Occupations and Processes (occasionally)
- *Labor-Management Relations (July 6-July 24, 1959)

COLLEGE READING IMPROVEMENT PROGRAM

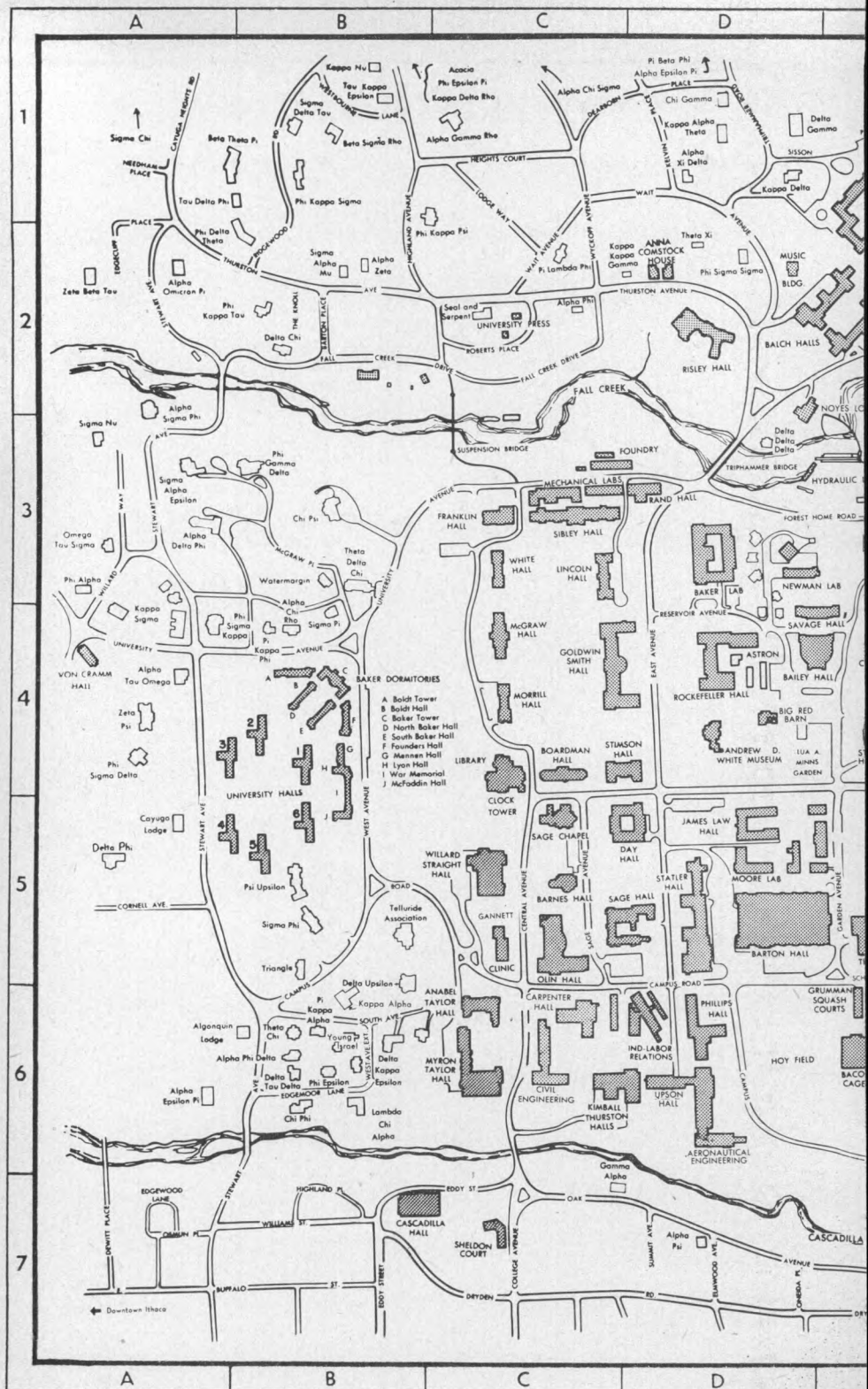
Educ. 7. *COLLEGE READING IMPROVEMENT PROGRAM*. (U,G) Noncredit. Lecture and discussion M T W Th F 1. Stone 105. Three weeks. Laboratory: five half-hour periods a week to be arranged. Mr. PAUK.

Designed to help teachers and students improve their reading and study skills and to help teachers learn the techniques of developmental reading for use in their own classrooms.

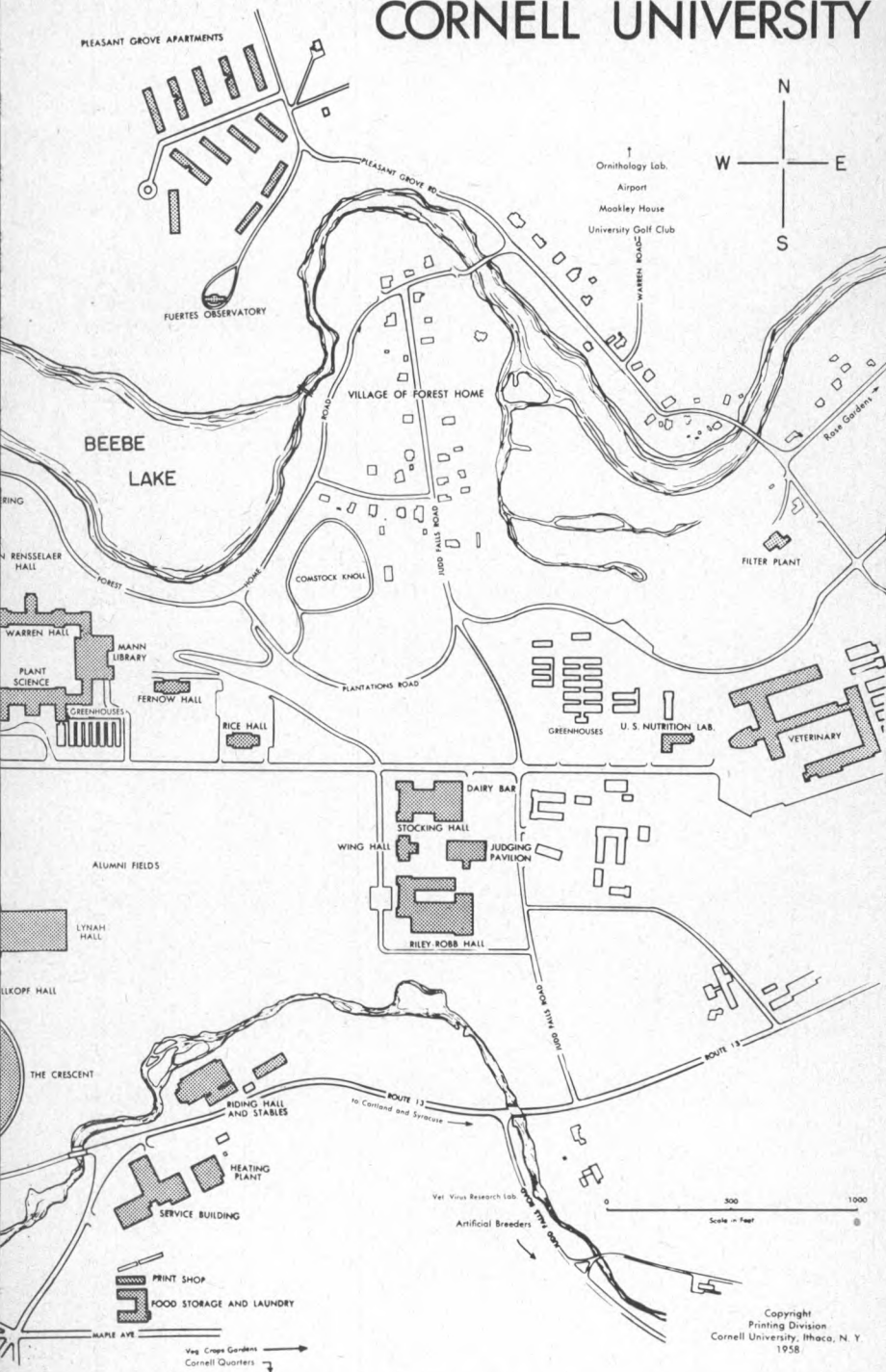
In general, the Reading Program aims to (1) eliminate the poor reading habits which impair both speed and comprehension; (2) foster sound principles and techniques of reading; (3) point out how comprehension can be sharpened and increased by recognizing the main ideas, tone, and organizational pattern of selections; (4) provide practice in reading critically with the purpose of analyzing and accurately evaluating various types of selections; (5) help the student to understand more

KEY TO THE MAP ON THE PAGES FOLLOWING

Aero. Eng. (temp.) E3; see Grumman	Moakley House H2, recreation center, golf
Alumni (Athletic) Fields F5	Morrill Hall C4, sociology, anthropology,
Anabel Taylor Hall C6, interfaith center	languages, psychology
Astronomy Dept. D4; Fuertes Observatory F2	Music Building D2
Bacon Baseball Cage E6	Myron Taylor Hall C6, law
Bailey Hall D4, auditorium	Newman Laboratory D3, nuclear studies
Baker Dormitories B4, men's residences	Noyes Lodge E2, recreation, snack bar
Baker Laboratory D3, chemistry	Olin Hall C5, chemical & metallurgical engi-
Balch Halls E2, women's residences	neering
Barnes Hall C5, campus store	Ornithology, Sapsucker Woods Rd.
Barton Hall D5, military sciences	via Warren & Hanshaw Rds. H1-2
Big Red Barn D4, alumni center	Phillips Hall D6, electrical engineering
Boardman Hall C4, history, political science	Plant Science Building E4
Caldwell Hall E4, agronomy	Pleasant Grove Apts. F1, student families
Carpenter Hall C6, engineering library & ad-	Print Shop F7
ministration	Rand Hall D3
Cascadilla Hall B7, graduate residence	Rice Hall F4, poultry husbandry
Civil Engineering C6, (occupancy '59)	Riding Hall and Stables F6
Clara Dickson Hall E1, women's residence	Riley-Robb Hall G5, agricultural engineering
Collyer Boat House (not on map), Cayuga	Risley Hall D2, women's residence
Lake Inlet	Roberts Hall E4, agriculture administration
Comstock Hall E4, entomology	Rockefeller Hall D4, physics
Comstock House D2, women's residence	Rose Gardens, road to, J3
Cornell Quarters F7, student families	Sage Chapel C5
Crescent E6, football stadium	Sage Hall D5, women's residence
Dairy Bar Cafeteria G5	Savage Hall E3, nutrition
Edmund Ezra Day Hall C5, administration	Schoellkopf Field and Hall E6
Fernow Hall F4, conservation	Service Building F7
Filter Plant J3	Sheldon Court C7
Food Storage and Laundry F7	Sibley Hall C3, architecture (occupancy '59)
Foundry D3	Statler Hall D5, hotel administration
Franklin Hall C3, architecture (see Sibley)	Stimson Hall C4, zoology
Gannett Clinic C5	Stocking Hall G5, dairy industry
Goldwin Smith Hall C4, arts and sciences	Stone Hall E4, education
Greenhouses F4, H4	Suspension Bridge C3
Grumman, aero. engineering, D6	Teagle Hall E5, men's sports
Grumman Squash Courts E6	Triphammer Bridge D3
Heating Plant F6	University Halls B4, men's residences
Hoy Field D6, baseball	University Press C2
Hydraulic Laboratory D3	Upson Hall D6, mechanical engineering
Industrial and Labor Relations D6	U. S. Nutrition Laboratory J4
Judging Pavilion H5	Van Rensselaer Hall E3, home economics
Kimball-Thurston Halls C6, engineering	Veterinary College J4
mechanics & materials	Veterinary Virus Research Laboratory H7
Library and Clock Tower C4	von Cramm Scholarship Residence (men) A4
Lincoln Hall C3, see Civil Eng. above	Warren Hall E4, agricultural economics,
Lua A. Minns Memorial Garden D4	rural sociology
Lynah Hall E5, ice skating	White Hall C3, mathematics
Mann Library F4, agriculture-home economics	White Museum of Art D4
library; regional history collection	Willard Straight Hall C5, student union
McGraw Hall C4, geology; business & public	Wing Hall G5, animal husbandry
administration	



CORNELL UNIVERSITY



Copyright
Printing Division
Cornell University, Ithaca, N. Y.
1958

thoroughly his various college subjects by demonstrating how all the above skills can be used in classroom and study situations; and (6) teach the student many study techniques such as taking notes in class, organizing such notes, taking notes from textbooks, scheduling study periods, employing principles to aid retention, etc.

Students may register for this special course in Barton Hall during Registration Day. A fee of \$25 will be payable at this time. Inquiries regarding this special program may be directed to Dr. Walter Pauk, 216 Stone Hall, Cornell University, Ithaca, New York.

HIGH SCHOOL READING IMPROVEMENT PROGRAM

Purpose. The Cornell Reading Program aims to provide an intensive 4-week summer program in reading, study, and language skills for high school students planning to attend college. This program is not for retarded readers or for young people with below average ability. It seeks 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 teachers will work with students to improve academic skills by emphasizing reading comprehension, rate of reading, versatility of reading, vocabulary, understanding literature and English, scheduling time for study and recreation, concentration, note-taking, and summarizing.

Classes. Meetings will be held on Monday through Friday from 9 to 12, July 6 through July 31. Registration will be limited to 24 students.

Expenses. The fee for the course is \$75.00. This will cover all the expenses of testing, instruction, laboratory, textbooks, and special mimeographed materials.

Application. Students seeking admission should write to Dr. Walter Pauk, 216 Stone Hall, Cornell University, Ithaca, New York.

ENGINEERING

CIVIL ENGINEERING

Engr. A2902. *ENGINEERING LAW*. (U) 3 hours credit. M T W Th F S 8. Lincoln 321. Mr. ROGERS.

An introductory course in the laws of contract, tort, agency, real property, water rights, form of business organization, sales and negotiable instruments; special emphasis on contract documents required on construction work; collateral topics such as workmen's compensation, mechanics' liens, arbitration, and patent law.

SUMMER SURVEY CAMP. The School of Civil Engineering conducts a Summer Survey Camp for instruction in surveying for the five-week period between the close of the Summer School and the beginning of the fall term. The camp is located on Cayuta Lake about 20 miles west of Ithaca. Instruction is primarily for civil engineering students who have completed the basic surveying courses on the campus. Persons desiring additional information should write to Director of Camp Cornell, School of Civil Engineering, Cornell University, Ithaca, N.Y.

ENGINEERING MECHANICS

Engr. A1152. *MECHANICS OF ENGINEERING—DYNAMICS*. (U) 3 hours credit. Prerequisites, 1151 and Mathematics 163. M T W Th F S 10, W 1-3. Thurston Hall. Mr. ———.

The principles of dynamics of systems of particles and rigid bodies. Rectilinear, curvilinear, rotational, and general plane motion of rigid bodies. Impulse-momentum, work-energy.

Engr. A1153. *STRENGTH OF MATERIALS*. (U) 3 hours credit. Lecture, recitation, laboratory. Prerequisite, 1151. M T W Th F S 11, M 1-3. Thurston Hall. Mr. ———.

Stress and strain, tension, compression and shear, riveted and welded joints, elementary beam theory, combined stresses, columns, strain energy, beams on several supports.

Engr. A1155. *APPLIED MATHEMATICS*. (U) 3 hours credit. Prerequisites, 1151 and Mathematics 163. M T W Th F S 9, W 1-3. Thurston Hall. Mr. ———.

The formulation and solution of problems arising in engineering which involve the use of differential equations and Fourier Series. Elementary differential equations, Fourier Series, partial differential equations.

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, 201 Phillips Hall, Cornell University, Ithaca, N.Y.

Calendar. Courses are scheduled in two separate but consecutive 7-week periods: first period, June 15 to August 1; second period, August 3 to September 19.

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. A1152. *MECHANICS OF ENGINEERING—DYNAMICS*. 3 hours credit. Prerequisites, 1151 and Mathematics 163. First period. Mr. ———.

The principles of dynamics of systems of particles and rigid bodies. Rectilinear, curvilinear, rotational, and general plane motion of rigid bodies. Impulse-momentum, work-energy.

Engr. A1153. *STRENGTH OF MATERIALS*. 3 hours credit. Lecture, recitation, laboratory. Prerequisite, 1151. First period. Mr. ———.

Stress and strain, tension, compression and shear, riveted and welded joints, elementary beam theory, combined stresses, columns, strain energy, beams on several supports.

Engr. A1154. *ADVANCED STRENGTH OF MATERIALS*. 3 hours credit. Lecture, recitation. Prerequisites, 1153 and 1155. Second period. Mr. ———.

Strength, stiffness, and stability of machine parts, disks, plates, shells, thick cylinders, straight and curved beams; principal stresses in two and three dimensions; fatigue and theories of failure.

Engr. A1241. *ENGINEERING MATERIALS*. 3 hours credit. Lectures, recitations, laboratory. Prerequisites, 1153 and Chemistry 401 or 402. Second period. Mr. ———.

An introductory lecture-laboratory course. Structure and mechanical properties of metals and alloys; ferrous metals: carbon steels, cast irons, alloy steels; nonferrous metals; wood, plastics, cement and concrete.

HYDRAULICS AND HYDRAULIC ENGINEERING

Engr. A2331. *FLUID MECHANICS*. 3 hours credit. Recitations. Prerequisite, 1152. Mr. ———.

Statics, dynamics of fluid flow, law of continuity, energy equation, turbulence, flow of compressible fluids, impulse momentum relations, resistance of submerged bodies, lubrication, and hydraulic machinery. Second period.

INDUSTRIAL AND ENGINEERING ADMINISTRATION

Engr. A3246. *PRINCIPLES OF INDUSTRIAL ACCOUNTING*. 2 hours credit. Lectures. Computings. First period. Mr. ———.

Basic accounting theory, special journals, controlling accounts and subsidiary records, voucher system, basic manufacturing cost accounting.

Engr. A3264. *PRODUCTION ENGINEERING*. 3 hours credit. Lectures. Computings. Prerequisite, 3263. Second period. Mr. ———.

The analysis and design of integrated manufacturing systems; principles of materials handling, plant layout, production scheduling, and inventory control. Emphasis on the interdependency of engineering and control functions.

MACHINE DESIGN

Engr. A3341. *MACHINE DESIGN*. 4 hours credit. Recitations. Computings. Prerequisites 1153, 1241, 3118, 3402, and 6110 or equivalent. Second period. Mr. ———.

Design of machines and machine members based upon considerations of motion, size, material, strength, durability, and manufacturing processes; selection of cams, linkages, couplings, clutches, brakes, bolts, chains, gears, bearings, shafts, springs, and fasteners.

Engr. A3351. *MECHANISM*. 3 hours credit. Recitations. Laboratories. Prerequisites 3112, 1151. Second period. Mr. ———.

A study of displacements, linkages, cams, gears, trains of mechanism, computing linkages, and introduction to synthesis.

Engr. A3354. *DESIGN OF MACHINES*. 3 hours credit. Lectures. Laboratories. Prerequisites 3353, 3404. First period. Mr. ———.

The design of complete machines and modification of existing machines; computations and layout drawings as required; the design of castings, forgings, stampings, weldments, housings, and hydraulic systems for machines.

MATERIALS PROCESSING

Engr. A3404. *PRODUCTION MACHINE TOOLS*. 2 hours credit. Lectures. Laboratories. Prerequisites 3406, 3262. First period. Mr. ———.

Lectures, demonstration studies, and analysis of machine tools for quantity production of goods; jigs, fixtures, and other tooling accessories are investigated; operation analysis and quality limitations are discussed and demonstrated.

THERMAL ENGINEERING

Engr. A3601. *ENGINEERING THERMODYNAMICS*. 3 hours credit. Lectures. Recitations. Prerequisites, Mathematics 163, Physics 122, Chemistry 106. First period. Mr. ———.

Laws of thermodynamics; energy equations; thermodynamic properties of state of ideal and real fluids; thermodynamic analysis of processes of ideal and real fluids.

Engr. A3603. *FLUIDS ENGINEERING I*. 3 hours credit. Recitations. Prerequisites 3601, 1152. Second period. Mr. ———.

Properties of fluids; hydrostatic relations; kinematics and dynamics of fluids; incompressible and compressible flow in ducts; stagnation properties; laminar flow, turbulent flow, boundary layer, velocity distribution; compressible flow with varying area, friction and heat transfer; normal shock.

Engr. A3607. *COMBUSTION ENGINES*. 3 hours credit. Recitations. Prerequisite, accompanied or preceded by 3606. First period. Mr. ———.

Introduction to combustion engines with emphasis on application of thermodynamics, fluid dynamics, and heat transfer; reciprocating combustion engines; gas turbines; compound engines; reaction engines.

GENERAL ELECTRICAL ENGINEERING

EE. A4021. *ENGINEERING REPORTS*. 3 hours credit. Lectures. Recitations. First period. Mr. ———.

Development of the basic principles of exposition, the knowledge of suitable form, and the appreciation of function that will enable students to write and present technical reports that meet professional standards.

BASIC ELECTRICAL ENGINEERING

EE. A4112. *ALTERNATING CURRENT NETWORKS*. 3 hours credit. Lectures. Recitations. Computings. Prerequisites Mathematics 607, EE 4111. First period. Mr. ———.

Polyphase circuits and power measurement; phase sequence effects; balanced and unbalanced conditions; nonsine waves in polyphase systems; four terminal network; A, B, C, D, constants, open and short circuit impedances; image impedances, and transfer constants; the concept of a complex frequency; problems involving the complex frequency plane.

EE. A4116. *ELECTRIC CIRCUIT LABORATORY*. 3 hours credit. Lectures. Laboratories. Prerequisites 4111 or 4983. First period. Mr. ———.

D-c circuits and parameters; d-c bridges; temperature measurements; heat flow; instruments; calibration and standards; transients.

EE. A4121. *ELECTRON TUBES AND CIRCUITS*. 4 hours credit. Lectures. Recitations. Computations. Laboratories. Prerequisites 4116 and either 4112 or 4983. Second period. Mr. ———.

Emission; conduction in high vacuum and gas; cathode-ray tubes; high-vacuum, crystal, and thermionic gas diodes; cold-electrode gas-discharge tubes; rectification and filtering; thyatrons, pool-type tubes, polyphase rectifiers, and electronic light sources; high-vacuum triode characteristics, parameters, and equivalent circuits.

EE. A4123. *ELECTRONIC CIRCUIT ELEMENTS*. 4 hours credit. Lectures. Recitations. Laboratories. Prerequisites 4113, 4114, 4122. First period. Mr. ———.

Studies of feedback systems using positive and negative feedback; amplitude and angular modulation and demodulation; multivibrators and blocking oscillators; simple wave-shaping circuits; elements of electronic computers.

RADIO AND COMMUNICATION

EE. A4529. *TRANSISTORS*. 3 hours credit. Lectures. Laboratories. Prerequisites, Phys. 214 and 4123. Second period. Mr. ———.

Motion of electrons and holes in semiconductors; the physical basis of transistor action and semiconductor rectifiers; application of transistors and semiconductor rectifiers as active or passive elements in circuits for use as amplifiers, oscillators, modulators, switches, photoelectric devices, and other circuits.

SERVOMECHANISMS

EE. A4711. *SERVOMECHANISM I*. 3 hours credit. Lectures. Recitations. Laboratories. Computings. Prerequisites 4123, 4216, 4221. Second period. Mr. ———.

Principles of servomechanisms, emphasizing analysis of performance from equations and transfer-function plots; Laplace transformations, error detecting devices; hydraulic devices; factor affecting errors, damping and speed of response; criteria for stability.

COURSES FOR STUDENTS NOT IN ELECTRICAL ENGINEERING

EE. A4931. *ELECTRICAL ENGINEERING*. 3 hours credit. Lectures. Recitations. Computings. Prerequisites, Mathematics 163, Mech. 1132 or 1152. First period. Mr. ———.

An elementary study of direct-current electric circuits; the concepts of resistance, inductance, and capacitance; magnetic circuits; single-phase and three-phase alternating-current circuits; instruments and techniques appropriate for making measurements in all such circuits.

EE. A4932. *ELECTRICAL ENGINEERING*. 3 hours credit. Lectures. Recitations. Laboratory and computing. Prerequisite, 4931. Second period. Mr. ———.

D-c generators and motors; motor starters and controllers; transformers; induction motors; synchronous machines; a-c single-phase motors; d-c and a-c selsyn units.

METALLURGICAL ENGINEERING

ME. A6112. *METALS TECHNOLOGY*. 2 hours credit. Lectures. Prerequisites 6110, 1243. First period. Mr. ———.

An advanced course for students in mechanical engineering covering the mechanical and metallurgical factors affecting service behavior of metals under static and dynamic loading. Subjects covered include failure criteria, brittle fracture, creep, embrittlement, fatigue, and corrosion.

CHEMISTRY

Chem. A401. *INTRODUCTION TO PHYSICAL CHEMISTRY*. 3 hours credit. Lectures. Prerequisites, Chemistry 106, Mathematics 163, 183 or 193 and Physics 117. Second period. Mr. ———.

A brief survey of physical chemistry. Problems of interest to students in engineering will be discussed.

MATHEMATICS

Math. A613. *METHODS OF APPLIED MATHEMATICS*. 3 hours credit. Prerequisites, Mathematics 183 and 612. Second period. Mr. ———.

Further work in vector analysis, especially curvilinear coordinates; calculus of functions of several complex variables; matrix theory; infinite series; Fourier series and integrals; Laplace transforms with applications to differential equations.

PHYSICS

Phys. A214. *ATOM, NUCLEAR, AND ELECTRON PHYSICS*. 3 hours credit. Lectures. Recitations. Prerequisites, Physics 124 and Mathematics 607 or equivalents. First period. Mr. ———.

Elements of nuclear and atomic structure fundamentals of quantum theory; electronic processes with special reference to the electrical properties of metals, semiconductors, and insulators; elements of nuclear processes.

ENGLISH, SPEECH AND DRAMA

ENGLISH

Engl. A302. *THE MODERN DRAMA*. (U,G) 2 hours credit. M T W Th F 9. Goldwin Smith 124. Mr. FOGEL.

A critical consideration of recent American dramatists, including O'Neill, Odets, and Miller, in relation to such European dramatists as Strindberg, Ibsen, and Chekhov.

Engl. A318. *WORDSWORTH AND COLERIDGE*. (U,G) 2 hours credit. M T W Th F 12. Goldwin Smith 128. Mr. DONOVAN.

Selected poems and critical essays by the pioneers of the English Romantic Movement.

Engl. A320. *THE ENGLISH NOVEL IN THE NINETEENTH CENTURY*. (U,G) 2 hours credit. M T W Th F 8. Goldwin Smith 128. Mr. WHITE.

An analysis of selected novels by Jane Austen and Emily Bronte, Dickens and Thackeray, George Eliot and Hardy.

Engl. A323. *TENNYSON, BROWNING, AND ARNOLD*. (U,G) 2 hours credit. M T W Th F 11. Goldwin Smith 236. Mr. DONOVAN.

A critical study of selected lyrics by three major Victorian poets.

Engl. A325. *MODERN BRITISH LITERATURE*. (U,G) 2 hours credit. M T W Th F 9. Goldwin Smith 156. Mr. WHITE.

British literature since World War I. Emphasis on such writers as Yeats, Eliot, Auden, Joyce, and Virginia Woolf.

Engl. A331. *DRYDEN AND POPE*. (U,G) 2 hours credit. M T W Th F 10. Goldwin Smith 156. Mr. PIPER.

A study of the writings of Dryden and Pope with emphasis on their major poems.

Engl. A335. *THE MODERN AMERICAN NOVEL*. (U,G) 2 hours credit. M T W Th F 12. Goldwin Smith 124. Mr. DICKEY.

A close examination of attitudes toward society and toward problems of style and technique in novels by Willa Cather, John Dos Passos, William Faulkner, F. Scott Fitzgerald, Ernest Hemingway, and Nathanael West.

Engl. A343. *THE SHORT STORY*. (U,G) 2 hours credit. M T W Th F 8. Goldwin Smith 124. Mr. FLETCHER.

44 CORNELL UNIVERSITY SUMMER SCHOOL

Selected American and translated French and Russian short stories will be read, emphasizing their formal properties and larger literary significance.

Engl. A369. *SHAKESPEARE*. (U,G) 2 hours credit. M T W Th F 11. Goldwin Smith 124. Mr. FOGEL.

A critical consideration of the comedies and tragicomedies.

Engl. A386. *CREATIVE WRITING*. (U,G) 2 hours credit. M T W Th F 10. Goldwin Smith 124. Mr. HATHAWAY.

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.

SPEECH AND DRAMA

In addition to a series of general service courses offered in each Summer School, the Department of Speech and Drama provides a five-year sequence of alternating courses leading to the degree of Master of Arts, in either rhetoric and public address or drama and theatre. A graduate minor in phonetics and speech training is also provided for in the five-year program. Under the regulations of the Graduate School, a limited amount of residence credit toward the Ph.D. in drama, public address, or phonetics and speech training may be earned in Summer Sessions.

The following courses not offered in 1959 will be scheduled in the Summer Sessions of 1960 and 1961: Stagecraft, Public Address as a Social Force, Argument, English Phonetics, Speech Development in Children, History of the Theatre. Further information may be secured by writing the Chairman, Department of Speech and Drama, Goldwin Smith Hall, Cornell University.

Sp.&Dr. A101. *PUBLIC SPEAKING*. (U) 2 hours credit. M T W Th F 11. Goldwin Smith 21. Mr. WICHELS.

Practice in speechmaking on topics of current interest. Methods of preparation and delivery studied as a guide to practice; class discussion; conferences. Regular students passing the course are admitted to Speech and Drama 202 and 213.

Sp.&Dr. A131. *VOICE AND SPEECH TRAINING*. (U,G) 2 hours credit. M T W Th F 9. Goldwin Smith 26. Mrs. RITT.

A systematic consideration of the principles of conventional articulation and voice production in English. Recommended for those with minor articulatory and voice problems and for those required to deal with such problems in the classroom. Readings, lectures, drill. Textbook: Mayer, *Notebook for Voice and Diction*.

Sp.&Dr. A231. *SPEECH FOR THE CLASSROOM TEACHER*. (U,G) 2 hours credit. M T W Th F 12. Goldwin Smith 26. Mr. WILLIAMS.

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

Sp.&Dr. A235. *TEACHING SPEECH AND DRAMA*. (U,G) 2 hours credit. T Th 2-4:15. Goldwin Smith 26. Mr. WILSON.

Theory and techniques of teaching the speech elements and such special speech activities as discussion, debate, parliamentary procedure, oral reading, and drama. Consideration of school programs in speech, with attention to individual training, integration with other subjects, and the extracurricular program. Textbook: Weaver, Borchers, and Smith, *The Teaching of Speech*.

Sp.&Dr. A255. *RHETORIC AND PUBLIC ADDRESS*. (U,G) 2 hours credit. M T W Th F 11. Goldwin Smith 236. Mr. WILSON.

Theories of effective oral composition: classical, Renaissance, and modern conceptions of the speech as a distinctive form of literary expression. Special attention will be given the influence of psychological views of communication on the theory and teaching of formal and informal oral discourse.

Sp.&Dr. A290. *THESES AND SPECIAL PROBLEMS IN PUBLIC ADDRESS*. (G) 2 or more hours credit. Messrs. WILSON and WICHELS.

Required of regularly registered Summer Session graduates working on theses. Open to other graduates prepared for independent study of special topics in rhetoric and public address.

Sp.&Dr. A341. *FUNDAMENTALS OF SPEECH AND HEARING*. (U,G) 2 hours credit. M T W Th F 10. Goldwin Smith 21. Mrs. RITTI.

Study of the physical and psychological bases of speech behavior with special attention to the structure and function of the speech and hearing mechanisms. Recommended especially for speech majors and those who work with handicapped persons. Textbook: Gray & Wise: *Bases of Speech*.

Sp.&Dr. A403. *METHODS IN PLAY PRODUCTION*. (U,G) 2 hours credit. M T W Th F 10. Rand 307. Mr. ALBRIGHT.

Principles and standard practice in play selection, direction, acting, and stage mounting. Special attention to problems of organization, casting, and directing in school and community. Textbook: Smith, *Play Production*.

Sp.&Dr. A421. *DRAMATIC INTERPRETATION AND ACTING*. (U,G) 2 hours credit. M W F 2-4. Goldwin Smith 24. Mr. GOLDEN.

A practice course in oral interpretation, pantomime, acting, and group rehearsal, with special attention to problems of the individual actor. Opportunity for laboratory performance before an invited audience. Textbook: Albright, *Working Up a Part*.

Sp.&Dr. A457. *MODERN AMERICAN DRAMA AND THE THEATRE*. (U,G) 2 hours credit. M T W Th F 10. Goldwin Smith 236. Mr. GOLDEN.

The development of the American theatre in its diverse forms and the appreciation of its native drama, with emphasis on representative plays and playwrights since 1900. Special consideration will be given the works of O'Neill, Williams, and Arthur Miller. Textbook: Hewitt, *Theatre U. S. A.*

Sp.&Dr. A475. *THEORIES OF DRAMATIC PRODUCTION*. (U,G) 2 hours credit. M T W Th F 12. Goldwin Smith 236. Mr. ALBRIGHT.

Critical examination of contemporary theories of production, with emphasis on aesthetic as well as historical points of view. Both conventional and nonconventional modes of stage presentation will be considered, especially those widely used since 1920. Lectures, reports, and seminar discussions. Textbook: Gorelik, *New Theatres for Old*.

Sp.&Dr. A480. *THE MOTION PICTURE: A SURVEY*. (U,G) 2 hours credit. M T W Th F 9, and a projection period to be arranged. Rand 314. Mr. STANTON.

The development of the motion picture as a modern art: characteristic problems and devices; economic and social aspects. The inquiry will concern itself with representative motion pictures from "The Great Train Robbery" and Griffith's "The Birth of a Nation" or "Intolerance" to contemporary educational, documentary, and feature films. Students are urged to attend the film programs of the University Theatre.

Sp.&Dr. A490. *THESES AND SPECIAL PROBLEMS IN DRAMA AND THEATRE*. (G) 2 or more hours credit. Messrs. ALBRIGHT, GOLDEN, and STANTON.

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

SPEECH CLINIC. For students working under the direction of the Department. Mrs. RITTI. By Appointment. No credit.

SUMMER THEATRE. Open to students enrolled in classes in Speech and Drama and to other interested students. Messrs. ALBRIGHT and GOLDEN. No credit.

FINE ARTS

ART: HISTORY AND APPRECIATION

Fine Arts A102. *INTRODUCTION TO RENAISSANCE AND MODERN ART.* (U,G) 2 hours credit. M T W Th F 12. Goldwin Smith D. Mr. WAAGE.

The relationship of art to society in Western Europe from 1400 to the present, as exemplified in the works of the major painters and sculptors.

Fine Arts A507. *TWENTIETH CENTURY ART.* (U,G) 2 hours credit. M T W Th F 10. Goldwin Smith 35. Mr. WAAGE.

An explanation of how modern art came to be, why it adopted new forms of expression, and what the artists have sought to communicate. The intent and works of the major and a few minor painters will be the subject of lectures and class discussion.

MUSIC

Music A101. *THE ART OF MUSIC.* (U,G) 2 hours credit. M T W Th F 10. Music Building 6. Mr. CAMPBELL.

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 A109. *MUSIC IN THE ELEMENTARY SCHOOL.* (U,G) 2 hours credit. M T W Th F 9. Music Building 6. 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.

ART

The instruction given in the regular courses described below will be supplemented by round-table discussions on problems of the production and criticism of works of art and of the place of art in education. Visiting artists of distinction will participate in these and in informal sessions at which the work of advanced students will be evaluated.

Art A12. *DRAWING AND PAINTING.* (U,G) 2 to 4 hours credit. Open to all students. M T W Th F 8-10. Franklin Hall 325. Mr. MARSIANO.

Open to more advanced students as well as those without previous experience. Individual activities and individual instruction with a variety of drawing and painting media determined for each student according to his background and needs.

Art A14. *STILL LIFE AND PORTRAIT PAINTING.* (U,G) 2 to 4 hours credit. Open to all students. M T W Th F 10-12. Franklin 316. Mr. EVETT.

Intended primarily for more advanced students, but beginners, with consent of

the instructor, will be accepted. Individual study of the use of natural forms of still life and the figure, either abstract or representational, in pictorial structure according to the individual's experience.

Art A16. *LANDSCAPE PAINTING*. (U,G) 2 hours credit. Open to all students. M T W Th F 10-12. Franklin 200. Mr. MARSICANO.

Individualized painting using the response to and the interpretation of nature as the basis of the creative expression. Formal values of some traditional and contemporary examples of landscape painting will be analyzed.

Art A18. *THE TECHNIQUES OF WATER COLOR PAINTING*. (U,G) 2 hours credit. Open to all students. M T W Th F 8-10. Franklin 200. Mr. EVETT.

Experimentation and investigation of methods of working in egg tempera, gouache, transparent water color, and casein.

Art A20. *SEMINAR AND WORKSHOP IN ART EDUCATION*. (U,G) 2 hours credit. M T W Th F 2-4. Franklin 325. Mr. DALY.

Especially designed for apprentice and experienced teachers. Class projects in the procedures for art teaching today. Discussions of problems encountered in classroom situations in secondary and primary schools and preparation and revision of syllabi. Teaching methods evaluated in relation to developing confidence and free expression of the growing child.

Art A22. *ART IN THE SCHOOLS*. (U,G) 2 hours credit. M T W Th F 1-2. Franklin 215. Mr. DALY.

An analytical study of painting; the foundation for the development of critical judgement considered as a part of the school program. The interrelationship of meaning and methods in creative expression as demonstrated in examples drawn from literature, music and painting. Lectures, discussions, assigned readings.

HOME ECONOMICS

CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

C.D.&F.R. S135u. *WORKSHOP IN NURSERY SCHOOL EDUCATION*. (U,G) 2 hours credit. July 6-July 18. Registration by consultation. M T W Th F, all day. Van Rensselaer Green Room and Nursery School. Mrs. BIRCKMAYER.

For students who wish to have supervised experience with children in a small morning nursery school. Afternoon lectures and discussions will be concerned with (1) the meaning of play for young children; (2) appropriate equipment and materials for nursery school; (3) experiences in music, art, literature and science; (4) the respective roles of teacher and parents in cooperatives; (5) individual children in the workshop nursery school as demonstration of staff planning for individual needs in a school situation; (6) specific problems of student participants.

*C.D.&F.R. S311. *PARENT-TEACHER RELATIONSHIPS*. (U,G) 2 hours credit. M T W Th F 11. Van Rensselaer 3M11. Mr. WAGNER.

An exploration of attitudes, relationships, and practices in relation to their influence on the behavior of parent or teacher. Socio-economic factors as they influence parent and/or teacher behavior will be considered. A variety of methods will be used. Fee, \$2.

*C.D.&F.R. S315. *CHILD DEVELOPMENT*. (U,G) 2 hours credit. M T W Th F 10. Van Rensselaer 117. Mr. RICCIUTI.

The aim is to give the student an understanding of the structure, function, and

development of the growing human being as the result of interplay between biological, psychological, and social factors. Course material is drawn from the pertinent behavioral sciences. Fee, \$2.

*C.D.&F.R. S332. *EXPERIENCE WITH CHILDREN*. (U,G) 2 or 3 hours credit. Discussion, M W F 12. Van Rensselaer EB 19. Laboratory periods individually arranged. Two half days a week (other than Saturday) should be free for participation assignment. Additional participation and independent study in a special aspect of nursery education can be arranged if the course is to be taken for 3 credit hours. Mrs. DATO.

Directed experience with young children will be provided in nursery schools and organized groups in the community. Readings and discussions will supplement the participation experience in giving students an understanding of young children and of themselves in relationships with children. A variety of materials, methods and equipment will be explored and evaluated in relation to planning effective group experiences for children. Fee, \$5.

*C.D.&F.R. S351. *CHILDREN'S LITERATURE*. (U,G) 2 hours credit. M T W Th F 11. Van Rensselaer 124. Mrs. DATO.

Literature as a resource in the child's living. The relation of children's literature to world literature. Traditional and modern forms. Illustration 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 work intensively on a problem of her own selection. Fee, \$2.

*C.D.&F.R. S360. *PSYCHODYNAMICS OF HUMAN BEHAVIOR*. (U,G) 2 hours credit. M T W Th F 12. Van Rensselaer G-62. Mr. RICCIUTI.

The motivating forces in human behavior. Both conscious and unconscious processes directing behavior will be considered. Special attention will be given to learning and change in motivation as these relate to the tasks of teacher and parent. Fee, \$2.

*C.D.&F.R. S363. *HUMAN RELATIONS IN THE FAMILY*. (U,G) 2 hours credit. M T W Th F 10. Van Rensselaer 3M11. Mr. WAGNER.

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. Lectures, discussion, films, reading. Fee, \$2.

*C.D.&F.R. S370. *MARRIAGE*. (U,G) 2 hours credit. M T W Th F 11. Van Rensselaer 117. Mr. FELDMAN.

Designed to acquaint the student with the growing body of scientific knowledge concerning marriage, the experiences that precede it, and the adjustments, satisfactions, and problems 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. S381. *THE TEACHER AS COUNSELOR*. (U,G) 2 hours credit. M W 2-4:30. Van Rensselaer 121. Mr. FELDMAN.

A survey will be made of those theories and methods most applicable to the teacher's role as both individual and group counselor. Teaching methods will include lectures, discussions, readings, films, case illustrations, and demonstrations. Fee, \$2.

ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

*Ec.Hs. S310. *MANAGEMENT IN FAMILIES*. (U,G) 2 hours credit. Discussion, group projects, laboratory experience, and field trips. T Th 1-4. Van Rensselaer G20. Miss WALKER.

For teachers in extension, secondary schools, colleges and others who wish experience in working with families. Opportunity for observing in homes the procedure of management and for recognizing values and goals, resources, and decisions of families and also the way all of these differ from family to family. Group work with families in their own homes in solving some family management problems. Consideration of effective ways to work with homemakers in their homes in teaching home management, and opportunities for preparation of illustrative material. Demonstrations, motion pictures, photographs, and work centers set up in the laboratory. One all-day tour, time to be arranged. Fee, \$6.

*Ec.Hs. S366. *CURRENT MARKETING PROBLEMS IN CONSUMER BUYING OF FOOD, CLOTHING, AND EQUIPMENT*. (U,G) 2 hours credit. M T W Th F 11. Van Rensselaer 121. Miss BREW, MRS. WILLIAMSON, and Miss WOOD.

For teachers and homemakers who wish to have some background for participating in consumer education programs. Those marketing problems most closely associated with each of the three commodities will be discussed with two weeks given to each. Among the topics will be: in food, cost comparisons of various forms, food and drug legislation, promotional devices such as premiums and trading stamps; in clothing, L22, fiber content labeling legislation, apparel sizing standards; in equipment, fair trade legislation, testing, evaluating and rating agencies, standards for safety and performance. Fee, \$6.

*Ec.Hs. S403. *SPECIAL PROBLEMS IN ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT*. (G) Cr  dit 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.

*Ec.Hs. S407. *THESIS AND RESEARCH IN ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD 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.

*Ec.Hs. S409. *THE TEACHING OF HOME MANAGEMENT IN COLLEGE*. (G) 2 hours credit. M T W Th F 9. Van Rensselaer 121. Miss KNOLL.

The purpose is to examine ways in which the theory of management may be illustrated with actual experiences in home management. Methods of teaching through residence in a home management house, observing and working with families in their homes, analysis of case studies, and laboratory experiences will be studied. Observing some classes and field trips included. Fee, \$2.

*Ec.Hs. S420. *APPLICATION OF PHYSICS AND CHEMISTRY TO THE WORK OF THE HOME*. (G) 2 hours credit. M W 1-4. Van Rensselaer G19. Mrs. WILLIAMSON and Miss PURCHASE.

The production, use and control of heat; the nature of household electric circuits and currents and their safe and efficient use; conditioning air for health, comfort, drying and storage of materials; characteristics of household materials such as textiles, plastics, paints, and floor coverings that should be considered in using and cleaning them; composition of detergents, waxes, solvents, and other supplies used for cleaning and protecting household goods.

Designed for extension and public school teachers and homemakers who wish to understand the nature of products and the processes involved in the care of the home. Fee, \$4.

*Ec.Hs. S430. *ECONOMIC CONDITIONS IN RELATION TO THE WELFARE OF FAMILIES*. (G) 2 hours credit. M T W Th F 12. 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 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 institutions as specialization, money, taxation, and marketing will be considered in relation to their effects on the way families can live. Fee, \$1.

FOOD AND NUTRITION

*F.&Ntr. S326. *MODERN THEORY AND PRACTICE IN FOOD PREPARATION*. (U,G) 2 or 3 hours credit. Prerequisite, a college course in food preparation. M T W Th F 8. In addition 12 hours of laboratory work is expected of each student during the six weeks, these hours to be arranged. Additional discussion and laboratory experience is required of students registered for 3 hours credit. 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. Demonstrations illustrate selected effects of different procedures and ingredients. Fee, \$5 or \$7.

*F.&Ntr. S329. *RECENT FINDINGS IN NUTRITION*. (G) 2 hours credit. Prerequisite, a college course in nutrition. M T W Th F 10. Van Rensselaer 301. Miss McMILLAN.

Planned for teachers, extension workers, and dietitians who wish to bring their information about nutrition up-to-date. The discussions will be concerned with topics which are related to practical problems in nutrition.

*F.&Ntr. S344. *NUTRITION IN THE LIFE CYCLE*. (G) 2 hours credit. Prerequisite, a college course in nutrition. M T W Th F 12. Van Rensselaer 301. Miss McMILLAN.

Planned for dietitians, extension workers, and teachers. The topics studied will be related to the nutrition problems of the stress periods of the life cycle. Emphasis will be placed on the nutritional needs of special groups: infants, adolescents, the aged, and pregnant and lactating women.

*F.&Ntr. S403. *SPECIAL PROBLEMS FOR GRADUATE STUDENTS*. (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 for independent advanced work. Fee dependent upon the nature of the problem.

*F.&Ntr. S407. *THESIS AND RESEARCH*. (G) Credit and hours to be arranged. Registration with permission of the student's chairman. Department staff.

Open only to graduate students with a major in the field of food and nutrition. Fee dependent upon the nature of the problem.

HOME ECONOMICS EDUCATION

(See *Education*, p. 30)

HOUSING AND DESIGN

*H.&D. S302u. *DESIGN*. (U,G) 3 hours credit. July 6-July 25. M T W Th F 10-12 and 2-4. Limited to 15 students. Van Rensselaer 322. Miss STRAIGHT.

A three-week unit offered for educators and others whose work is in design or requires basic design knowledge. An exploration of the basic elements of design (volume, plane, line, texture, color, motion, light, etc.) through an analytical and unbiased 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 resources in the organization of lines, planes, textures, and colors, and to exercise his intellectual curiosity in the search for universal principles of design. Library references, discussions, demonstrations, illustrations, experiments, and criticism are intended to develop these creative abilities and critical attitudes. A wide selection of materials and tools is provided for use in the studio projects: plaster, wood, metal, wire, plastic, enameling equipment, silk screen, leather, etc. Fee \$10.

*H.&D. S340u. *HOUSE PLANNING*. (U,G) 3 hours credit. Prerequisite, Cooperative Extension Service experience, or consent of instructor. July 6-July 25. M T W Th F 10-12 and 2-4. Preregistration desired by May 15. Registrants are asked to bring local housing data and information for class use in identifying problems as presented for solution to extension housing personnel. Floor plans, snapshots of a house, and statement of the problem confronting the family occupying it are needed. Van Rensselaer 327. Miss LOPER.

A three-week unit offered for extension specialists, extension agents, and other extension personnel whose major responsibility is in extension housing programs or in closely related areas of Cooperative Extension work. An intensive study of plans and architectural design for new houses and for remodeling old ones with respect to the living patterns and space needs of families as influenced by family cycle, social and cultural backgrounds, personal preferences, and income. Includes variations in house design resulting from: occupation (farm versus non-farm), geographical location, site, climate, building materials, and construction methods; social and cultural changes; industrial and manufacturing developments; local and national building codes; labor regulations, zoning restrictions (both rural and urban), and safety precautions. Attention will be given to the contributions of the architect, the builder, and the building materials dealer, as well as the opportunities and responsibilities of the educator and the home owner, in meeting the problem of better housing for an increasing population. Extension housing programs will be discussed, including analysis of data and information from student's local area.

Lectures, including some by guest speakers, discussions, drafting, field trip, and required reading. Fee, \$10.

*H.&D. S346u. *HOUSING*. (U,G) 3 hours credit. July 6-July 25. M T W Th F 10-12 and 2-4. Van Rensselaer 318. Mr. BOWER.

A three-week unit is offered for educators and others who are specialists in one area or another of housing, or closely related fields. This critical, comprehensive, and definitive examination of the subject of housing will be of particular interest to college teachers. Coverage will be directed to current housing problems and events, home building and the market, family housing needs. Study will include major influences on housing today; housing needs, demand and supply; house financing; nature of and trends in the building industry; urban, suburban, rural environments; roles of the builder, banker, architect, and other specialists; criteria for selection of housing and neighborhood; slum clearance and urban renewal; community controls; housing problems of the aged and minority groups; housing research; and future housing needs and goals.

Lectures, including several by guest speakers, discussions, field trips, required reading. Fee, \$10.

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

Fee will be dependent upon the nature of the problem.

INSTITUTION MANAGEMENT

*I.M. S220u. *QUANTITY FOOD PURCHASING*. (U,G) 2 hours credit. July 6-July 25. M T W Th F 2-4. Van Rensselaer G-62. Miss GOTTLIEB.

Planned for school lunch managers, homemaking teachers supervising school lunch programs, college food service managers, hospital dietitians, and others who have responsibility for purchasing food. Topics will include current marketing processes and trends which influence the selection, purchase, and storage of various classes of food. A day's visit at wholesale markets in Syracuse, Elmira, or Rochester provides field observation. Approximate cost of trip, \$4.50.

I.M. S320 u. *INSTITUTION ORGANIZATION AND ADMINISTRATION*. (U,G) 2 hours credit. July 27-August 15. M T W Th F 2-4. Van Rensselaer G-62. Miss GOTTLIEB.

Analysis and interpretation of major administrative problems in operating a food service organization. Application of business management, budgetary and production control principles to quantity meal preparation and service.

I.M. S407. *THESIS AND RESEARCH*. (G) For graduate students with training and experience satisfactory to the instructor. Hours to be arranged. Members of the staff.

Individual research in the area in which the student is particularly interested or in a study already set up in the department. Food-control procedure, job analyses, motion and time studies, experimentation, development of standardized procedures in quantity food preparation with emphasis on palatability and vitamin retention, and determination of factors underlying efficient kitchen planning are subjects suggestive of the field in which there is vital need for research.

TEXTILES AND CLOTHING

*T.&Clo. S343. *EXPERIMENTAL PROCEDURES IN CLOTHING*. (U,G) 2 hours credit. Enrollment limited to 16; preregistration by May 15 advised. Prerequisite, a knowledge of clothing construction. M T W Th F 2-4. Van Rensselaer 217. Miss BREW and Miss SPRATT.

Using experimental methods, various ways of constructing garments will be evaluated to determine time and money costs. An attempt will be made to develop more satisfactory processes in home sewing in terms of time expenditure, skill needed, and product obtained. Comparative costs of home produced and ready-to-wear apparel will be considered. Fee, \$10.

*T.&Clo. S355. *DESIGN AND COLOR IN APPAREL; ADVANCED COURSE*. (U,G) 2 hours credit. Prerequisite, courses in design and color and draping or flat pattern. M T W Th F 11-1. Van Rensselaer 215. Mrs. McMURRY.

Will provide opportunity to develop original designs in apparel, using source material owned by the University, such as the historic costume collection and rare art books. The emphasis will be on the development and representation of the design. Many designs will be carried through only to partial completion. Consideration will be given to the problems of designing for mass production. Estimated cost of materials, \$5-\$20. Fee, \$3.

*T.&Clo. S358. *EVALUATION OF AESTHETIC CONCEPTS RELATING TO CLOTHING SELECTION*. (U,G) 2 hours credit. Enrollment limited; preregistration by May 15 advised. Prerequisite, a college course in art and in psychology. M T W Th F 9. Two hours arranged. Van Rensselaer 216. Mrs. McMURRY and Mrs. RYAN (consultant).

A critical analysis of current literature in clothing selection to determine the validity of some of the commonly used theories and practices covering such topics as aesthetic principles, perception (particularly principles of optical illusion applied to clothing), personality expression through clothes, and appraisal of methods of experimentation. The course will be conducted by lectures, discussions, and laboratory problems. Fee, \$3.

*T.&Clo. S373. *NEW DEVELOPMENTS AND TRENDS IN TEXTILES*. (U,G) 2 hours credit. Prerequisite, an introductory course in textiles. M T W Th F 8. Van Rensselaer 278. Miss SPRATT.

For students who have some knowledge of textiles and who wish information on new developments of importance to the consumer, particularly in fibers and finishes. A lecture-discussion course. Fee, \$3.

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

HOTEL ADMINISTRATION

In 1922, Cornell University established, with the cooperation and financial assistance of the American Hotel Association, a four-year course in hotel administration for high school graduates desiring to enter the administrative departments of the hotel business. Many hotel proprietors and managers who have been unable to take a four-year university course have asked for shorter courses with less formal entrance requirements.

To meet this demand, 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.

INDUSTRIAL AND LABOR RELATIONS

I.&L.R. S192. *INDUSTRIAL OCCUPATIONS AND PROCESSES*. (U,G) 3 hours credit. M T W Th F 11, plus field trips to be scheduled in the afternoon. I.&L.R. 17. Mr. RISLEY.

A study of industrial occupations and processes in American industry. Emphasis on developing and understanding of company organization policies and practices and developing insights into occupational requirements and relationships. Discussion of selected industry and field trips to selected plants provide opportunity for becoming familiar with organizational relationships; patterns of workflow; product manufacture and utilization; personnel practices; composition of work force; and the general level of labor-management relationships.

I.&L.R. S260. *PERSONNEL ADMINISTRATION*. (U,G) 2 hours credit. M T W Th F 10. I. & L.R. 17. Mr. PRICE.

The ways of working with employees, as individuals and in groups, to ensure the best use of individual capacities, the greatest amount of personal and group satisfaction, and maximum service to the employing organization. Consideration of the development and organization of personnel administration, factors influencing the

administration and appraisal of personnel functions, including recruitment, selection, placement, training and communications, job evaluation, compensation, performance rating, transfer, promotion, separation, employee services, health and safety, records and reports, and research.

I. & L.R. S293. *SURVEY OF INDUSTRIAL AND LABOR RELATIONS*. (U,G) 2 hours credit. M T W Th F 9. I.&L.R. 17. Mr. TRICE.

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. S353. *HISTORY AND DEVELOPMENT OF LABOR UNIONS*. (U,G) 2 hours credit. M T W Th F 9. I.&L.R. 23. Mr. CULLEN.

An account of the origins and growth of the labor movement in the United States which relates the evolution of union philosophy, tactics, and structure to changes in the economy and in the functions of government. Recent developments are emphasized, and some topics of special interest are the rise of the CIO, the Taft-Hartley Act, labor and Communism, labor and politics, the merger of the AFL and CIO, and current problems facing the united labor movement.

I.&L.R. S442. *ECONOMICS OF THE LABOR MARKET*. (U,G) 2 hours credit. M T W Th F. 11. I.&L.R. 23. Mr. FERGUSON.

Examination of wage and employment problems in the individual firm, the industry, and the economy. Topics will include measurement of wages, income, and labor cost; characteristics of labor markets; occupational wage rates; wage determination by employers and under collective bargaining; effects of wage changes on profits and employment; governmental regulation of wages; trends in productivity and national income; labor force and employment problems.

I.&L.R. S510. *ECONOMIC AND SOCIAL STATISTICS*. (G) 3 hours credit. M T W Th F 10. (Two laboratory sessions each week.) I.&L.R. 23. Mr. MCCARTHY.

A nonmathematical course for graduate students in the social studies without previous training in statistical method. Emphasis on discussion of technical aspects of statistical analysis and on initiative in selecting and applying statistical methods to research problems. The subjects include analysis of frequency distribution, time series (including index numbers), regression and correlation analysis, and selected topics from the area of statistical inference. In addition to basic statistics offered in this course, advanced work in statistics on an individual basis through ILR 499 or ILR 699 will be available. Interested students should see Mr. McCarthy to discuss arrangements for such individual study.

I.&L.R. S596u. *LABOR-MANAGEMENT RELATIONS*. (G) 3 hours credit. July 6-July 24. M T W Th F 10-12 and 2-4. I.&L.R. 22. Mr. SAYRE.

Designed to be of particular value to high school teachers, especially social studies and commercial teachers and guidance counselors. Emphasis on labor union history and organization; personnel management and human relations in industry; collective bargaining; governmental agencies concerned with labor-management relations; current problems in labor-management relations; and methods of using this information in the classroom. Lectures, panels, discussions, field trips, guest speakers, and required reading.

I.&L.R. S499 and S699. *SPECIAL STUDIES*. Credit and hours to be arranged.

Directed research in special problems. Available upon arrangements with individual faculty members in appropriate topics. Special plans have been developed for

students interested in Statistics beyond I.&L.R., 510. All interested students should see Mr. McCarthy.

NONCREDIT SEMINARS AND WORKSHOPS

In the summer of 1959, 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 of the field. A partial list of offerings follows: *Wage and Salary Administration*, *In-Plant Communication*, *Community Relations for Business and Industry*, *Interviewing Principles and Techniques*.

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, New York State School of Industrial and Labor Relations, Cornell University.

DEVELOPMENT OF HUMAN RESOURCES

(See *Education*, p. 27)

LANGUAGES

The system of course numbering is the same for all languages offered by the Division. Courses 101 and 102 in a given language aim at bringing the student to a level of achievement sufficient to enable him to pass the Cornell Qualification Examination and thus fulfill the language requirement for graduation. The courses are the equivalent of Courses 101 and 102 offered in the regular academic year.

Course 151-152 is designed to assist graduate students to prepare themselves for the reading examinations required by the Graduate School. This course is to be considered as a full-time program by the students, and the equivalent of six hours of undergraduate credit will be allowed. If fewer than eight students register for this course, the instruction given will be identical with that in 101.

All courses constitute a full academic program of six credit hours and consist of twenty hours of instruction each week at periods to be assigned. Registration for these courses will be closed when the capacity of the sections has been reached.

Fr. A101. *FRENCH*. (U) 6 hours credit. Morrill Hall. Mr. PORTER and staff.

Fr. A102. *FRENCH*. (U) 6 hours credit. Prerequisite, French 101 or equivalent. Morrill Hall. Mr. PORTER and staff.

Fr. A151-152. *FRENCH*. (G) 6 hours credit. For graduate students acquiring reading proficiency. Morrill Hall. Mr. PORTER and staff.

Germ. A101. *GERMAN*. (U) 6 hours credit. Morrill Hall. Mr. KUFNER and staff.

Germ. A102. *GERMAN*. (U) 6 hours credit. Prerequisite, German 101 or equivalent. Morrill Hall. Mr. KUFNER and staff.

Germ. A151-152. *GERMAN*. (G) 6 hours credit. For graduate students acquiring reading proficiency. Morrill Hall. Mr. KUFNER and staff.

Russ. A151-152. *RUSSIAN*. (G) 6 hours credit. For graduate students acquiring reading proficiency. Morrill Hall. Mr. LEED.

Span. A101. *SPANISH*. (U) 6 hours credit. Morrill Hall. Mr. SOLA and staff.

Span. A102. *SPANISH*. (U) 6 hours credit. Prerequisite, Spanish 101 or equivalent. Morrill Hall. Mr. SOLA and staff.

PHYSICAL SCIENCES AND MATHEMATICS

ASTRONOMY

Astron. A101. *INTRODUCTION TO ASTRONOMY*. (U,G) 3 hours credit. Lectures, M T W Th F 11, Astronomy Building 100; Laboratory, T Th 2-4:30, Astronomy Building 130; one evening each week at Fuertes Observatory. Mr. LANE and assistant.

Fundamentals of astronomy with emphasis on the planets, moon, comets, meteors, the solar system as a unit, origin of the solar system, interplanetary travel, and telescopes.

CHEMISTRY

*Chem. 105-106. *GENERAL CHEMISTRY*. (U) 6 hours credit. Lectures and recitations, M T W Th F 8-10, Baker 207. Laboratory, M T W Th F 10-1, Baker 150. Mr. WUNDERLICH and assistant.

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. Text: Sienko and Plane, *Chemistry*; Laubengayer, *Laboratory Manual and Problems in General Chemistry*. Laboratory fee, \$10.

*Chem. A201. *INTRODUCTORY QUALITATIVE ANALYSIS*. (U,G) 4 hours credit. Prerequisite, general chemistry. Lectures, M T W Th F 8, Baker 7. Laboratory, 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: Hogness and Johnson, *Qualitative Analysis and Chemical Equilibrium*. Laboratory fee, \$15.

*Chem. A224. *INTRODUCTORY QUANTITATIVE ANALYSES*. (U, G) 4 hours credit. Prerequisite, qualitative analysis. For majors in chemistry and pre-medical students. Lectures, M T W Th F 8, Baker 177. Laboratory, three hours daily except Saturday between 9 and 1, Baker 252. Mr. COOKE, Mr. NICHOLS 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 determine the entrance requirements for the particular medical schools to which he is applying. Lectures, M T W Th F 8-10. Baker 107. Mr. BERMAN.

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: Fieser and Fieser, *Introduction to Organic Chemistry*.

*Chem. A305. *ELEMENTARY ORGANIC LABORATORY*. (U,G) 2 hours credit. Prerequisite, general chemistry; qualitative analysis is desirable but not required.

Must be taken with Chemistry 303. Laboratory, M T W Th F 10-12:30. Baker 250. Mr. BERMAN 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.

Chem. A307. *INTRODUCTORY ORGANIC CHEMISTRY*. (U,G) 3 hours credit. Prerequisite, general chemistry; qualitative analysis is desirable but not required. Lectures, M T W Th F 8-10 for the first 5 weeks. Baker 107. Mr. BERMAN.

A study of the more important compounds of carbon, their occurrence, methods of preparation, relations, and uses. The work covered is equivalent only to the first half of the year course; students who wish a complete course should register for Chemistry 303 and 305. Text: Fieser and Fieser, *Introduction to Organic Chemistry*.

*Chem. A311. *INTRODUCTORY ORGANIC LABORATORY*. (U,G) 3 hours credit. Prerequisite or parallel course, Chemistry 307. Laboratory experiments and oral reviews, M T W Th F 10-12:30. Baker 250. Mr. BERMAN and assistants.

The student prepares typical compounds of carbon and familiarizes himself with their properties, reactions, and relations. Text: Adams and Johnson, *Laboratory Experiments in Organic Chemistry*. Laboratory fee, \$20.

MATHEMATICS

Math. A162. *ANALYTIC GEOMETRY AND CALCULUS*. (U) 3 hours credit. Prerequisite, Mathematics 161 or the equivalent. M T W Th F S 10. White 203. Instructor to be announced.

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

Math. A163. *ANALYTIC GEOMETRY AND CALCULUS*. (U) 3 hours credit. Prerequisite, Mathematics 162 or the equivalent. M T W Th F S 10. White 211. Instructor to be announced.

Infinite series, solid analytic geometry, partial derivatives, multiple integrals. Text: Holmes, *Calculus and Analytic Geometry*, chs. xi, xiii-xv.

Math. A201. *DIFFERENTIAL EQUATIONS*. (U,G) 3 hours credit. Prerequisite, Mathematics 163 or the equivalent. M T W Th F S 9. White 211. Instructor to be announced.

A standard beginning course in ordinary differential equations. Text: Nelson, Foley, Coral, *Differential Equations*.

Math. A322. *TOPICS IN MODERN ALGEBRA*. (U,G) 3 hours credit. Prerequisite, Mathematics 162 or the equivalent. M T W Th F S 11. White 211. Instructor to be announced.

Topics covered will include fields, linear equations and matrices, and some elementary group theory.

PHYSICS

*Phys. A103-104. *INTRODUCTORY EXPERIMENTAL PHYSICS*. (U,G) 6 hours credit. Demonstration lectures, M T W Th F S 8; Rockefeller A. Recitations, M T W Th F S 9, Rockefeller 103. Laboratory, M T W Th F 2-4, Rockefeller 220. Instructor to be announced.

Mechanics, heat, and sound completed in the first three weeks. Electricity, magnetism, and light completed during the second three weeks. Students who register

for Physics 104 must have completed 103 or mechanics in either high school or college physics. Approval of the instructor is required to enroll in Physics 104 without 103. Fee, \$5 for each part of the course.

Phys. A121. *INTRODUCTORY ANALYTICAL PHYSICS I.* (U) 3 hours credit. Registration limited to students in engineering with a deficiency in physics. M T W Th F 8 and M 2-4. Rockefeller 105. Instructor to be announced.

*Phys. A122. *INTRODUCTORY ANALYTICAL PHYSICS II.* (U) 3 hours credit. Prerequisite, Physics 121 and Calculus or simultaneous registration in Mathematics 162 or 182. Lectures, T Th 11. Rockefeller A. Recitations, M T W Th F 9. Rockefeller 104. Laboratory, T Th 2-4:30. Rockefeller 252. Instructor to be announced.

Kinetic theory of gases; mechanics of gases; introductory thermodynamics. Electrostatic phenomena and introduction to electric circuits. The laboratory work consists of measurements in mechanics and in geometrical optics. Fee, \$5.

SOCIAL SCIENCES

ECONOMICS

Econ. A101. *ELEMENTS OF ECONOMICS.* (U,G) 4 hours credit. M T W Th F 9-11. This course or its equivalent is prerequisite to all advanced courses in Economics. Goldwin Smith 242. Mr. HENNING.

A survey of the existing economic order in the United States, its more salient and basic characteristics, and its operations.

Econ. A205. *AMERICAN ECONOMIC HISTORY.* (U,G) 2 hours credit. M T W Th F 8. Goldwin Smith 234. Mr. Dowd.

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

Econ. A 501. *PUBLIC CONTROL OF BUSINESS.* (U,G) 2 hours credit. M T W Th F 9. Prerequisite, Economics 101 or the equivalent. Goldwin Smith 264. Mr. SWEETZ.

An assessment of competition and monopoly in the American economy and of their control.

Econ. A613. *COMPARATIVE ECONOMIC SYSTEMS.* (U,G) 2 hours credit. M T W Th F 10. Prerequisite, Economics 101 or the equivalent. Goldwin Smith 256. Mr. Dowd.

A study of the main types of social orders, such as capitalism, socialism, communism, etc., with special emphasis on the ideology underlying each and upon their structure and performance in various parts of the contemporary world.

Econ. A825. *BUSINESS CYCLES.* (U,G) 2 hours credit. M T W Th F 11. Prerequisite, Economics 101 or the equivalent. Goldwin Smith 264. Mr. SWEETZ.

An historical and analytical examination of the problems of business fluctuation, employment, and economic growth in the United States.

GOVERNMENT

Govt. A101. *AMERICAN GOVERNMENT.* (U,G) 2 hours credit. M T W Th F 9. Boardman 321. Mr. SPITZ.

A general introduction to American national government and politics. Emphasis will be placed upon organization, powers, and practices, and their relation to democratic principles.

Govt. A104. *COMPARATIVE GOVERNMENT.* (U,G) 2 hours credit. M T W Th F 8. Boardman 321. Mr. MULLER.

An introduction to the comparative study of major contemporary political currents and of governmental institutions and processes. Emphasis will be placed on the political process in Great Britain, France, and the Soviet Union.

Govt. A217. *POLITICAL PARTIES*. (U,G) 2 hours credit. M T W Th F 10. Boardman 321. Mr. MULLER.

An examination of the theory and organization of political parties. Emphasis will be placed on the operation of political parties in the United States.

Govt. A324. *THEORY OF DEMOCRACY*. (U,G) 2 hours credit. M T W Th F 11. Boardman 321. Mr. SPITZ.

The nature and problems of democracy. Special attention will be given to the doctrines of John Stuart Mill and contemporary American writers.

HISTORY

Hist. A157. *TWENTIETH CENTURY AMERICA*. (U,G) 2 hours credit. M T W Th F 10. Boardman 320. Mr. ELLIS.

The adaptation of American democracy to the machine age and urban life; the New Nationalism, the New Freedom, and the New Deal; emergence of America as a world power.

Hist. A429. *TWENTIETH CENTURY EUROPE*. (U,G) 2 hours credit. M T W Th F 9. Boardman 320. Mr. VAN NIEL.

Historical interpretation of European problems and developments during the past half century. Emphasis will be placed upon the impact of the World Wars upon European society and upon major ideological, economic, and political factors which have affected Europe.

Hist. A735. *HISTORY OF NEW YORK STATE*. (U,G) 2 hours credit. M T W Th F 12. Boardman 320. Mr. ELLIS.

A study of agricultural, commercial, and industrial history of transportation, and of political trends and institutions. Social forces and intellectual currents receive attention.

Hist. A802. *THE FAR EAST IN THE TWENTIETH CENTURY*. (U,G) 2 hours credit. M T W Th F 11. Boardman 320. Mr. VAN NIEL.

The twentieth century emergence of the nations of Eastern and Southeastern Asia into world significance. Within the historical context such problems as nationalism, colonialism, socialism, traditionalism, and economic modernization will be stressed.

MENTAL HEALTH

*M. Health A1. *PRINCIPLES AND PRACTICES IN MENTAL HEALTH*. (U,G) 3 hours credit. M T W Th F 10. Workshop Tuesday afternoon. Phillips Hall. Dr. DARLING.

The principles of mental health based on clinical and experimental materials. The application of these principles in teaching and other professions. A number of personality and behavior disorders and procedures of prevention and treatment will be reviewed. A weekly workshop will include clinical visits and mental health films and plays for educational purposes. Fee, \$1.

PHILOSOPHY

Phil. A220. *ETHICS*. (U) 2 hours credit. M T W Th F 11. Goldwin Smith 227. Mr. HOSPERS.

An examination of the main problems of normative ethics. Different theories of

the good and the right; morals and religion; morals and politics; punishment, guilt, moral responsibility, freedom. Text: M. S. Everett, *Ideals of Life*.

Phil. A230. *INTRODUCTION TO AESTHETICS*. (U) 2 hours credit. M T W Th F 10. Goldwin Smith 227. Mr. HOSPERS.

A consideration of the principal problems in the philosophy of art. The nature of beauty; the relation of art to nature; problems of meaning, symbolism, and truth in the arts; the nature of artistic expression; art and morality; the validity of aesthetic judgments. Text: *Aesthetics*, edited by Morris Weitz.

PSYCHOLOGY

Psych. A101. *INTRODUCTION TO PSYCHOLOGY*. (U) 2 hours credit. M T W Th F 10. Morrill 340. Mr. HOCHBERG.

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. A107. *PSYCHOLOGICAL BASIS OF SOCIAL BEHAVIOR*. (U) 2 hours credit. M T W Th F 12. Morrill 340. Mr. MELTZER.

An introduction to the psychological study of social behavior. Consideration of topics such as group dynamics, interpersonal relationships, leadership, attitudes, behavior in crises, race prejudice, and opinion change. Designed primarily for students who do not plan to do further work in social psychology.

Psych. A112. *MODERN PSYCHOLOGY IN HISTORICAL PERSPECTIVE*. (U) 2 hours credit. M T W Th F 9. Morrill 310. Mr. HOCHBERG.

A systematic survey of present-day problems, methods, and points of view, considered in the perspective of their historical development.

Psych. A201. *PERSONALITY THEORY*. (U,G) 2 hours credit. M T W Th F 10. Morrill 310. Mr. MELTZER.

An introduction to the major current approaches to personality theory: the psychoanalytic approach, the social psychological approach, and the approach of experimental psychology.

Psych. A351. *TESTS OF PERSONALITY: THEIR CHARACTERISTICS AND THEIR USES*. (U,G) 2 hours credit. M T W Th F 9. Morrill 340. Mr. FREEMAN.

Psychological principles underlying personality tests; their uses and interpretation in schools, guidance centers, mental health clinics, and industry. This course will deal with rating scales, personality inventories, and projective techniques.

Psych. A412. *INDIVIDUAL DIFFERENCES AND EXCEPTIONAL CHILDREN*. (G; U by permission). 2 hours credit. M T W Th F 11. Morrill 340. Mr. FREEMAN.

The nature and causes of human differences in intelligence and special aptitudes. Special consideration will be given to the mentally superior, to the mentally inferior, and to those with behavioral problems in educational adjustment. This course will also deal with 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) 2 hours credit. M T W Th F 11. 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. A103. *MAN AND CULTURE*. (U,G) 2 hours credit. M T W Th F 10. Morrill 240. Mr. SMITH.

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 or other complex civilizations.

R. Soc. S129. *THE SOCIOLOGY OF YOUTH*. (U,G) 2 hours credit. M T W Th F 10. Warren 232. Mr. RAMSEY.

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) 2 hours credit. M T W Th F 9. Morrill 240. Mr. SMITH.

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) 2 hours credit. M T W Th F 12. Warren 232. Mr. RAMSEY.

Problematic relations the school has with parents, formal organizations, and other institutions, the community power structure, and the value system will be considered. Communication and decision making will be emphasized throughout.

Soc. A315. *SOCIAL CHANGE AND SOCIAL PROBLEMS*. (U,G) 2 hours credit. M T W Th F 8. Warren 232. Mr. ELLENBOGEN.

The problems of the white collar worker, the organizational man, minority groups, the small community and other population groups will be discussed in the context of our rapidly changing society.

SPECIAL PROGRAMS

EXTENSION EDUCATION

JULY 6-JULY 24

Cornell University conducts one of four regional summer schools for the professional improvement of Cooperative Extension workers. Thirty-two states, Puerto Rico, and sixteen foreign countries were represented in the enrollment last year. Eight courses are offered. Afternoons are 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 \$40.00, with an additional \$10.00 fee if a third course is audited. For printed announcement with complete details, write to Professor Arthur E. Durfee, Roberts Hall, Cornell University. The courses are as follows:

8:00 a.m.

S1U. THE ROLE OF THE SPECIALIST IN EXTENSION EDUCATION. (G) 1½ hours credit. Daily. Enrollment limited to 25. Mann Library, Conference Room 2. Mr. HANKS.

This course is designed to help the specialist define his functions and clarify his role in order to exercise the leadership expected of him. This will be accomplished through reviews of applicable literature, conferences with consultants, and group discussions. Recognition will be given to changes in extension's audience, staff, structure, and resources and their influence on the role of the specialist. Attention will be given to specific interests of students enrolled in the course.

S5U. PRINCIPLES IN THE DEVELOPMENT OF YOUTH PROGRAMS (4-H and YMW). (G) 1½ hours credit. Daily. Warren 101. Mr. DOWNEY.

Especially designed for extension workers responsible for youth development programs. Deals with the scope of extension's responsibilities for programs with young people. Special attention will be given to the interests and needs of youth, methods and techniques of program planning, and leadership development. Conducted as a semiworkshop. Each person will have an opportunity to work on a specific problem that he or she encounters on the job. It will be helpful if the student has a definite problem in mind and brings basic data relating to that situation.

S6U. FARM POLICY EDUCATION. (G) 1½ hours credit. Daily. Warren 201. Mr. PICKREL.

Provides extension workers with both subject matter and techniques for planning and conducting educational programs involving controversial farm-policy issues. Questions relating to farm price supports are given special attention.

9:45 a.m.

S3U. COMMUNICATION IN EXTENSION WORK. (Section I). (G) 1½ hours credit. Daily. Repeated at 11:30. Each section limited to enrollment of 20. Roberts 131. Mr. AXINN.

Designed to help extension workers develop a clear understanding of the values, principles, and methods of communication; and to improve their abilities and skills in applying these principles and methods. Students will deal with the process of communication, efficiency in communication, barriers to communication, communication planning, applied imagination, basic design, and evaluating communications.

An opportunity to use newspapers, radio, television, direct mail, publications, meetings, displays, demonstrations, and other channels of communications.

S4U. PROGRAM DEVELOPMENT IN EXTENSION EDUCATION. (G) 1½ hours credit. Warren 101. Mr. D. B. ROBINSON.

The principles and processes of working with people in developing extension programs, including program projection. Special consideration will be given to finding alternative solutions to problems, formulating objectives, making plans for putting programs into action, and studying progress and results obtained.

S9U. MARKETING PROBLEMS AND EXTENSION PROGRAMS. (G) 1½ hours credit. Daily. Warren 201. Mr. DAVIS.

For specialists, supervisors, and agents in identifying, analyzing, and understanding problems in marketing, and in planning and conducting marketing educational work. Consideration of a wide range of needs and program opportunities, of the extensive research now available as a basis for educational programs, and of methods of planning and conducting successful programs in typical situations. Attention to related extension work and the work of other agencies. Students are encouraged to bring materials for case study.

11:30 a.m.

S2U. LEADERSHIP DEVELOPMENT (G) 1½ hours credit. Daily. Warren 101. Mr. CUMMINGS.

To increase the understanding and skill of extension personnel in working with groups. The principles of organizing and reorganizing boards and committees, the agent's role in the selection and training of lay leaders and committee members, techniques for improving the effectiveness of groups, and methods of evaluating their performance. Special consideration to the development of long-range program planning committees.

S3U. COMMUNICATION IN EXTENSION WORK (Section II). (G) 1½ hours credit. Daily. Roberts 131. Mr. AXINN.

See information above.

S7U. PSYCHOLOGY FOR EXTENSION WORKERS. (G) 1½ hours credit. Daily. Warren 201. Mr. CREECH.

An analysis and application of certain principles of human behavior that have a direct bearing on extension instruction. Relevant contributions from the fields of educational, industrial, business, and social psychology. To help extension workers: (1) to develop an understanding of some of the principles of human behavior as a basis for improving extension instruction; and (2) to develop the ability to apply the principles in dealing with problems of extension teaching, including the administration and supervision of extension programs.

SHELL MERIT FELLOWSHIP PROGRAM

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, their 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.

Specially designed courses will be offered as follows:

Educ. S226P. *SEMINAR IN SCIENCE AND MATHEMATICS TEACHING.* (U,G) 2 or 3 hours credit. Registrations limited to Shell Merit Fellowship holders. M T W

Th F 10:30-12:00; T W 2-4:30. Rockefeller B. A trip will be scheduled on two or three afternoons during the six-week period. Mr. JOHNSON and staff.

The Seminar will consider the over-all problems of science and mathematics teaching in secondary schools and will seek ways and means for initiating widespread improvement programs in schools and school systems. Special assistance will come from the visiting lecturers and resident staff who will provide suggestions and counsel to groups and individuals working on special projects.

Phys. A202. *MECHANICS, ELECTRICITY, LIGHT, AND MODERN PHYSICS FOR TEACHERS.* (U,G) 2 hours credit. Registration is restricted to Shell Merit Fellowship holders. M T W Th F 8-10. Rockefeller B. Instructor to be announced.

Chem. A99. *PROBLEMS IN CHEMICAL EDUCATION.* (G) 3 hours credit. Registration is restricted to Shell Merit Fellowship holders. Lectures and laboratory, M T W Th F 8-10. Baker 206. Mr. PORTER 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.

Math. A223. *BASIC CONCEPTS OF SECONDARY SCHOOL MATHEMATICS.* (G) 3 hours credit. Registration is restricted to Shell Merit Fellowship holders. Lectures and laboratory, M T W Th F 8-10. White B15. Mr. CARVER.

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. There will be supplementary lectures on topics of current mathematical interest, in particular one or more lectures on modern computing machines with demonstrations.

INSTITUTE FOR THE EARTH SCIENCES

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 Sciences are: (1) to strengthen the subject matter background of teachers whose courses involve any aspect of earth science; and (2) to increase the teacher's capacity to motivate students to consider careers in the earth sciences and in science in general.

Each participant will register for any two of the four courses and the general seminar. A limited number of places will be open in each course to students enrolled in the University Summer School. Interested persons should apply for admission to Professor R. William Shaw, Director, Institute for Earth Sciences, Department of Astronomy, Rockefeller Hall, Cornell University, Ithaca, N. Y. Applications must be submitted before February 16, 1959.

The following specially designed courses are offered:

Agron. S123. *SOIL SCIENCE.* (G) 3 hours credit. Lectures, M T W Th F 10. Caldwell 143; Laboratory and field trips, T 1:30-5, Caldwell 49. Mr. NIELSON.

Planned for science teachers, particularly those interested in earth science. Attention will be given to the place of science in the study of soils, to soil management, and to conservation. Demonstrations will be used in both laboratory and lecture to illustrate the chemical, physical, and biological reactions taking place in soils. Field trips to near-by experiment stations and farms.

Astro. A22. *FUNDAMENTALS OF ASTRONOMY.* (G) 3 hours credit. Lectures, M T W Th F 9; Astronomy Building 100. Laboratory, M 1:30-5; Astronomy Building 130. One evening a week at Fuertes Observatory. Mr. LANE.

Review of our present knowledge of the solar system and the sidereal universe. Great problems of astronomy including the origin of the solar system, structure of galaxies, and the expanding universe. Space travel and man's place in the cosmos. Consideration of teaching techniques, demonstrations, celestial observations, and student projects. Practice in the use of telescopes and spectroscopes.

Geol. A1. *ELEMENTARY GEOLOGY*. (G) 3 hours credit. Lectures, M T W Th F 8; Astronomy Building 100. Laboratory, F 1:30-5; Astronomy Building 130. Instructor to be announced.

For elementary and secondary school teachers without previous training in the subject. Special attention to earth science syllabi and to geologic aspects of general science. Geologic materials and features common in New York State will be used as illustrations of basic principles. This course is not the equivalent of any other course regularly offered in geology in the University.

Met. A11. *ELEMENTARY METEOROLOGY*. (G) 3 hours credit. Prerequisite, a high school physics course or equivalent. Lectures, M T W Th F 11; Plant Science 143. Laboratory, Th 1:30-5; Plant Science 114. Mr. DETHIER.

A simplified consideration of commonly observed weather phenomena and their interpretation, including radiation, temperature, evaporation and condensation, clouds, precipitation, air movements, air masses, fronts, local storms, and applied climatology and microclimatology. Observing, recording, analyzing, and forecasting weather by means of instruments and maps will be stressed in the laboratory. Planned to develop an appreciation for and an understanding of the character of the atmosphere and its relation to the plants and animals dependent upon it.

Astro. A259. *GENERAL SEMINAR IN EARTH SCIENCE*. (G) 1 hour credit. W 1:30-4. Warren 245. Mr. SHAW, staff, and guest lecturers.

A seminar designed for the participants in the Institute for the Earth Sciences; others may register by permission. Leaders in science will speak and lead discussions on current problems in the sciences and in science education. Consideration of effective methods in science instruction.

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.

John W. McConnell, Ph.D., Dean of the Graduate School.

William A. Smith, Ph.D., Director of the Division of Summer Session and Extramural Courses.

FACULTY

J. Stanley Ahmann, Ph.D., Associate Professor of Rural Education.

H. Darkes Albright, Ph.D., Professor of Speech and Drama.

Howard G. Andrus, Ph.D., Associate Professor of Rural Education.

Allene Archer, M.Ed., Professor of Mathematics and Mathematics Education, State Teachers College, Towson, Maryland.

James F. Armstrong, Sage Chapel Organist.

George Axinn, Ph.D., Associate Director, Cooperative Extension Service, Michigan State University, East Lansing.

Joseph D. Berman, Ph.D., Assistant Professor of Chemistry.

Jennifer Birckmayer, M.S., Assistant Professor of Child Development and Family Relationships.

Lewis L. Bower, M.B.A., Assistant Professor of Housing and Design.

Clyde W. Bresee, Ph.D., Director of Guidance, Athens, Pennsylvania.

Margaret L. Brew, Ph.D., Professor of Textiles and Clothing.

Alice M. Briant, Ph.D., Professor of Food and Nutrition.

Ralph N. Campbell, M.B.A., Professor of Industrial and Labor Relations.

William A. Campbell, M.A., Associate Professor of Music.

Kendall S. Carpenter, Ph.D., Associate Professor of Agricultural Education.

Marlin G. Cline, Ph.D., Professor of Agronomy.

William Donald Cooke, Ph.D., Associate Professor of Chemistry.

Ethelwyn G. Cornelius, M.S., Assistant Professor of Home Economics Education.

Glenwood Creech, Ph.D., National Agricultural Center for Advanced Study, University of Wisconsin, Madison.

Donald E. Cullen, Ph.D., Associate Professor of Industrial and Labor Relations.

- Gordon Cummings, Ph.D., Associate Professor of Rural Sociology.
 Norman D. Daly, M.A., Professor of Art.
 C. Douglas Darling, M.D., Professor of Clinical and Preventive Medicine.
 Ruth A. Dato, M.S., Instructor in Child Development and Family Relationships.
 Lloyd H. Davis, Ph.D., Federal Extension Service, United States Department of Agriculture, Washington, D.C.
 William Dickey, M.F.A., Instructor in English.
 Charles H. Dobinson, M.A., Head, Department of Education, University of Reading, Reading, England.
 Robert Donovan, Ph.D., Assistant Professor of English.
 Douglas Dowd, Ph.D., Associate Professor of Economics.
 Mylo Downey, M.S., Federal Extension Service, United States Department of Agriculture, Washington, D.C.
 Bertram Ellenbogen, Ph.D., Assistant Professor of Rural Sociology.
 David M. Ellis, Ph.D., Professor of History, Hamilton College, Clinton, New York.
 Kenneth Evett, M.A., Associate Professor of Art.
 Harold Feldman, Ph.D., Associate Professor of Child Development and Family Relationships.
 John M. Fenley, Ph.D., Assistant Professor of Rural Education.
 Robert H. Ferguson, Ph.D., Professor of Industrial and Labor Relations.
 Richard B. Fischer, Ph.D., Associate Professor of Rural Education.
 Angus Fletcher, Ph.D., Instructor in English.
 Ephim Fogel, Ph.D., Assistant Professor of English.
 Edward W. Foss, M.S.A., Professor of Agricultural Engineering.
 Frank S. Freeman, Ph.D., Professor of Psychology.
 Marvin D. Glock, Ph.D., Professor of Rural Education.
 Joseph Golden, Ph.D., Assistant Professor of Speech and Drama.
 Eva L. Gordon, Ph.D., Professor Emeritus of Rural Education.
 Regina Gottlieb, M.S., Assistant Professor of Institution Management.
 William L. Gragg, Ph.D., Superintendent, Ithaca Public Schools.
 Eloise T. Hadlock, M.S., Assistant Professor of Education.
 Lawrence S. Hamilton, M.F., Associate Professor of Conservation.
 Elton K. Hanks, B.S., Professor of Extension Education.
 Baxter Hathaway, Ph.D., Associate Professor of English.
 John A. Henning, M.A., Instructor in Economics.
 Charles W. Hill, Ph.D., Professor of Rural Education.
 Lawrence Hixon, Ph.D., Associate Professor of Education.
 Julian Hochberg, Ph.D., Associate Professor of Psychology.
 John Hospers, Ph.D., Associate Professor of Philosophy, Brooklyn College, Brooklyn.
 R. Brian How, Ph.D., Associate Professor of Agricultural Economics.
 Marjorie Knoll, Ph.D., Associate Professor of Economics of the Household and Household Management.

- Ralph E. Krenzin, Ph.D., Associate Professor of Agronomy.
 Herbert L. Kufner, Ph.D., Assistant Professor of Linguistics.
 Marian L'Amoreaux, M.Ed., Chairman, Language Arts Program, Newark High School, Newark, New York.
 Harold Lane, Ph.D., Professor of Astronomy, Colgate University, Hamilton, New York.
 Fred G. Lechner, Ph.D., Assistant Professor of Agricultural Engineering.
 Richard L. Leed, Ph.D., Assistant Professor of Linguistics.
 Samuel L. Leonard, Ph.D., Professor of Zoology.
 Ruby M. Loper, B.S., Associate Professor of Housing and Design.
 Donald V. MacDonald, Ph.D., Supervising Principal, Interlaken Central School, Interlaken, New York.
 Nicholas Marsicano, Resident Guest Artist.
 Philip J. McCarthy, Ph.D., Professor of Industrial and Labor Relations.
 Thelma McMillan, Ph.D., Department of Food and Nutrition, Iowa State College, Ames.
 Elsie F. McMurry, M.A., Associate Professor of Textiles and Clothing.
 Leo Meltzer, Ph.D., Assistant Professor of Psychology.
 Oscar Mink, M.S., Vocational Counselor of Men, Cornell University.
 Steven Muller, Ph.D., Assistant Professor of Government.
 A. Leslie Neal, Ph.D., Associate Professor of Biochemistry.
 A. Gordon Nelson, Ph.D., Professor of Rural Education.
 Helen Nelson, Ph.D., Assistant Professor of Home Economics Education.
 Melvin Lorrel Nichols, Ph.D., Professor of Chemistry.
 Irene Patterson, M.S., Associate Professor of Home Economics Education.
 Walter J. Pauk, Ph.D., Director, Cornell Reading Programs.
 Curtis L. Pfaff, M.A., Supervisor of Practice Teaching, Ithaca Public Schools.
 Elmer S. Phillips, B.S., Professor of Education.
 Luther Pickrel, Ph.D., Agricultural Extension Service, University of Minnesota, St. Paul.
 William Piper, Ph.D., Instructor in English.
 Lambert C. Porter, D. ès Lettres, Assistant Professor of French.
 Mary Purchase, Ph.D., Associate Professor of Economics of the Household and Household Management, University of Tennessee, Knoxville.
 Charles E. Ramsey, Ph.D., Associate Professor of Rural Sociology.
 L. Todd Reynolds, Ph.D., Instructor in Chemistry.
 Kathleen Rhodes, Ph.D., Associate Professor of Home Economics Education.
 Henry N. Ricciuti, Ph.D., Assistant Professor of Child Development and Family Relationships.
 Robert F. Risley, Ph.D., Associate Professor of Industrial and Labor Relations.
 Alyce R. Ritti, M.A., Instructor in Speech and Drama.

D. B. Robinson, M.S., Assistant Director, Cooperative Extension Work,
Ohio State University, Columbus.

John B. Rogers, C.E., Assistant Professor of Civil Engineering.

Mabel A. Rollins, Ph.D., Professor of Economics of the Household and
Household Management.

Mary S. Ryan, Ph.D., Associate Professor of Textiles and Clothing.

J. Woodrow Sayre, M.A., Assistant Professor of Industrial and Labor
Relations.

Donald F. Sola, Ph.D., Assistant Professor of Linguistics.

Robert J. Smith, Ph.D., Assistant Professor of Anthropology.

David Spitz, Ph.D., Professor of Government, Ohio State University,
Columbus.

Frances Spratt, M.S., Assistant Professor of Textiles and Clothing.

Walter H. Stainton, Ph.D., Professor of Speech and Drama.

Jane Stoutenburg, M.A., Vice Principal, Boynton Junior High School,
Ithaca.

Clara Straight, M.F.A., Associate Professor of Housing and Design.

Frederick H. Stutz, Ph.D., Professor of Rural Education.

Gustav A. Swanson, Ph.D., Professor of Conservation.

Paul M. Sweezy, Ph.D., Editor, *The Monthly Review*.

Frederick K. T. Tom, Ph.D., Assistant Professor of Rural Education.

Harrison M. Trice, Ph.D., Assistant Professor of Industrial and Labor
Relations.

Charles H. Uhl, Ph.D., Professor of Botany.

Paul J. VanDemark, Ph.D., Associate Professor of Bacteriology.

Robert Van Niel, Ph.D., Associate Professor of History, Russell Sage
College, Troy, New York.

Frederick O. Waage, Ph.D., Professor of Fine Arts.

Joseph Wagner, Ed.D., Assistant Professor of Child Development and
Family Relationships.

Kathryn E. Walker, Ph.D., Associate Professor of Economics of the
Household and Household Management.

Marvin Waldman, Ph.D., Associate Professor of Clinical and Preventive
Medicine.

Helen L. Wardeberg, Ph.D., Associate Professor of Rural Education.

Robert White, Ph.D., Instructor in English.

Herbert A. Wichelns, Ph.D., Professor of Speech and Drama.

Donald E. Williams, Ph.D., Assistant Professor of Speech and Drama.

Robin Williams, Ph.D., Professor of Sociology and Anthropology.

Lucille Williamson, Ph.D., Professor of Economics of the Household
and Household Management.

John F. Wilson, Ph.D., Assistant Professor of Speech and Drama.

Mary Wood, M.S., Associate Professor of Economics of the Household
and Household Management.

B. Wunderlich, Ph.D., Instructor in Chemistry.

Conrad S. Yocum, Ph.D., Assistant Professor of Botany.

Paul J. Zwerman, Ph.D., Associate Professor of Agronomy.

INDEX

- Absent grade, 9
- Academic credit, 7
- Administration
 - educational, 26
 - personnel, 29
- Administrators' Conference, 26
- Admission, 5
 - to Graduate School, 13
- Advanced degrees, 12
- Agricultural economics, 23
- Agricultural education, 27
- Agricultural engineering, 23
- Agriculture, 23
- Agronomy, 24
- Anthropology, 60
- Application
 - for admission, 7
 - for Graduate School, 13
 - for rooms, 15
- Art, 46
 - White Museum, 21
- Astronomy, 56
- Audio-visual methods, 31
- Auditors, 7
 - tuition, 7
- Automobiles, 19
- Bacteriology, 25
- Biochemistry, 25
- Biological sciences, 25
- Board, 14
- Botany, 25
- Cafeterias, 16, 21
- Calculus, 57
- Calendar, 4
 - weekly, 20
 - Willard Straight, 20
- Cancellation
 - of courses, 22
 - of registration, 11
- Change in registration fee, 10
- Chapel, 20
- Checks, cashing of, 11
- Chemistry, 56
 - engineering, 42
- Child development and family relationships, 47
- Citizenship education, five-year program, 33
- Classrooms, 22
- Clinic, 16
- Clothing and textiles, 52
- Concerts, 20
- Conduct and scholarship, 19
- Conservation, 26
- Contents, 3
- Counseling services, 17
 - foreign students, 17
- Courses of instruction, 22
- Credit, 7
 - Cornell undergraduates, 8
 - for advanced degrees, 12
 - graduate, 8
 - non-Cornell undergraduates, 8
- Curriculum, 22
 - education, 32
- Cytology, 25
- Dancing, 21
- Deposits, 10
 - Graduate School, 10
 - room, 15
- Development of human resources, 27
- Dining rooms and cafeterias, 16, 21
- Dormitories, 15
- Earth Sciences Institute, 64
- Economics, 58
- Economics of the household and household management, 49
- Education, 26
 - advanced degrees in, 12
 - candidates in school of, 14
- Educational measurement, 28
- Elementary education, 28
- Engineering, 38
 - civil engineering, 38
 - general electrical engineering, 41
 - hydraulics, 40
 - industrial and engineering administration, 40

- industrial cooperative program, 39
- law, 38
- machine design, 40
- materials processing, 40
- mechanics, 38
- mechanics and materials, 39
- metallurgical engineering, 42
- Summer Survey Camp, 38
- thermal engineering, 41
- Engineering Industrial Cooperative Program, 39
- Engineering law, 38
- Engineering Summer Survey Camp, 38
- English, 43
- Examinations, 22
- Extension Education, 62
- Extracurricular activities, 19

- Faculty, 66
- Fees, 10, 11
- Films, 21
- Fine Arts, 46
- Food and nutrition, 50
- Foreign students, 17
- French, 55

- General fee, 10
- Geometry, 57
- German, 55
- Golf, 22
- Government, 58
- Grades, 9
- Graduate School, 12
- Graduates, admission of, 6
- Guidance and personnel, 29

- Health services, 16
- History, 59
 - of education, 30
- Home economics, 47
 - education, 30
- Hospital, 17
- Hotel administration, 53
- Household management, 49
- Housing and design, 51

- Industrial and labor relations, 53
 - development of human resources, 27
 - special seminars, 55
- Infirmity, 16
- Institution management, 52

- Laboratory fees, 22
- Languages, 55

- Late registration fee, 10
- Lectures, 20
- Libraries, 18
- Living accommodations, 14
 - men, 15
 - women, 14
 - application for, 15
- Map, campus, 36
 - key, 35
- Mathematics, 57
 - engineering, 39, 43
- Meals, 16
- Medical clinic, 16
- Mental health, 59
- Music, 46
 - recorded, 21

- Nature study, 31
- Noyes Lodge, 21
- Nutrition, 50

- Off-campus housing, 16
- Officers, 66

- Painting, 46
- Personnel administration, 29
- Philosophy, 59
 - of education, 30
- Photography, 31
- Physical sciences, 56
- Physics, 57
 - engineering, 43
- Physiology, plant, 25
- Psychology, 60
 - educational, 28

- Reading improvement programs, 35, 38
- Recreation, 21
- Refunds
 - tuition, 11
 - dormitory deposit, 15
- Registration, 9
 - changes of, 9
 - in Graduate School, 13
- Religious services, 20
- Research (in education), 32
- Residential halls, 14
- Rural sociology, 60
- Russian, 55

- Schedules
 - class, 22
 - room, 22
 - examinations, 22

72 INDEX

- Science education, 31
- Secondary education, 32
- Shell Science Program, 63
- Social sciences, 58
- Social studies, five-year program, 33
- Sociology, 60
- Softball, 21
- Spanish, 55
- Special programs, 62
 - Earth Science Institute, 64
 - Extension education, 62
 - Shell Science Program, 63
- Special regulations, 19
- Special students, admission of, 6
- Speech clinic, 46
- Speech and drama, 44
- Sports, 21
- Statistics, 28
- Student union, 20
- Supervision in education, 26
- Swimming, 22
- Tennis, 22
- Testing service, 17
- Textiles and clothing, 52
- Theatre, 21
- Tuition, 10
- Undergraduates, admission, 6
- Unit courses,
 - agricultural economics, 23
 - agricultural education, 27
 - agricultural engineering, 23
 - agronomy, 24
 - child development, 47
 - description, 22
 - development of human resources, 27
 - extension education, 62
 - home economics education, 31
 - hotel administration, 53
 - housing and design, 51
 - institution management, 52
 - tuition, 10
- Veterans, 11
- Vocational agriculture, 27
- Vocational guidance, 29
- Willard Straight Hall, 20
- Withdrawal, 11
- Zoology, 26