

CORNELL UNIVERSITY ANNOUNCEMENTS

SUMMER SCHOOL

1960

JUNE 27—AUGUST 6

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 Education

Damon Boynton, Ph.D., Dean of the Graduate School and Professor of Pomology

C. Arnold Hanson, Ph.D., Dean of the University Faculty; Professor and Director, Resident Instruction, School of Industrial and Labor Relations

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Published by Cornell University at Edmund Ezra Day Hall, 18 East Avenue, Ithaca, New York, every two weeks throughout the calendar year. Volume 51. Number 19. March 11, 1960. Second-class postage paid at Ithaca, New York.

CONTENTS

CALENDAR	3
GENERAL INFORMATION	4
Admission	4
Academic Credit	6
Registration	8
Tuition and Fees	9
Veterans	11
The Graduate School	11
Housing and Dining	13
Health Services	16
Counseling Services	17
Libraries	17
Special Regulations	18
Program of Extracurricular Activities	19
THE CURRICULUM	22
OTHER PROGRAMS OF THE SUMMER SESSION	
Agricultural Education	56
Architecture	57
Engineering Industrial Cooperative Program	58
Extension Education	61
High School Reading and Study Skills Program	63
Hotel Administration	63
National Science Foundation Sponsored Programs	64
Shell Merit Fellowship Program	65
Summer Field Studies Program	66
OFFICERS	67
FACULTY	67
INDEX	71

CALENDAR

REGULAR SIX-WEEK SESSION, 1960

June 27, <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.
June 28, <i>Tuesday</i>	Instruction begins at the time and place announced for each course. Late registrants report to the Summer School Office, 117 Edmund Ezra Day Hall, to complete registration.
June 29, <i>Wednesday</i>	Last day for withdrawal from Summer School without payment of a fraction of tuition and fees.
July 1, <i>Friday</i>	Last day for payment of tuition and fees at the Treasurer's Office, which closes at 4:30 p.m.
July 2, <i>Saturday</i>	All classes will be held on this Saturday.
July 2, <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 fee for change in registration will be charged after this date.
July 4, <i>Monday</i>	Holiday
July 5, <i>Tuesday</i>	Registration and first day of instruction for the three-week unit Special Session in Agriculture. Registration at the Summer School Office.
July 9, <i>Saturday</i>	All classes will be held on this Saturday.
July 16, <i>Saturday</i>	Last day for making changes in registration. <i>No changes will be permitted after this date.</i>
July 18, <i>Monday</i>	Registration for the second period of the three-week unit courses at the Summer School Office.
August 5, <i>Friday</i>	Final examinations begin; schedule on page 22.
August 6, <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

GENERAL INFORMATION

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

This unification of the curricula and faculties of the several schools and colleges makes possible the adaptation of academic work to the special needs of summer students. Undergraduate courses are equivalent to required and elective collegiate courses leading to the baccalaureate. Advanced courses, seminars, and informal study, treating topics of concern to students with special interests, are available. The program is designed with particular regard for what can satisfactorily be treated in a short term and in the summertime. The needs of teachers are met not only in the workshops, seminars, and professional courses in Education, but also in courses in a number of subject fields. A number of sessions, some of which operate concurrently with the Summer School session, are offered for professional workers other than teachers. For description of other sessions, see pages 56-66.

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

ADMISSION

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

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

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

Undergraduates

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.

Qualified *precollege* students will be accepted within the category of undergraduates if they are high school graduates who have been accepted for admission to an undergraduate college at Cornell University or elsewhere. No other high school students will be accepted except in the cases of certain other programs described on pages 63-64.

June 20, 1960, is the closing date for admission of undergraduates.

Graduates

A candidate for an advanced degree at Cornell University or elsewhere is eligible for admission to the Summer School. Application for admission should be made before June 15. A graduate student may register as late as June 27, but is advised to select courses by June 15 in order to ensure a place in classes. A course program may be changed on registration day, June 27, 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. Six credit hours constitutes a minimum program for residence credit. (See page 12 for information regarding admission to the Graduate School.)

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

Special Students

A mature person who is not a candidate for an academic degree will be admitted to the Summer School in courses taken for credit

for vocational or personal purposes. Such a person would preregister by completing the "special students" application form, which will be mailed on request. A special student may register as late as June 27 but is advised to select courses by June 15, in order to ensure a place in classes.

Auditors

A graduate or special student who desires to attend a course or courses for no credit may register in the Summer School as an auditor. Such registration requires regular attendance in the class. A mark of "audit" will be recorded for satisfactory completion of a course. An auditor may register as late as June 27 but is advised to select courses by June 15, in order to ensure a place in classes. Tuition for auditing a course will be charged at the same rate as tuition for a course taken for credit. Undergraduates are not permitted to register for audit except by permission of the Director of the Summer School.

Unit Course Students

A student may register for less than the six-week Summer School. The courses for such students are designated with a "u" following the course number, and their dates are given in course descriptions.

Application for Admission

Application for admission to the Summer School of 1960 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. Students are not to register for any course work which normally cannot be completed by the end of the Summer School term.

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

(U): These courses are intended primarily for undergraduates. Students 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. Christensen; *Electrical*, Professor W. H. Erickson; *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 course grades are reported in a numerical scale from 0 to 100. The only exceptions permitted are for registrations for audit and for those offerings for graduate students involving individual work such as in research and special problems. In the case of auditors the record for satisfactory completion will be "V" to be recorded on the official transcript. A mark of "Satisfactory" (S) or "Unsatisfactory" (U) may be used for graduate students registered for research and other individual work.

If a student is prevented, for medical or other reasons acceptable to the instructor, from completing the work in any course before the last day of the session, he may request the instructor to report his grade as "Incomplete." In such case the instructor may report the mark as "Inc" together with a conditional numerical evaluation of the work completed. This will become the final recorded grade for the course if the work is not completed by January 1, 1961. It is the student's responsibility to make such specific arrangements with his instructors. Students are not to register for any work which normally cannot be completed by the end of the Summer School term.

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

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

REGISTRATION

Registration for the six-week Summer School will take place on Monday, June 27, in Barton Hall. The certificate of admission, sent to each pre-admitted student, will give the hour of the day at which he will be admitted to the Hall. Directions for registration procedure will be issued at the entrance. Students who, for any reason, have not received a certificate of admission will report to the Admissions table in Barton Hall after 9 a.m. Persons who fail to appear for registration in Barton Hall on June 27, 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, June 27, must be made by appearing at the Summer School Office, 117 Edmund Ezra Day Hall, before 12 noon on July 2. (See page 10 for fees.) *No change in registration will be permitted after 12 noon on July 16.* 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.

Withdrawal from 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 which the student has incurred for tuition, provided the reason for withdrawal is stated in writing and is satisfactory to the Treasurer and the Registrar. 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, June 29.

TUITION AND FEES

Tuition and fees are due and payable at the Treasurer's Office in Edmund Ezra Day Hall on registration day, June 27. The last day for payment without penalty is Friday, July 1. 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.)

Fees and Deposits

All students in the Summer School session will pay, in addition to tuition, a general fee of \$4 per week, which entitles them to health and infirmity 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 finds it necessary to register after the regular registration day must pay a \$10 late registration fee. A student who wishes to make a change in program after 12 noon on July 2 must pay a \$10 fee. *No change in program will be permitted after 12 noon on July 16.*

Graduate Registration Deposit

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

Other Regulations Concerning Fees

Any student, graduate or undergraduate, who fails to pay his tuition, fees, and other indebtedness, or, if entitled to free tuition fails to claim it at the Treasurer's Office and pay his fees within the time prescribed by the University, will be dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such an extension, the student will be assessed a fee of \$5. A reinstatement fee of \$10 will be assessed any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Treasurer and the Registrar, which must be presented in writing, the latter assessment may be waived in any individual case.

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

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.

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, 1960, may use their benefits during the Summer School, providing there is no change of course or objective, by completing enrollment forms in the Treasurer's Office. Veterans making a change of course or objective must apply to the Veterans Administration for approval of the change. Application forms are available at the Treasurer's Office.

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

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

THE GRADUATE SCHOOL

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

Credit for Advanced Degrees

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

A program of six or more credit hours in the 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 residence earned prior to admission to candidacy upon recommendation of the Special Committee and approval of the Dean.*

Admission

Students intending to become candidates for 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, June 27. 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.

HOUSING AND DINING

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

Residential Halls

UNDERGRADUATE WOMEN

All undergraduate women, with the exception of those students whose homes are in Ithaca, are required under University policy to live and take their meals in a University dormitory. 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 fluff-dry laundry for the six-week period.

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

There is a head resident in 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 Edmund Ezra Day Hall. Graduate women over twenty-one may make application for space in the graduate unit of Residential Halls or make arrangements to live off campus.

Prudence Risley Hall will be reserved for graduate women's housing. The rates for the six-week period are \$60 for single and \$42 per person for double accommodations. For periods of three weeks or less the rates are \$12 single and \$9 double per person per week or part of a week. All rates cover the cost of room only. Rooms are completely furnished, including bed linen and towels, with maid service provided Monday through Friday. There are no prescribed hours for the daily closing of the graduate dormitory. The head resident's apartment is on the first floor.

MEN STUDENTS

Single and double rooms in the Baker group of dormitories will be available to both undergraduate and graduate men. Rates for the six-week period are \$60 for single and \$42 per person for double accommodations. For periods of three weeks or less the rates are \$12 single and \$9 double per person per week or part of a week. All rates cover the cost of room only. Rooms are completely furnished including bed linens and towels, with maid service provided Monday through Friday.

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

MARRIED STUDENTS

Information concerning married student accommodations will be mailed upon request. Address inquiries to Residential Halls, 223 Edmund Ezra Day Hall.

OPENING-CLOSING DATES

All Residential Halls will open for occupancy Sunday, June 26, at 9 a.m.; they will close at 2 p.m., Sunday, August 7. *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 6, or within two weeks of applications dated June 1 or later. *The deposit will not be refunded on cancellations received on or after the day of registration.*

Off-Campus 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.

Dining Services

Willard Straight Hall, the student union building, offers complete cafeteria and snack bar service as do Baker Cafeteria in University Hall I and Noyes Lodge on Beebe Lake. The College of Home Economics operates a cafeteria in Martha Van Rensselaer Hall, and

the Department of Dairy Industry offers cafeteria and soda bar service in Stocking Hall. Meals obtained in these places, or in the cafeterias, dining rooms, and restaurants near the campus, will cost approximately \$2 to \$3 a day.

HEALTH SERVICES

The facilities of the students' medical clinic (Gannett Medical Clinic) are available to all students registered in the 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 Medical Clinic is closed, students may go directly to the Tompkins County Hospital, Trumansburg Road. This service is not intended for conditions that could have been treated at the Clinic during the regular Clinic hours noted above.

Emergency Service

A doctor is always available for calls of an emergency nature when an accident has occurred or when the student is too ill to come to the Clinic or the Hospital. (In the women's dormitories these calls should be made by the Head Resident whenever possible.) Telephone calls for this service should be made through the Cornell Operator or the Medical Clinic, Ithaca 4-3211, Ext. 4518, when the Clinic is open, or Ithaca 4-9508 after Clinic hours. This service is not designed to care for students in their rooms. A charge of \$3 in the daytime and \$5 at night is made for these calls.

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

- (1) Unlimited visits to the Gannett Medical Clinic.
- (2) Hospitalization with medical care for two days at the Tompkins County Hospital; a per diem charge, according to accommodations occupied, is made if hospitalization extends beyond two days.
- (3) Emergency surgical care. This is defined as initial surgical procedures which are necessary for the immediate welfare and safety of the patient.

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

COUNSELING SERVICES

Individual Counseling

The Office of the Dean of Men and Dean of Women, on the first floor of Edmund Ezra Day Hall, has a trained guidance and counseling staff to serve students in personal, educational, and social areas.

Foreign Students

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

LIBRARIES

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

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

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

In the course of their development the libraries have received and have built up special collections. Some of the most significant collections are the American Civil War, American History, Agriculture, Architecture, Botany, China, Dante, Dramatic Literature, Egyptology, English and French Revolutions, Entomology, Freemasonry, History of Science, History of Superstition, Icelandic, Legal Trials, Pascal,

Petrarch, Reformation, Regional History, Rhaeto-Romanic, Slavery, Spinoza, and Zoology.

Cards of admission to the stacks 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. The University rule governing student conduct is:

"A student is expected to show both within and without the University unflinching respect for order, morality, personal honor, and the rights of others." The rule is constructed 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. Any student who owns, maintains, or for his or her own benefit operates a motor-driven vehicle in Tompkins County must do the following: (1) he must register the vehicle with the Traffic Bureau of the Safety Division at the time of Summer School registration, or within 48 hours after bringing it to Tompkins County during the term, by paying a fee of \$1 and displaying, as directed, a registration sticker; (2) he must be legally qualified to operate a motor-driven vehicle in New York State; (3) the vehicle must be registered in New York State or legally qualified to be operated on the highways of New York State; (4) the vehicle must be effectively insured against public liability for personal injury and property damage for the minimum of \$10,000-\$20,000-\$5,000.

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

hours is restricted to certain areas except when permission has been granted in cases of physical disability or extreme hardship.

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 news about special activities on the campus. Copies may be obtained without charge at the desk in Willard Straight Hall, at the Summer School Office, in the Home Economics Cafeteria and in Noyes Lodge. Students are advised to secure copies regularly.

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 1959, the lecturers and their topics were:

Professor Joseph T. Sneed, Cornell University Law School: "School Integration."

Professor John W. Wells, Department of Geology, Cornell University: "Geologic History of the Finger Lakes Region."

Professor C. H. Dobinson, University of Reading, Reading, England: "Some Urgent Educational Problems of Western Europe."

Dr. Harold Gershinowitz, President, Shell Development Company, Shell Companies Foundation: "The Mind of a Scientist."

Professor David Spitz, Department of Government, Ohio State University: "Civil Liberties: The Permanent War."

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

SUMMER SCHOOL CHOIR. . . . Music for the Sage Chapel services is provided by the Summer School Choir, directed by James F. Armstrong, University Organist. The Choir rehearses in Sage Chapel each Tuesday evening at 7:30, beginning July 5. All students are invited to participate.

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 3-31, 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 craftshop, 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 special 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 luncheons and dinners and for social and recreational functions of all types.

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

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 1959 the following films were shown: "Marty," "Witness for the Prosecution," "To Have and Have Not," "Showboat," and the foreign films "The Golden Demon" (Japanese), "Stone Flower" (Russian), and "The Captain's Paradise" (British).

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, Currier and Ives prints from the Warfield collection, and contemporary Oriental and Western painting. Featured during the summer of 1960 will be an exhibition entitled "Fifty Years of Ballet."

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

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

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

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. 4514 or 3810 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. 4514 or 3810 or Ithaca 4-1526.

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

CURRICULUM

THE COURSES of instruction are listed 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, 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 9 for tuition charges.)

COURSES REQUIRING LABORATORY OR OTHER FEES are marked by asterisks.

CLASS SCHEDULES...In most courses of instruction, classes will meet five times a week, on each weekday except Saturday. Unless otherwise specified, all courses extend through the regular six-week session, June 27—August 6. Class periods begin on the hour and are fifty minutes in length, unless otherwise indicated. Laboratory periods are of various lengths, as indicated in the descriptions of courses which include laboratory work.

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.

EXAMINATIONS...With a few exceptions, examinations will be held on Friday, August 5, and Saturday, August 6, at the hours indicated by the schedule below; in the exceptional cases the examination will be held on Thursday, August 4, at 2. The usual classrooms will be used unless a change is announced by the instructor. In courses in which no examination is to be given, an announcement to that effect will be made by the instructor; in such cases the last meeting of each course will be held in the examination period for that course.

Examinations will be held as follows:

8 o'clock classes, Friday at 8.

9 o'clock classes, Saturday at 8.

9:30 and 10 o'clock classes, Friday at 10:30.

11 o'clock classes, Saturday at 10:30.

11:30 and 12 o'clock classes, Friday at 2.

Afternoon classes, Saturday at 2.

AGRICULTURAL ECONOMICS

(See *Other Programs*, page 56.)

AGRICULTURAL EDUCATION

(See *Other Programs*, page 56.)

AGRICULTURAL ENGINEERING

*Ag.Eng. S206. *FIELD PROBLEMS IN AGRICULTURAL ENGINEERING*. (U) 6 hours credit. June 20-July 30. Limited to students in the five-year agricultural engineering curriculum. M T W Th F 8-5. Messrs. GUNKEL, LEVINE, LORENZEN, SHEPARDSON.

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 and machinery, structures, soil and water, and electrification. Laboratory fee, \$5.

(For other Agricultural Engineering courses, see *Other Programs*, page 56.)

AGRONOMY

(See *Other Programs*, page 57.)

ANTHROPOLOGY

(See *Sociology*, page 53.)

ARCHITECTURE

(See *Other Programs*, page 57.)

ART

DRAWING AND PAINTING

In addition to the classes described below, there will be provocative group discussions with the entire staff and student group as well as with interested outsiders. These will be scheduled for the convenience of all involved.

Art A11. *STUDIO ONE*. (U.G) 3 hours credit. Open to advanced students only. M T W Th F 1-4. Franklin 316. Mr. GOODNOUGH.

The purpose of Studio One is to provide the opportunity for experienced painters to work in close personal contact with a well known and outstanding painter.

Art A12. *STUDIO TWO*. (U.G) 3 hours credit. Open to intermediate students. M T W Th F 1-4. Franklin 325. Mr. GOODNOUGH.

The purpose of Studio Two is to provide the opportunity for those with some experience to work in close personal contact with a well known and outstanding painter.

Art A13. *THE VISUAL IMAGINATION*. (U,G) 3 hours credit. Open to all students. Lectures, M T Th 11-12:15. Laboratory, T Th 1-4. Franklin 115. Mr. ATWELL.

Designed to expand the range of operation in the visual world and to suggest methods of making more complete use of the visual imagination. Also, an examination of methods used in other traditions.

Art A14. *DRAWING AND PAINTING*. (U,G) 3 hours credit. Open to all students. M T W Th F 8-11. Franklin 200. Mr. KAHN.

Primarily for beginning students. Individual instruction in a variety of media.

Art A15. *ART FOR ART TEACHERS*. (U,G) 3 hours credit. M T W Th F 1-4. Franklin 200. Mr. KAHN.

The development of a technical and intellectual foundation for the teaching of art in the schools. Exploration of the psychology of learning through art.

Art A16. *WORKSHOP IN ART EDUCATION*. (U,G) 3 hours credit. Open to all students. M T W Th F 8-11. Franklin 325. Mr. ATWELL.

Exploration in methods, ideas, and purposes of teaching art in the schools.

HISTORY AND APPRECIATION

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

A survey of the more important paintings and sculptures by the major artists in Europe and the United States from about A.D. 1400 to the present. Those artists will be treated who have proved to be the most pioneering and inventive and who therefore have had the greatest influence upon the subsequent course of art. The purpose is not only to make the student aware of this influence but, even more, to acquaint him with the individual styles of these masters so that he can identify their works upon sight. No practice of art is involved.

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

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

ASTRONOMY

Astron. A102. *INTRODUCTION TO ASTRONOMY*. (U,G) 3 hours credit. M T W Th F 10. Astronomy Building 100. Laboratory, T Th 2-4. Astronomy Building 130. Mr. LANE.

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

BACTERIOLOGY

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

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

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

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

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

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

BIOCHEMISTRY

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

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

*Bioch. S102. *GENERAL BIOCHEMISTRY*. (U,G) 2 hours credit. Prerequisite, quantitative analysis and, parallel, Course 101. Laboratory, M T W Th F 10-12:30. Savage 230. Mr. WILLIAMS and assistant.

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

BIOLOGY

*Biology S105. *LABORATORY METHODS IN BIOLOGY*. (U,G) 3 hours credit. Prerequisites, Biology 1-2, Botany 1-2, or Zoology 102 or 104 or their equivalents. Lecture and laboratory, M T W Th F 1:40-4:30. Roberts 306. Mr. UHLER.

For students who intend to teach or follow some phase of biology as a profession. Subjects covered: collection, preservation, and storage of materials; the preparation of bird and mammal skins for study; injection of blood vessels and embalming; clearing and staining of small vertebrates; protozoological methods; and the preparation and staining of smears, whole mounts, and sections. Laboratory fee, \$7.50.

Biology S307. *RESEARCH IN BIOLOGY*. (U,G) Credit as arranged. Mr. UHLER.

Special research problems to be arranged in consultation with instructor in charge. Registration with permission of the instructor.

BOTANY

To permit students, particularly those working for graduate degrees, to plan their programs beyond the 1960 session, a three-year rotation of courses is made available as follows:

Botany 31 and 117 in 1960

Botany 31 and 123 in 1961

Botany 31 and 124 in 1962

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

Designed to acquaint the student with the important life processes of plants. Topics

such as water-relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, and growth relations are studied in some detail, and particular emphasis is placed, both in laboratory and in classrooms, on discussion of the principles and their applications to living plants. Fee, \$8.

*Bot. S117. *TAXONOMY OF VASCULAR PLANTS*. (U,G) 4 hours credit. Prerequisite, a course in general botany. Lectures, M T W Th F 9. Plant Science 143. Laboratory, W F 10-12. Mann 464. Field trips, T Th 2-6. Mr. CLAUSEN.

A survey of the kinds of seed plants and ferns, their classification, gross morphology, geographical distribution, and economic importance, together with an introduction to the principles and literature of taxonomy. All-day trips are scheduled for two Saturdays, July 23 and August 6. Laboratory fee, \$6.

S171. *SPECIAL PROBLEMS IN TAXONOMY AND PHYSIOLOGY*. (U,G) 2 hours credit. Prerequisite, students must satisfy the instructor under whom the work is taken that their preparation warrants their choice of problem. Lectures to be arranged. Mr. CLAUSEN and assistant.

Students engaged in special problems or making special studies may register in this course.

CHEMISTRY

*Chem. A105u. *GENERAL CHEMISTRY*. (U) 3 hours credit. *June 27 to July 15*. 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 assistants.

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

*Chem. A106u. *GENERAL CHEMISTRY*. (U) 3 hours credit. *July 18 to August 6*. 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 assistants.

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

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

A study of the properties and reactions of the common elements and acid radicals and their detection in various solutions and solids. Text: King, *Qualitative Analysis and Electrolytic Solutions*. Laboratory fee, \$10.

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

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

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

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. WILCOX and assistants.

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

(See also Chemistry 401, page 60.)

CONSERVATION

*Cons. S9. *GENERAL ORNITHOLOGY*. (U,G) 3 hours credit. Lectures, M T W Th F 8. Laboratory and field trips, M F 2-4:30. Fernow 210. Mr. WEST.

An introduction to the study of birds; their structure, classification, adaptations for flight, migration, distribution, behavior, ecology, and evolution. Field and laboratory work on identification of local species. Fee, \$3.

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

Several staff members will be available to direct research.

ECONOMICS

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

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

Econ. A104. *MODERN ECONOMIC SOCIETY*. (U,G) 3 hours credit. May be taken concurrently with A103. M T W Th F 8-9:15. Goldwin Smith 256. Mr. GERVASI.

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

Econ. A206. *AMERICAN ECONOMIC HISTORY*. (U,G) 3 hours credit. Prerequisite, Economics 103-104 or the equivalent. M T W Th F 9:30-10:45. Goldwin Smith 264. Mr. SWEETZ.

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

Econ. A301. *MONEY AND BANKING*. (U,G) 3 hours credit. Prerequisite, Economics 104 or the equivalent. M T W Th F 8-9:15. Goldwin Smith 264. Mr. SMITH.

A study of the monetary system of the United States with emphasis on the roles played by the commercial and central banks; included is a survey of monetary theory and the influence of credit and monetary measures on economic stability.

Econ. A305. *PUBLIC FINANCE*. (U,G) 3 hours credit. Prerequisite, Economics 104 or the equivalent. M T W Th F 11-12:15. Goldwin Smith 256. Mr. SMITH.

A study of the principles and practices of public finance. Among the topics examined are the various forms of taxation, the growth of public expenditure and its causes, fiscal policies, and problems of the public debt.

Econ. A825. *BUSINESS CYCLES*. (U,G) 3 hours credit. Prerequisite, Economics 104 or the equivalent. M T W Th F 11-12:15. Goldwin Smith 264. Mr. SWEETZ.

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

EDUCATION

ADMINISTRATION AND SUPERVISION

Educ. S243. *PRINCIPLES AND PROCEDURES IN SUPERVISION*. (G) 3 hours credit. Lectures, M T W Th F 2-3:15. Warren 37. Miss WARDEBERG.

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

Educ. S261. *THEORY AND PRACTICE OF ADMINISTRATION*. (G) 2 hours credit. Lectures, M T W Th F 8. Warren 260. Mr. McCARTY.

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

[Educ. S262. *SECONDARY SCHOOL PRINCIPALSHIP*. (G) 2 hours credit. Given in 1961.]

Educ. S263. *ELEMENTARY SCHOOL PRINCIPALSHIP*. (G) 2 hours credit. Lectures, M T W Th F 12. Warren 260. Mr. McCARTY.

Systematic treatment of the full range of problems found in the administration of elementary schools; deals with the responsibilities of the principal in his role as elementary school administrator.

Educ. S264. *SCHOOL FINANCE AND FACILITIES*. (G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Warren 232. Mr. GRAGG.

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

Educ. A267. *SCHOOL LAW*. (G) 3 hours credit. Lectures, M T W Th F 2-3:15. Warren 201. Mr. CURTISS.

A study of representative legal problems encountered by teachers and administrators involving matters of personnel, curriculum, finance, and physical facilities.

SEVENTH ANNUAL ADMINISTRATORS' CONFERENCE

The Seventh Annual Conference for School Administrators will be held during the fifth week of Summer School, July 26-28, 1960. The theme of the conference is "Curriculum Planning: An Administrative Responsibility." Topics to be discussed will include identifying needs, organizing the curriculum, articulation, staffing, implementation, and evaluation.

For further information, write to VINCENT C. NUCCIO, Co-ordinator, 104 Stone Hall, Cornell University.

ADULT EDUCATION

*Educ. S437. *ADULT EDUCATION*. (G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Van Rensselaer East Wing 5. Miss PATTERSON.

Planned for teachers, administrators, directors of adult education, extension agents, parent educators, and others. Deals with principles and philosophy of adult education. Emphasis is placed on the scope, nature, and major problems of adult education; development and promotion of local programs; selection of teaching procedures and materials; appraisal of programs; and cooperative efforts of agencies. Provides opportunity for special study individually or with other students having similar interests. Fee, \$2.

AGRICULTURAL EDUCATION

(See *Other Programs*, page 56.)

DEVELOPMENT OF HUMAN RESOURCES

ILR. S535. *DESIGN AND ADMINISTRATION OF TRAINING PROGRAMS*. (G,U by permission) 3 hours credit. Lectures, M T W Th F 8-9:15. ILR Room 17. Mr. FOLTMAN.

A comprehensive study of organizational training with special emphasis on intra-organization policy, program, and evaluation. Consideration will be given to apprenticeship, job instruction, orientation, upgrading, technical and management development. Attention will be given through case discussion to the philosophy and administration of selected training programs.

ILR. S536. *PUBLIC POLICY IN THE DEVELOPMENT OF HUMAN RESOURCES*. (G,U by permission) 3 hours credit. Lectures, M T W Th F 9:30-10:45. ILR Room 17. Mr. FOLTMAN.

Analysis of the need for the development of human resources, trends in work force requirements and implications for public policy, the role of government and of educational institutions in providing development programs, and the effectiveness of such programs. Attention will be given to the rationale, organization, and administration of specific programs such as apprenticeship, vocational and technical schools, technical institutes, university programs for the development of technical scientific and managerial skills. Consideration of the trends in public support of human resources development programs.

ILR. S699. *SPECIAL STUDIES*. Credit and hours to be arranged.

Directed research in special problems.

For other offerings in *INDUSTRIAL AND LABOR RELATIONS* and information concerning noncredit programs see page 47.

EDUCATIONAL PSYCHOLOGY AND MEASUREMENT

Educ. S111. *EDUCATIONAL PSYCHOLOGY*. (U) 3 hours credit. Prerequisite, a course in general psychology. Lectures, M T W Th F 8-9:15. Comstock 145. Mr. PETERSON.

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

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

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

Educ. S215. *PSYCHOLOGY OF ADOLESCENCE*. (U,G) 2 hours credit. Prerequisite, a course in general psychology. Lectures, M T W Th F 9. 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. S251. *EDUCATIONAL MEASUREMENT*. (G) 2 hours credit. Prerequisite, a course in educational psychology or permission of instructor. Lectures, M T W Th F 10. Warren 132. Mr. BICKNELL.

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

Educ. S253. *INTRODUCTION TO EDUCATIONAL STATISTICS*. (G) 3 hours credit. Lectures, M T W Th F 8-9:15. Warren 232. Mr. BICKNELL.

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. Lectures, M T W Th F 10. Laboratory, to be arranged. Warren 37. Mr. ANDRUS.

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

Educ. A317. *EDUCATIONAL DIAGNOSIS AND REMEDIATION*. (G) 3 hours credit. Prerequisite, Educ. 251 or its equivalent, and permission of the instructor. Lectures, M T W Th F 8-9:15. East Roberts 222. Mr. PAUK.

Intended to develop a deeper understanding of the nature and function of remedial teaching in an educational program; to develop an understanding of the causes underlying educational failure; to become acquainted with the ways and means of studying learning problems and of aiding pupils with educational deficiencies, and to develop an understanding of the contributions made to the field of remedial teaching through research and writing.

Some of the topics to be discussed are the meaning of diagnosis; locating pupils in need of remedial help; discovering casual handicaps; principles of corrective and remedial teaching; class organization; diagnosis and remediation of reading, spelling, handwriting, written English, and arithmetic.

ELEMENTARY EDUCATION

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

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

Educ. S413. *THE IMPROVEMENT OF READING INSTRUCTION IN THE ELEMENTARY SCHOOL*. (G) 2 hours credit. Lectures, M T W Th F 10. Comstock 145. Mrs. EHRHART.

Open to experienced teachers and supervisors of reading. Recent developments in teaching reading 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 33.)

Art. A13. *THE VISUAL IMAGINATION*. (See page 24.)

Art A15. *ART FOR ART TEACHERS*. (See page 24.)

Art A16. *WORKSHOP IN ART EDUCATION*. (See page 24.)

C.D.&F.R. S351. *CHILDREN'S LITERATURE*. (See page 42.)

C.D.&F.R. S314. *PSYCHOLOGY OF ELEMENTARY SCHOOL CHILDREN*. (See page 42.)

Music A109. *MUSIC IN THE ELEMENTARY SCHOOL*. (See page 51.)

Sp.&Dr. A231. *SPEECH FOR THE CLASSROOM TEACHER*. (See page 54.)

Sp.&Dr. A355. *THE SPEECH-HANDICAPPED SCHOOL CHILD*. (See page 55.)

EXTENSION EDUCATION

(See Other Programs, page 61.)

GUIDANCE AND PERSONNEL ADMINISTRATION

Educ. S282. *EDUCATIONAL AND VOCATIONAL GUIDANCE*. (G) 2 hours credit. M T W Th F 11. Warren 132. Mr. BRESEE.

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

Educ. S283. *COUNSELING*. (G) 2 hours credit. Prerequisites, an introductory course in guidance and a course in psychological testing. M T W Th F 9. 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. S285. *OCCUPATIONAL AND EDUCATIONAL INFORMATION*. (G) 4 hours credit. Lectures, M T W Th F 10. Laboratory and field trips, T Th 2-4:15 and

additional hour daily to be arranged for special project. Stone 201. Mr. NELSON.

Survey and appraisal of occupations and educational opportunities; study of sources of information used in counseling; job analysis; vocational trends. Field trips to places of employment.

Educ. S287. *PRACTICUM IN MEASUREMENT AND APPRAISAL FOR COUNSELORS*. (G) 2 hours credit. Prerequisite, Educ. 282 and 283, or their equivalents, and a course in psychological testing. Lectures, M T W Th F 11. Warren 232. Mr. PETERSON.

Lectures, discussion, and laboratory experience in the use of tests and other instruments for the psychological appraisal of individuals. This is one of the courses required for permanent certification in guidance in New York State.

Educ. S255. *USE AND INTERPRETATION OF TESTS IN GUIDANCE AND PERSONNEL ADMINISTRATION*. (See page 30.)

Prev. Med. A1. *PRINCIPLES AND PRACTICES IN MENTAL HEALTH*. (See page 50.)

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 1961: *Educational and Vocational Guidance, Group Guidance, Organization and Administration of Guidance Programs, and Case Studies in Counseling*.

HISTORY AND PHILOSOPHY OF EDUCATION

Educ. A244. *PHILOSOPHY OF EDUCATION*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Plant Science 37. Mr. HIXON.

Designed to help teachers to become critical and systematic regarding their own basic educational assumptions and ideas through a comprehensive survey of the several schools of philosophy which exert powerful influence upon current educational policies and practices. Credit in the course is acceptable in meeting certification requirements at both elementary and secondary school levels.

Educ. S297. *HISTORY OF EDUCATION*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Warren 145. Miss PEARD.

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

HOME ECONOMICS EDUCATION

Educ. S403. *SPECIAL PROBLEMS FOR GRADUATE STUDENTS*. (G) Credit and hours to be arranged. Van Rensselaer East Wing 5. Department Staff.

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

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

*Educ. S435. *METHODS AND MATERIALS IN TEACHING HOME ECONOMICS*. (G) 2 hours credit. Lectures, M T W Th F 8. Van Rensselaer East Wing 5. Miss CLARK.

Planned for experienced teachers of homemaking. Opportunity is given to study and experiment with a variety of teaching procedures and materials such as discussion, demonstration, laboratory, films, and recordings. Fee \$2.

Educ. S437. *ADULT EDUCATION*. (See page 29.)

*Educ. S454. *QUALITY TEACHING IN HOME ECONOMICS*. (G) 3 hours credit. Lectures, M T W Th F 11-12:15. Van Rensselaer East Wing 5. Mrs. NELSON.

Application of research findings to the improvement of teaching. Curriculum, methods, materials, and teacher-pupil relationships studied as factors contributing to quality programs in homemaking education. Emphasis on meeting the needs of junior and senior high school students of varying abilities. Fee, \$2.

*Educ. S478u. *RESEARCH IN EDUCATION*. (G) 1 hour credit. July 18-August 5. Lectures, T 1 and other hours to be arranged. Van Rensselaer East Wing 5. Miss BLACKWELL.

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

NATURE STUDY AND SCIENCE EDUCATION

Educ. S107. *TEACHING OF ELEMENTARY SCHOOL SCIENCE*. (U,G) 2 hours credit. Lectures, M W F 8, W 2. Laboratory, W 3-5. Stone 7. Mr. ROCKCASTLE.

The content and methods of elementary school science and nature study, with field work and laboratory experience useful in classroom and camp. Designed especially for those who are teaching but do not have a sound background in science, and those who are planning to teach or supervise elementary science and nature study.

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

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

Educ. S202. *NATURAL HISTORY LITERATURE*. (U,G) 2 hours credit. Lectures, M T W Th F 11. Stone 7. Mr. ROCKCASTLE.

A survey of nature and science prose and poetry, with attention to their significance at elementary and secondary school levels and for leisure reading. Reference materials and free and inexpensive literature are also included.

*Educ. S207B. *METHODS AND MATERIALS FOR TEACHING BIOLOGICAL SCIENCE*. (U,G) 3 hours credit. Lectures, M W F 9:30-10:45. Field trips, M F 2-4:30. Stone 7. Mr. FISCHER.

A study of materials and methods useful in teaching biology in secondary schools and the preparation of plans that will make the instruction effective. This course meets the requirements for a science methods course as specified by state education departments. Offered alternately with Educ. S207G, Methods and Materials for Teaching General Physical Science. Fee, \$1.50.

READING IMPROVEMENT

(See Other Programs, page 63.)

RESEARCH

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

Educ. S299. *EDUCATIONAL RESEARCH METHODS*. (G) 2 hours credit. Lectures, M T W Th F 9. East Roberts 223. Mr. GARDNER.

Consideration of the basic research methods as applied to education and the principles of thesis writing. Recommended for Master's degree candidates.

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

Educ. S321. *SPECIAL STUDIES IN EXTENSION EDUCATION*. (G) 2 hours credit. Offered only if 8 or more students enroll. Lectures, individual time to be arranged. Mr. FENLEY.

The objective is to provide assistance in thesis preparation to graduate students in extension education. The course will consist of three parts: (1) exploration of potential fields and specific delineation of the thesis area; (2) setting up a plan of thesis organization based on research techniques and methods, including establishment of objectives or hypotheses, preparation of questionnaires, or other research instruments, the collection, analysis, and interpretation of data in line with the objectives; and (3) preparation of the thesis, its writing, editing, revising, and styling.

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

Educ. A500. *SPECIAL STUDIES IN EDUCATION*. (G) Credit and hours as arranged. Students working on theses or other research projects may register after consulting the staff members concerned. Members of the staff of the School of Education.

SECONDARY EDUCATION AND CURRICULUM

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

Educ. A33. *THE TEACHING OF ENGLISH IN SECONDARY SCHOOLS*. (U,G) 2 hours credit. Lectures, M T W Th F 12. Warren 132. Miss PEARD.

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.

Educ. A34. *TEACHING MATHEMATICS IN SECONDARY SCHOOLS*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Plant Science 37. Miss ARCHER and assistant.

Designed to meet certification requirements for teaching mathematics in high schools and to help, in a practical way, experienced teachers who wish to learn new approaches to understanding mathematics. Special help will be given to planning and developing models and other aids for teaching mathematics.

Educ. A35. *THE TEACHING OF SOCIAL STUDIES AND CITIZENSHIP EDUCATION IN SECONDARY SCHOOLS*. (U,G) 2 hours credit. Lectures, M T W Th F 2. Warren 132. 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. S207B. *METHODS AND MATERIALS FOR TEACHING BIOLOGICAL SCIENCE.*

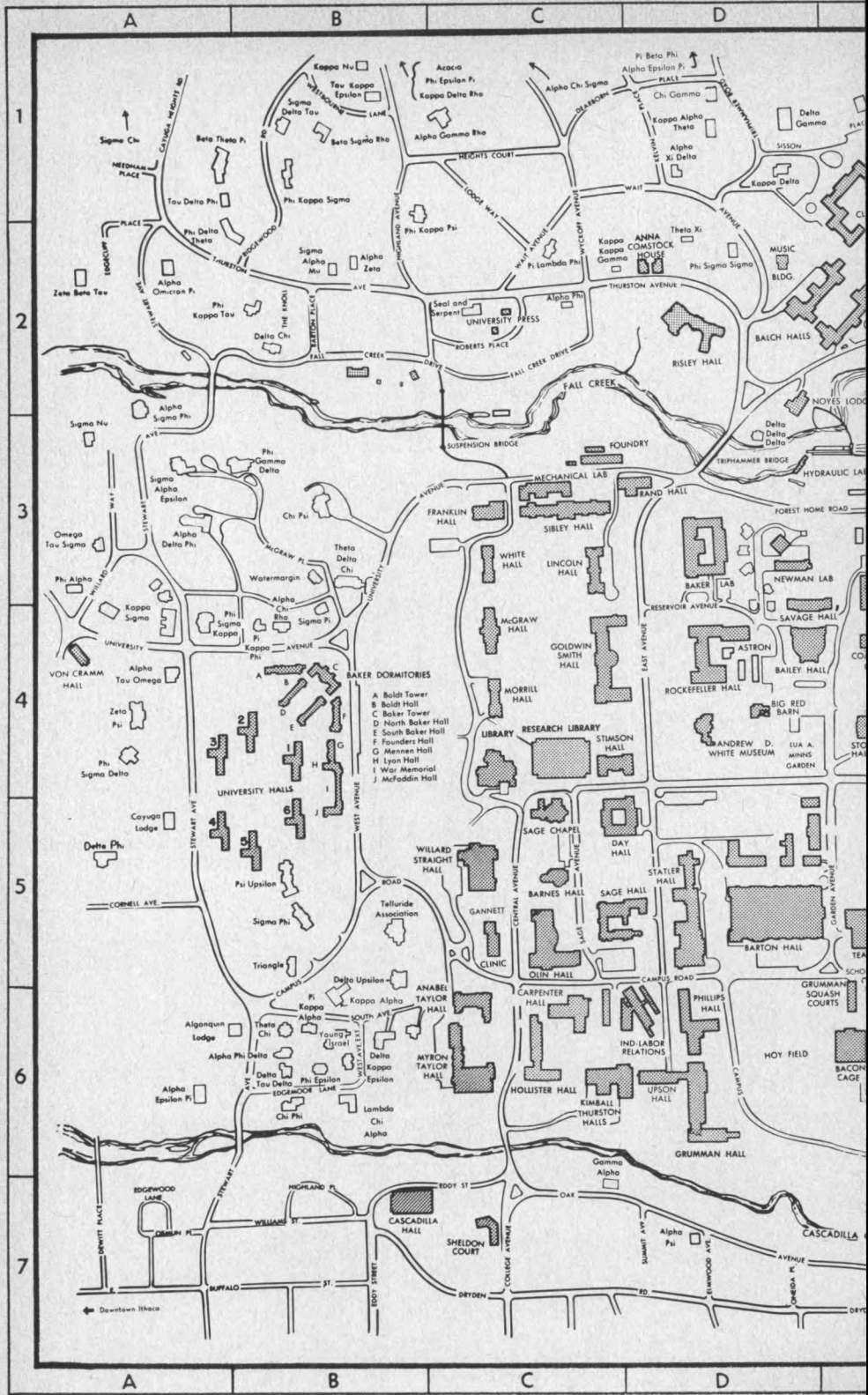
(See page 33.)

Educ. S276. *THE CURRICULUM OF AMERICAN SCHOOLS.* (G) 2 or 3 hours credit. Lectures, M T W Th F. 9. Stone 201. Mr. STUTZ.

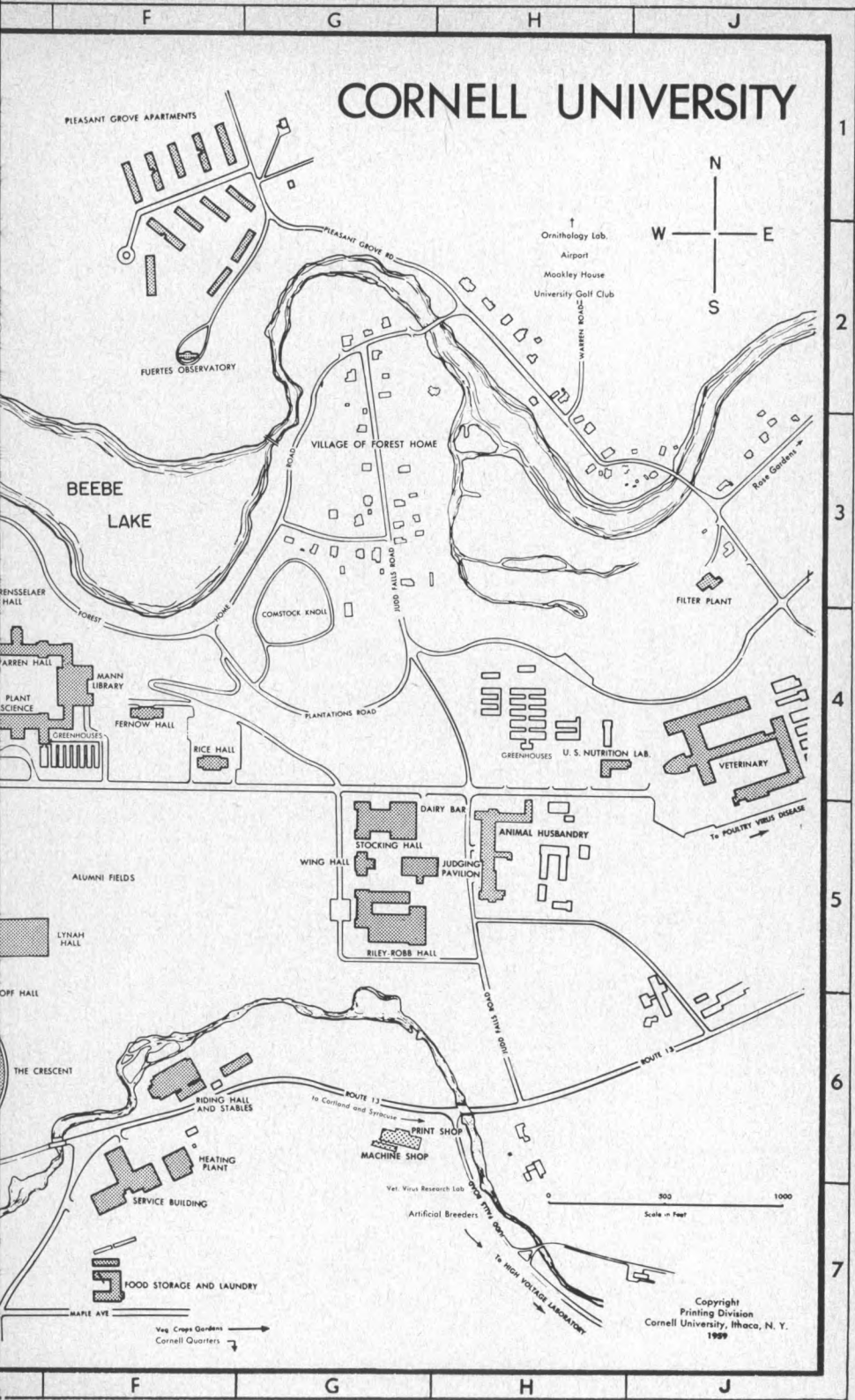
A consideration of issues and questions affecting the curriculum of American schools, with emphasis on elementary and secondary schools, and with attention to such questions as establishing aims, meeting problems of organization and sequence, selection of content materials, carrying on curriculum work,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

KEY TO THE MAP ON THE PAGES FOLLOWING

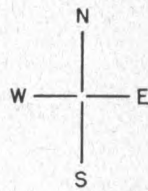
- | | |
|--|---|
| Alumni (Athletic) Fields F5 | Morrill Hall C4, sociology, anthropology, languages, psychology |
| Anabel Taylor Hall C6, interfaith center | Music Building D2 |
| Astronomy Dept. D4; Fuertes Observatory F2 | Myron Taylor Hall C6, law |
| Bacon Baseball Cage E6 | Newman Laboratory D3,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



- A Bold Tower
B Bold Hall
C Baker Tower
D North Baker Hall
E South Baker Hall
F Founders Hall
G Menden Hall
H Lyon Hall
I War Memorial
McFadden Hall



CORNELL UNIVERSITY



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Educ. A290. *SECONDARY EDUCATION*. (U,G) 3 hours credit. Lectures, M T W Th F 2-3:15. Warren 232. Mr. HIXON.

Designed to present an over-all view of the American high school and current practices which are being considered and tried. Included will be consideration of problems involving increased student population, integration and core programs, multiple track and differentiated curricular programs, treatment of slow and rapid learners, and other important high school aspects. Special attention is given to the junior high school. Credit in the course is acceptable in meeting certification requirements at both elementary and secondary school levels.

Art A13. *THE VISUAL IMAGINATION*. (See page 24.)

Art A15. *ART FOR ART TEACHERS*. (See page 24.)

Art A16. *WORKSHOP IN ART EDUCATION*. (See page 24.)

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 1960 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 1960.

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 (occasionally)
- Techniques of Dealing with Groups (occasionally)
- Social Problems and Public Policy (occasionally)
- *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 (frequently)
- Economics of the Labor Market (every other summer)
- *Industrial Occupations and Processes (occasionally)
- *Labor-Management Relations

ENGINEERING**CIVIL ENGINEERING**

Engr. A2902. *ENGINEERING LAW*. (U) 3 hours credit. Lectures, M T W Th F 8-9:15. Hollister 312. Mr. ———.

Basic features of laws and practices relating to contracts, torts, agency, property, water rights, forms of business organizations, sales, insurance, utilities, labor, government regulation of business, negotiable instruments, workmen's compensation, liens, bankruptcy, patents, copyrights, and trademarks; work of the expert witness; ethical responsibilities; professional registration; special emphasis on contract documents used in construction work.

ENGINEERING MECHANICS

Engr. A1153. *STRENGTH OF MATERIALS*. (U) 3 hours credit. Prerequisite, 1151 or equivalent. Lecture, laboratory, M T W Th F 9:30-10:45. Thurston 304. 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. Prerequisite, 1151 and Mathematics 163 or equivalent. Lectures, M T W Th F 11-12:15. Thurston 305. Mr. ———.

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

For the Engineering Industrial Co-operative Program, see Other Programs, page 58.

ENGLISH

Engl. A320. *THE VICTORIAN NOVEL*. (U,G) 3 hours credit. Lectures, M T W Th F 11-12:15. 242 Goldwin Smith. Mr. LANE.

Lectures, discussions, short papers, oral reports; special attention given to those materials and methods used to portray the "education" of a central character and the nature of a world-in-fiction; works to be read and recommended editions: Thackeray, *Vanity Fair* (Harper's Modern Classics), Charlotte Bronte, *Jane Eyre* (Everyman), Emily Bronte, *Wuthering Heights* (Everyman), Dickens, *Hard Times* (Rinehart), *Bleak House* (Everyman), George Eliot, *Middlemarch* (Houghton-Mifflin Riverside) Disraeli, *Sybil* (Penguin).

Engl. A333. *MAJOR AMERICAN WRITERS OF THE NINETEENTH CENTURY*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Goldwin Smith 156. Mr. WHICHER.

A brief survey of the course of American literature and a more detailed study of such authors as Poe, Emerson, Thoreau, Hawthorne, Dickinson, Melville, Whitman, Mark Twain, Adams, James, and Stephen Crane.

Engl. A338. *THE MODERN ENGLISH NOVEL*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Goldwin Smith 156. Mr. BRENNAN.

Changing concepts of fiction in Great Britain during the twentieth century: the novel as vision and the novel as art form, with emphasis on the works of Conrad, Forster, Joyce, Lawrence, Waugh, Orwell, and Greene.

Engl. A341. *THE ENGLISH DRAMA*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Goldwin Smith 242. Mr. CAPUTI.

A survey of the principal traditions in English drama (exclusive of Shakespeare), with particular attention to the work of Jonson, Dryden, Sheridan, and Shaw.

Engl. A349. *MODERN AMERICAN POETRY*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Goldwin Smith 124. Mr. DEMBO.

A critical study of modern American poetry with particular emphasis on the poetry of Frost, Pound, Eliot, Stevens, and Hart Crane.

Engl. A366. *CHAUCER: THE CANTERBURY TALES*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Goldwin Smith 128. Miss SCHERER.

A primarily literary study; brief reports; readings in writings about the fourteenth century.

Engl. A370. *SHAKESPEARE*. (U,G) 3 hours credit. Lectures, M T W Th F 11-12:15. Goldwin Smith 124. Mr. CAPUTI.

An intensive study of five plays: *Macbeth*, *The Merchant of Venice*, *Richard II*, *The Tempest*, and *Antony and Cleopatra*. The guiding aim will be to examine various scholarly and critical approaches to the problems of these plays.

Engl. A382. *THE ENGLISH LANGUAGE*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Goldwin Smith 128. Mr. ROSIER.

An introduction to the terminology and classification of language. The development of English studied historically in terms of sounds, etymology and derivation, meaning, syntax, and usage, with emphasis on distinctive features of modern English.

Engl. A385. *CREATIVE WRITING*. (U,G) 3 hours credit. Lectures, M T W Th F 11-12:15. Goldwin Smith 236. 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.

Engl. A920. *THESIS RESEARCH AND GUIDANCE*. (G) 3 hours credit. Hours to be arranged. Mr. PARRISH.

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

GOVERNMENT

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

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

Govt. A203. *INTRODUCTION TO POLITICAL THEORY*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. B-1 West Sibley. Mr. BERNs.

A survey of the development of Western political theory from Plato to the present. Readings from the work of the major theorists and an examination of the relevance of their ideas to contemporary politics will be stressed.

Govt. A217. *THE POLITICAL PROCESS: AMERICAN POLITICAL PARTIES*. (U,G) 3 hours credit. Lectures, M T W Th F 2-3:15. B-1 West Sibley. Mr. STEAMER.

The efforts of Democrats, Republicans, and private organizations to secure public support. The roles of public opinion and the extent of public participation will be emphasized.

Govt. A241. *THE AMERICAN CONSTITUTIONAL PROCESS*. (U,G) 3 hours credit. Lectures, M T W Th F 11-12:15. B-1 West Sibley. Mr. BERNs.

The role of the Supreme Court and judicial review in American politics, from the days of John Marshall to 1953. Federal-state relations, economic regulation, civil liberties, and separation of powers are treated in detail, and a case study of the steel seizure dispute of 1952 is read. Conducted as a discussion session in which students are expected to participate.

HISTORY

Hist. A148. *HISTORY OF RUSSIA IN THE TWENTIETH CENTURY* (U,G) 3 hours credit. Lectures, M T W Th F 2-3:15. West Sibley 328. Mr. LUTZ.

The last years of autocracy, the Revolution of 1905, the Revolution of 1917, and the Soviet regime.

Hist. A151. *AMERICAN HISTORY TO 1865*. (U,G) 3 hours credit. Lectures, M T W Th F 11-12:15. West Sibley 328. Mr. LAFEBER.

A survey of American political, social, and economic history from the Colonial period through the Civil War.

Hist. A427. *EUROPEAN HISTORY, 1815-1914*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. West Sibley 328. Mr. LUTZ.

Political, social, and intellectual history of Europe from the Congress of Vienna to the outbreak of World War II.

Hist. A742. *HISTORY OF AMERICAN FOREIGN RELATIONS, 1898-1945*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. West Sibley 328. Mr. LAFEBER.

A study of the formulation and application of American foreign policy from the Spanish-American War through World War II.

HOME ECONOMICS

CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

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

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

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

Literature as a resource in the child's living. The relation of children's literature to world literature. Traditional and modern forms. Illustrations in children's books. The student is expected to read widely in the literature for children two to twelve years of age, to participate in a story-telling group, and to work intensively on a problem of her own selection. Fee, \$2.

*C.D.&F.R. S363. *HUMAN RELATIONS IN THE FAMILY*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. 124 Van Rensselaer. 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 inter-relations of the younger, middle and older generations at successive stages in the family cycle. Fee, \$2.

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

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

Designed to help teachers and extension agents develop programs and curriculum materials for the study of personal-social relationships of adolescents. Topics to be discussed include dating problems, going-steady relationships, and preparation for marriage. Considerations to be weighed in planning and implementing a program

in preparing for marriage and family living are included. Both content and method are emphasized. Fee, \$2.

ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

*Ec.Hs. S310. *MANAGEMENT IN FAMILIES*. (U,G) 3 hours credit. Lectures, laboratory, and discussion periods, M W F 1-4. Field trips, one all-day field trip to be arranged. Van Rensselaer G19. Miss STEIDL.

For teachers in extension, secondary schools, colleges, and others who wish experience in working with families. Opportunity for observing the procedure of management in homes and for recognizing values and goals, resources, and decisions of families. Work with families in their own homes in solving some family management problems. Consideration of effective ways to work with homemakers in teaching home management, and opportunities for preparation of illustrative material. Discussion, group projects, laboratory experience, and field trips. Fee, \$6.

*Ec.Hs. S367. *CURRENT CONSUMER PROBLEMS IN MARKETING AND EQUIPMENT*. (U,G) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Van Rensselaer 121. Miss BYMERS and Mrs. WILLIAMSON.

For teachers and homemakers who wish to have some background for participating in consumer education programs. Emphasis will be placed upon sources of consumer information, advertising, labeling, sales promotion, and consumer protection. Particular problems associated with household equipment, marketing channels, standards for safety and performance will be emphasized. Fee, \$4.

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

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

*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. S430. *ECONOMIC CONDITIONS IN RELATION TO THE WELFARE OF FAMILIES*. (G) 3 hours credit. Lectures, M T W Th F 11-12:15. Van Rensselaer 121. Miss BYMERS.

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 factors 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*. (G) 3 hours credit. Prerequisite, a college course in food preparation and in chemistry. Lectures, T W Th F 9:30-10:45. Van Rensselaer 339. Laboratory, Th 1:30-4. Van Rensselaer 356. Miss MONDY.

Planned primarily for teachers, extension workers, and dietitians who wish to increase their understanding of the principles and modern concepts of food prepa-

44 CORNELL UNIVERSITY SUMMER SCHOOL

ration. Laboratory experiments illustrate selected effects of different procedures and ingredients. Fee, \$10.

F.&Ntr. S329. *RECENT FINDINGS IN NUTRITION*. (G) 2 hours credit. Prerequisite, a college course in nutrition. Lectures, M T W Th F 11. Van Rensselaer 339. Miss MORRISON.

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

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

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

HOME ECONOMICS EDUCATION

(See page 32.)

HOUSING AND DESIGN

The summer program in housing and design is planned for a three-year sequence in which certain courses are repeated each year and supplemented with advanced courses on a rotating basis. The probable advanced courses by years are:

1960

- 240 House Planning
- 320 Historic Furniture and Interior Design (through the eighteenth century)
- 348 Human Factors in Housing

1961

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

1962

- 319 Contemporary Designers
- 339 Seminar in Design
- 410 Research Methods in Design

Courses 100, 220, and 147 will be given every year. Any variation in this sequence will be selected from courses given in the Department of Housing and Design as listed each year in the *Announcement of the College of Home Economics*.

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

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

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

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

*H.&D. S220. *FUNDAMENTALS OF INTERIOR DESIGN*. (U) 2 hours credit. Prerequisite, H.&D. 100 or equivalent. Lectures and discussion, M T W Th F 2-4. Van Rensselaer 408. Miss CADY.

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

*H.&D. S240. *HOUSE PLANNING*. (U) 3 hours credit. Prerequisite, H.&D. 220 or equivalent. Laboratory, M T W Th F 1-4. Van Rensselaer 327. Mr. MILLICAN.

An introduction to house design. Drafting-room work consisting of plan and model studies of house and site. Lectures, discussions, local field trips, required reading. Fee, \$13.50.

*H.&D. S320. *HISTORIC FURNITURE AND INTERIOR DESIGN*. (U,G) 3 hours credit. Prerequisite, H.&D. 100 or equivalent. M T W Th F 9:30-10:45. Van Rensselaer 317. Mr. MILLICAN.

A study of changes in furniture and interior design (form and structure) reflecting the changing cultural framework of western civilization through the eighteenth century. Fee, \$13.50.

*H.&D. S348. *HUMAN FACTORS IN HOUSING*. (U,G) 3 hours credit. Prerequisite, H.&D. 147 or equivalent. M T W Th F 11-12:15. Van Rensselaer 318. Mr. BOWER.

A critical analysis of the influence on housing requirements of such factors as family life cycle, socio-economic status, attitudes, values, and preferences. Special treatment of current problems, such as housing needs of the aged, low-income families, and certain ethnic groups. Fee, \$13.50.

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

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

*H.&D. S447. *FUNDAMENTALS OF HOUSING*. (G) 3 hours credit. Consult instructor prior to registration. M T W Th F 8-9:15. Van Rensselaer 318. Mr. BOWER. Graduate section of H.&D. 147. Fee, \$13.50.

INSTITUTION MANAGEMENT

Inst.Mgt. S230u. *QUANTITY FOOD PREPARATION*. (U,G) 3 hours credit. June 27-July 16. Lectures, M T W Th F 2. Laboratory, M T W Th F 8-12:30. Van Rensselaer G62. Miss MOORE.

Designed primarily for food service supervisors in residence halls, hospitals, school

lunch, and other quantity food services. Major emphasis put upon understanding the principles of cooking that underlie the production of quality foods in quantity. Work simplification recipe standardization, and food cost control is also stressed. The laboratory provides practical experience in an established food service.

White uniforms and hair nets are required in laboratory. Students will have their lunch during the laboratory period.

Inst.Mgt. \$315u. *MENU PLANNING FOR FOOD SERVICE OPERATIONS.* (U,G) 3 hours credit. July 18-August 6. Lectures, M T W Th F 9-10:45 and 2. Van Rensselaer G62. Miss MOORE.

A menu planning course designed to give experience in writing menus for a variety of food service operations; to develop a working knowledge of menu terminology; to incorporate the principles of good nutrition; to point up the relationship between the menu plan and food and labor cost, work load of the individual employees and the physical plant; to correlate menu planning with purchasing of food, giving special attention to quality and quantity to be purchased and the effective utilization of all food which has been purchased. Precosting menus will be emphasized.

TEXTILES AND CLOTHING

*T.&Clo. \$210. *DESIGN AND COLOR IN APPAREL.* (G,U by permission) 3 hours credit. Registration limited to eighteen students. Preregistration desirable. Lectures and laboratory, M T W Th F 2-3:50. Van Rensselaer 210. Mrs. ADAM.

Intended primarily for teachers who wish to increase their skill in teaching people how to solve the design problems which confront them, particularly when choosing and assembling the individual items of the costume. Opportunity is given to develop greater understanding of the design principles as they apply to the development of apparel designs and to the selection of various items of the costume. Laboratory practice in designing, lecture-demonstrations, reading, and other supplementary experiences suited to the needs and interests of the students. Materials provided by the student at an estimated cost of \$10. Fee, \$5.

*T.&Clo. \$345. *TAILORING.* (G,U by permission) 3 hours credit. Registration limited to 16 students. Preregistration desirable. Prerequisites, experience or course work in the area of clothing design and construction acceptable to the instructor. Lectures and laboratory, M T W Th F 8-9:45 with an additional 5 hours of laboratory each week to be arranged between 8 a.m. and 6 p.m. Van Rensselaer 234. Mrs. ADAM.

Concerned with tailoring processes and methods of construction as they apply to all home sewing. Emphasis will be on the creative aspects of handling contemporary fabrics. Laboratory work will include making a suit or a coat. Materials to be provided by students at an estimated cost of \$20-\$50. Fee, \$5.

*T.&Clo. \$373. *NEW DEVELOPMENTS IN TEXTILES.* (G,U) 3 hours credit. Prerequisite, an introductory course in textiles; organic chemistry is desirable but not required. Lectures, M T W Th F 11-12:15. Van Rensselaer 213. Miss BONÉs.

A study of recent developments in textile fibers, yarns, and finishes with emphasis on fiber and fabric properties. A lecture-discussion course. Fee, \$5.

*T.&Clo. \$403. *SPECIAL PROBLEMS IN TEXTILES AND CLOTHING.* (G) Credit and hours as arranged. Registration by permission. Department staff.

For graduate students recommended by their chairmen and approved by the department head. Students to assume any expense involved unless otherwise previously arranged. Fee will be dependent upon the nature of the problem.

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

HOTEL ADMINISTRATION

(See Other Programs, page 63.)

INDUSTRIAL AND LABOR RELATIONS

I.&L.R. S192. *INDUSTRIAL OCCUPATIONS AND PROCESSES*. (U,G) 3 hours credit. Lectures, M T W Th F 11. Field trips, T Th 1-5. I.&L.R. 23. Mr. FRENCH.

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 work flow; 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) 3 hours credit. M T W Th F 8-9:15. I.&L.R. 23. Mr. TRICE.

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 communication, 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) 3 hours credit. M T W Th F 9:30-10:45. I.&L.R. 23. 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. 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 and in the fields to be covered by Mr. Ferguson. All interested students should see Mr. Blumen or Mr. Ferguson.

Work in the following subject matter areas will be provided by Mr. Ferguson on an individual or small-group basis through I.&L.R. 499 or 699. Interested students should contact Mr. Ferguson to discuss arrangements for such individual study. If a sufficient number of students are interested in study in the same area, formal group sessions will be arranged at a time to be determined by the students and the instructor.

CONTEMPORARY WAGE THEORY. (G)

Reading and discussion of significant contributions to modern wage theory by Hicks,

Robinson, Chamberlain, Friedman, Machlup, Lester, Kerr, Reynolds, Dunlop, Ross, and others.

ELEMENTS OF SOCIAL SECURITY. (U,G)

An introduction to the public and private programs designed to deal with old-age dependency, unemployment, injury and illness, and related problems in the United States.

ECONOMICS OF COLLECTIVE BARGAINING. (G)

Examination of the goals, strategies, and tactics of the parties in collective bargaining over wages and other terms of employment. The theories of bargaining of Hicks, Ross, Dunlop, Chamberlain, and others will be analyzed, together with case studies of contract negotiations in individual firms and industries.

LABOR MARKETS AND EMPLOYMENT (U,G)

Analysis of past and future trends in the composition of the labor force and the industrial and occupational structure of employment, and their significance for education, industry, the community, and the nation. Examination of the structure and functioning of the local labor market and the role of employment agencies, educational institutions, and vocational guidance in aiding workers to find employment.

I.&L.R. \$510. **ECONOMIC AND SOCIAL STATISTICS. (G)** 3 hours credit. Lectures, M T W Th F 12. Laboratory, T Th 1:40-4. I.&L.R. 17. Mr. BLUMEN.

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 I.&L.R. 499 or I.&L.R. 699 will be available. Interested students should see Mr. Blumen to discuss arrangements for such individual study.

DEVELOPMENT OF HUMAN RESOURCES

(See *Education*, page 29.)

SPECIAL NONCREDIT SEMINARS AND WORKSHOPS

In the summer of 1960 the School is again offering a series of one-week noncredit seminars and workshops. These units are designed for practitioners, and consequently each will give specific emphasis to an operational area in the field. A partial list of offerings follows: *Wage and Salary Administration*, *Employee Communications*, *Community Relations for Business and Industry*, *Industrial Training Techniques*, and *The Critical Problems of the Grievance Process and Collective Labor Contract Administration*.

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

LANGUAGES

High school students who have been admitted to a college for the coming academic year may take any language as undergraduate students. All students who have had no previous preparation in the language they elect will register for course A101,

except graduate students who may elect A151-2. Students who have taken previous course work in the language they elect will be placed in A101 or A102 on the basis of College Entrance Examination Achievement scores which they must make available before registration.

FRENCH

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

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

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

GERMAN

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

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

Germ. A151-152. *GERMAN*. (G) 6 credit hours. For graduate students acquiring reading proficiency. Twenty hours of instruction each week. Morrill Hall. Mr. BONAWITZ and staff.

INDONESIAN

A101. *INDONESIAN*. (U) 6 credit hours. Twenty hours of instruction each week. Morrill Hall. Mrs. HOLT and staff.

A201-3. *INDONESIAN*. (U) 6 credit hours. Prerequisite Indonesian 102 or its equivalent. Fifteen hours of instruction each week. Morrill Hall. Mrs. HOLT and staff.

RUSSIAN

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

Russ. A151-152. *RUSSIAN*. (G) 6 credit hours. For graduate students acquiring reading proficiency. Twenty hours of instruction each week. Morrill Hall. Mr. LEED and staff.

SPANISH

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

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

All Modern Language courses equivalent to those in the academic year.

MATHEMATICS

Math. A162. *ANALYTIC GEOMETRY AND CALCULUS*. (U) 3 hours credit. Prerequisite, Mathematics 161 or the equivalent. Lectures, M T W Th F S 10. Lincoln 221. Mr. ———.

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. Lectures, M T W Th F S 11. Lincoln 222. Mr. ———.

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

Math. A181-182. *ANALYTIC GEOMETRY AND CALCULUS*. (U) 6 hours credit. Prerequisite, a thorough knowledge of trigonometry and exceptional aptitude for mathematics. Lectures, M T W Th F 9-10:45 and 2-3:15. Lincoln 204. Mr. AGNEW.

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

Math. A301. *DETERMINANTS AND MATRICES*. (U, G) 3 hours credit. Prerequisite, Mathematics 163 or the equivalent. Lectures, M T W Th F S 10. Lincoln 201. Mr. ROBISON.

A treatment of such topics as determinants, matrices, linear dependence, linear equations, linear transformations, numerical methods of computation, and reduction by means of orthogonal transformations.

Math. A501. *ADVANCED CALCULUS*. (U,G) 3 hours credit. Prerequisite, Mathematics 163 or the equivalent. Lectures, M T W Th F S 9. Lincoln 201. Mrs. HERTZIG.

Treats the logical foundations of elementary calculus. Topics include the construction of the real number system, limits, continuity, the derivative and its properties, the mean value theorem. If time permits, an introduction to Riemann integration will be given.

(See also Engineering A1155, Applied Mathematics, p. 40.)

MENTAL HEALTH

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

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

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

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

MUSIC

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

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) 3 hours credit. Lectures, M T W Th F 8-9:15. Music Building. Mr. CAMPBELL.

Designed for elementary teachers who are required to teach music with or without the assistance of the music supervisor. Includes survey of literature, rote singing, sight-reading and part-singing, elementary theory and appreciation, and simple piano accompaniment.

Music A207. *ORCHESTRATION*. (U,G) 2 hours credit. Open to students with some previous experience in music theory. Lectures, M T W Th F 8. Music Building. Mr. HUSA.

Studies of scores from all periods, although twentieth-century works will predominate. Individual assignments according to student's experience.

Music A275. *INTERMEDIATE COMPOSITION*. (U,G) 2 hours credit. Consent of the instructor is required. Lectures, M T W Th F 9. Music Building 12. Mr. PALMER.

Intensive work in musical composition. Various contemporary techniques will be studied as they relate to the problems raised by the students' work. Courses 275 and 276 may be taken concurrently.

Music A276. *ADVANCED COMPOSITION*. (U,G) 2 hours credit. Consent of the instructor is required. Lectures, M T W Th F 10. Music Building 12. Mr. PALMER.

A continuation of Music A275.

PHILOSOPHY

Phil. A220. *HISTORY OF ETHICS*. (U) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Goldwin Smith 227. Mr. WELSH.

A survey of the development of ethical thought in Western civilization with particular attention to the effect upon ethical theory of such movements and tendencies as the Renaissance, the rise of modern science, romanticism, nationalism, linguistic analysis, and existentialism. Text: A. I. Melden, *Ethical Theories* (2d ed., N.Y., Prentice-Hall, 1955).

Phil. A230. *PHILOSOPHY OF ART*. (U) 3 hours credit. Lectures, M T W Th F 11:30-12:45. Goldwin Smith 227. Mr. WELSH.

A study of some fundamental issues in aesthetics with particular reference to the fields of music, literature, and painting. The problems discussed include the nature of art and its purposes; meaning and symbolism in the arts; art and morality; the interpretation and evaluation of works of art; and the justification of aesthetic judgments. Text: Monroe C. Beardsley, *Aesthetics: Problems in the Philosophy of Criticism* (N. Y., Harcourt, Brace and Company, 1958).

PHYSICS

*Phys. A101. *TOPICS IN PRESENT-DAY PHYSICS*. (U,G) 3 hours credit. Graduate credit limited to secondary school teachers in the sciences. Three hours credit in Physics A101, plus three hours credit earned in Phys. A102 (not offered in 1960) or plus 3 credit hours in Phys. A109, will satisfy the "common studies" requirement in natural science for a Bachelor of Arts degree in Cornell University. Prerequisite, 3 units of college-preparatory mathematics and an approved full-year course in high school or college physics. Lectures, discussions, and demonstrations, M T W Th F 10-12. Rockefeller B. Mr. PARRATT, assisted by eminent physicists selected on the basis of the fields and topics included in the course.

A new approach to an introductory college course in physics. Emphasis is placed on the relatively few fundamental principles and concepts underlying all topics in physics, e.g., the conservation of energy and momentum, the dual wave-particle nature of radiation and matter, the probabilistic nature of science, the resort to experiment as the final arbiter of the reliability of a theory, etc. Two one-hour lectures one day per week, two one-hour class meetings in small study groups on each of three days per week, and two one-hour meetings per week to view and discuss pertinent visual aids. Each study group of not more than 15 students, selected on the basis of background preparation, will have its own instructor who will be in charge of the course for his group for the entire 6 weeks.

The lecture periods on selected topics in physics are given by mature teachers who have specialized in their topics. Generally each week will be devoted to one topic. Demonstration experiments accompany the lecture. Lecture notes, including diagrams, sketches, and references to further reading will be given to students at the beginning of each lecture. These notes serve as a guide for the week's work in the small study-group discussions. Fee, \$5.

*Phys. A109. *GENERAL PHYSICS LABORATORY*. (U,G) 1 to 3 hours credit. Prerequisites, same as for Phys. A101. Approximately two laboratory periods per week per credit hour. Laboratory, M T W Th F 2-4:30. Rockefeller 364. Mr. ———.

Experiments are available in each of the several fields of physics and are assigned to fit the student's interests and background preparation. Students are encouraged to work individually with a minimum of supervision. New experiments, approved by the instructor, may be devised as project work. Fee, \$5 per credit hour.

Phys. A121. *INTRODUCTORY ANALYTICAL PHYSICS I*. (U) 3 hours credit. Graduate credit limited to secondary school teachers in the sciences. Registration limited to students in engineering with a deficiency in physics. M T W Th F 8 and M 2-4. Rockefeller 105. Mr. ———. (Those students who wish to make up the laboratory part of Physics 121 may do so with Physics A109.)

*Phys. A122. *INTRODUCTORY ANALYTICAL PHYSICS II*. (U) 3 hours credit. Prerequisite, Physics 121 and calculus or simultaneous registration in Mathematics A162 or A182. Lectures, T Th 11. Rockefeller A. Recitations, M T W Th F 9. Rockefeller 104. Laboratory, T Th 2-4:30. Rockefeller 252. Messrs. ———.

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.

(See also *Physics 214 and 225, page 60.*)

PSYCHOLOGY

Psych. A101. *INTRODUCTION TO PSYCHOLOGY*. (U) 3 hours credit. Lectures, M T W Th F 9:30-10:45. Morrill 340. Mr. ZIMMERMANN.

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. A216. *EXPERIMENTAL PSYCHOLOGY OF LEARNING*. (U,G) 3 hours credit. Lectures, M T W Th F 11. Morrill 340. Laboratory, T 2-4, plus independent hours to be arranged. Mr. ZIMMERMANN.

The fundamental conditions and principles of learning, both animal and human. A review of selected experimental literature, with special emphasis upon recent developments in the field.

Psych. A352. *TESTS OF PERSONALITY: THEIR CHARACTERISTICS AND THEIR USES*. (U,G) 3 hours credit. Lectures, M T W Th F 8-9:15. Morrill 310. Mr. FREEMAN.

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

Psych. A412. *INDIVIDUAL DIFFERENCES AND EXCEPTIONAL CHILDREN*. (G,U by permission). 3 hours credit. Lectures, M T W Th F 9:30-10:45. Morrill 310. 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. The 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) 3 hours credit. M T W Th F 11-12:15. Morrill 240. Mr. OPLER.

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

Anth. A111. *MAN AND CULTURE*. (U,G) 3 hours credit. M T W Th F 8-9:15. 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 and other complex civilizations.

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

Some of the major social changes occurring in the United States and in the world will be studied. Consideration will be given to the factors which bring about these changes and the stages or processes through which they pass. Special emphasis will be placed on the social changes which are occurring within communities in the United States and the implications which these changes have for those responsible for community institutions, such as school teachers, school administrators, county

agents, farm organization leaders, religious leaders, civic leaders of youth groups, and city, town, and county government officials.

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

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

Anth. A204. *CULTURE AND PERSONALITY*. (U,G) 3 hours credit. M T W Th F 9:30-10:45. 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) 3 hours credit. M T W Th F 11-12:15. Warren 31. Mr. ELLENBOGEN.

The relations the school has with parents, formal organizations, and other institutions in carrying out its educational functions. In understanding these relations, the interplay of the community power-structure and the value-system in affecting communication and decision making will be considered.

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

Soc. A506. *INTERGROUP RELATIONS*. (U,G) 3 hours credit. M T W Th F 9:30-10:45. Morrill Hall. Mr. OPLER.

The identification and analysis of groups or social units (age, race, class, ethnic, language, religious, caste, regional, kin, etc.) in society and the consideration of the problems of intergroup relations, prejudice, integration, accommodation, and national unity to which they give rise.

SUMMER FIELD STUDIES PROGRAM

(See *Other Programs*, page 66.)

SPEECH AND DRAMA

Sp.&Dr. A190. *DIRECTED STUDY IN SPEECH AND DRAMA*. (U,G) 2 or 3 hours credit. Open to undergraduates and graduates prepared for advanced studies in speech or drama and theatre. Permission of the instructors required for registration. Hours to be arranged. Goldwin Smith 233-235. Mr. GOLDEN and Mr. ARNOLD.

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

Sp.&Dr. A201. *PUBLIC SPEAKING*. (U) 3 hours credit. M T W Th F 8-9:15. Goldwin Smith 21. Mr. WILSON.

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

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

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

Sp.&Dr. A345. *THE DEVELOPMENT OF SPEECH BEHAVIOR*. (U,G) 3 hours credit. M T W Th F 9:30-10:45. Goldwin Smith 21. Mr. NUTTALL.

Study of theories of speech development from its beginnings in expressive utterance and gesture to the establishment of mature speech habits. Attention will be given to causative factors in the development of both normal and abnormal speech behaviors.

Sp.&Dr. A355. *THE SPEECH-HANDICAPPED SCHOOL CHILD*. (U,G) 2 hours credit. M T W Th F 2. Goldwin Smith 21. Mr. NUTTALL.

A study of the speech problems of school children; intended to enable the classroom teacher to recognize and understand the various disorders. Methods of therapy are considered with emphasis on their applicability to the general conduct of classroom work.

Sp.&Dr. A403. *METHODS IN PLAY PRODUCTION*. (U,G) 3 hours credit. M T W Th F 11-12:15. Rand 307. Mr. ALBRIGHT.

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

Sp.&Dr. A457. *MODERN AMERICAN DRAMA AND THE THEATRE*. (U,G) 2 hours credit. M T W Th F 8-9:15. 236 Goldwin Smith. Mr. McCALMON.

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. Students matriculated for a degree in Cornell University may offer this course as equivalent of Speech and Drama 455.

Sp.&Dr. A480. *THE MOTION PICTURE: A SURVEY*. (U,G) 3 hours credit. M T W Th F 9:30-10:45. 314 Rand. 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 theatre films. Content is equivalent to Speech and Drama 481 offered in regular academic year. Students are urged to attend the film programs of the University Theatre.

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

ZOOLOGY

*Zoology. A103-104. *GENERAL ZOOLOGY*. (U) 6 hours credit. Lecture, M T W Th F 9 and 11. Stimson G25. Laboratory, M T W Th F 1-3:20. Stimson Laboratory 102. Mr. LEONARD and assistant.

A survey of the animal kingdom, observations, and dissection of representative species in the laboratory, beginning with single cell organisms, will be presented. Emphasis will be placed on the biology of the vertebrate animals, including references to man. Various zoological principles such as evolution, development, and genetics will be considered. The course serves as a prerequisite to advanced zoological studies. Text: Storer and Usinger, *General Zoology*. Laboratory fee, \$15.

OTHER PROGRAMS OF THE SUMMER SESSION

The following programs are offered during the Summer Session period, June 13 to approximately September 15. Some occur during the period of the Summer School session, June 27 to August 6. Note the dates scheduled for each program.

AGRICULTURAL EDUCATION, July 5-23

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. The three-week session will begin July 5, 1960.

Graduate credit earned in three-week unit courses may be applied toward the residence requirement for the Cornell Master of Education degree only. Registration for the three-week session will be July 5, 1960, in the Summer Session Office, 117 Day Hall. Tuition and fees are the same as for the Summer School.

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

Ag.Ec. S202u. *FARM MANAGEMENT*. (U,G) 2 hours credit. Lectures, M T W Th F 8-10. Laboratory, M 1:30-4. Warren 345. Mr. SMITH.

Consists of a study of the organization and management of the farm business as a unit for continuous profitable and efficient operation. Includes a detailed business analysis of selected farms, with suggested reorganization toward attainment of the farm family objectives. Emphasis placed on developing skill in reorganizing farm businesses to keep abreast of changes in technology. Practice in use of partial and complete budgets. Attention given to financial management.

Designed especially for high school agricultural teachers and others carrying out educational programs with farmers. Class members encouraged to use, for class discussion and practice, cases of management problems encountered in their contacts with farm families.

*Ag.Eng. S145u. *FARM ELECTRIFICATION*. (U,G) 2 hours credit. Laboratory, M T W Th F 8-10, M F 1-4. Riley-Robb 64. Mr. LECHNER.

Designed for instruction and laboratory practice in basic principles, techniques of application, and selection of electrical wiring materials, controls, and motors. Includes motor maintenance and safe uses of electric power for farm applications. Fee \$3.

*Ag.Eng. S166u. *AGRICULTURAL MECHANICS DEMONSTRATIONS AND TEACHING AIDS*. (U,G) 2 hours credit. Limited to 25 students. Laboratory, T W Th 10-12 and 1-5. Riley-Robb 64. Mr. Foss.

Classroom discussions cover the planning and development of numerous devices, techniques, and equipment useful for demonstrating principles and practices in agricultural mechanics programs. Laboratory periods devoted to actual use and criticism of some new demonstrational aids as well as the construction of a few teaching aids for the agricultural mechanics teachers shops. Fee, \$2.

Agron. S117u. *RECENT ADVANCES IN WEED CONTROL*. (U,G) 2 hours credit. Lectures, M W F 10-12. Laboratory and field trips. T Th 1-5. Caldwell 143. Mr. FERTIG.

Deals with principles of weed control, especially as applied on commercial farms. Cultural as well as chemical means of controlling weeds studied along with growth habits of some of the more important weeds.

An. Hus. S117u. *RECENT ADVANCES IN DAIRY SCIENCE*. (U,G) 2 hours credit. Lectures, M T W Th F 10-12. Wing C. Mr. SMITH and guest lecturers.

Deals primarily with dairy cattle but with some reference to beef cattle, sheep, and swine. The latest findings, along with practical recommendations, on the following subjects: feed evaluation of forage crops; feed additives such as antibiotics, hormones, urea, and others; mineral elements including the two new ones, selenium and molybdenum; ketosis, milk fever, bloat; feed preparation including pelleting, calf feeding; cud inoculation, sterility, and some diseases of more recent interest. One period to discuss topics of special interest to the class.

Educ. S133u. *SPECIAL PROBLEMS IN VOCATIONAL AGRICULTURE*. (U,G) 2 hours credit. Experience as a teacher of agriculture or consent of instructor required. M T W Th F 10-12. Warren 14. Mr. HILL.

Opportunity to identify and study selected problems in teaching agriculture to meet the particular needs of teachers.

Educ. S232u. *ADVANCED METHODS AND MATERIALS OF TEACHING VOCATIONAL AGRICULTURE*. (G) 2 hours credit. Experience as a teacher of agriculture or consent of instructor required. M T W Th F 8-10. Warren 14. Mr. CUSHMAN.

Designed to develop an understanding of and ability to use selected methods of teaching agriculture and the techniques used in the methods. Involves selecting units, developing objectives, analyzing problems, selecting teacher-pupil activities, and evaluating of learning experiences as applied to group and individual instruction. Consideration given to selection, preparation, and use of instructional materials.

ARCHITECTURE, June 27-September 3

There will be a ten-week summer session limited to students registered in the College of Architecture who have completed Architectural Design 103.

Arch. 119. Elective Design. 9 hours credit.

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 seven-week periods: first period, June 13 to July 29; second period, August 1 to September 17.

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

Engr. 1153. *STRENGTH OF MATERIALS.* 3 hours credit. Lecture, recitation, laboratory. Prerequisite, 1151. First period. Mr. ———.

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

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

Industrial and Engineering Administration

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

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

Machine Design

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

Engr. 3351. *MECHANISM.* 3 hours credit. Recitations. Laboratories. Prerequisites, 3312, 1151. Second period. Mr. ———.

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

Materials Processing

Engr. 3404. *PRODUCTION MACHINE TOOLS*. 2 hours credit. Lectures. Laboratories. Prerequisites, 3406, 3262. First period. Mr. ———.

Thermal Engineering

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

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

Egr. 3607. *COMBUSTION ENGINES*. 3 hours credit. Recitations. Prerequisite, accompanied or preceded by 3606. First period. Mr. ———.

General Electrical Engineering

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

Basic Electrical Engineering

Engr. 4112. *ALTERNATING CURRENT NETWORKS*. 3 hours credit. Lectures. Recitations. Computings. Prerequisites, Mathematics 607, EE 4111. First period. Mr. ———.

Engr. 4116. *ELECTRIC CIRCUIT LABORATORY*. 3 hours credit. Lectures. Laboratories. Prerequisites, 4111 or 4983. First period. Mr. ———.

Engr. 4121. *ELECTRON TUBES AND CIRCUITS*. 4 hours credit. Lectures. Recitations. Computings. Laboratories. Prerequisites, 4116 and either 4112 or 4983. Second period. Mr. ———.

Engr. 4123. *ELECTRONIC CIRCUIT ELEMENTS*. 4 hours credit. Lectures. Recitations. Laboratories. Prerequisites, 4113, 4114, 4122. First period. Mr. ———.

Radio and Communication

Engr. 4529. *TRANSISTORS*. 3 hours credit. Lectures. Laboratories. Prerequisites, Physics 214 and 4123. Second period. Mr. ———.

Servomechanisms

Engr. 4711. *SERVOMECHANISM 1*. 3 hours credit. Lectures. Recitations. Laboratories. Computings. Prerequisites, 4123, 4216, 4221. Second period. Mr. ———.

Courses for Students Not in Electrical Engineering

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

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

Metallurgical Engineering

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

Chemistry

Chem. 401. *INTRODUCTION TO PHYSICAL CHEMISTRY*. 3 hours credit. Lectures. Prerequisites, Chemistry 106, Mathematics 163, 183 or 193 and Physics 117. Second period. Mr. ———.

Mathematics

Math. 613. *METHODS OF APPLIED MATHEMATICS*. 3 hours credit. Prerequisites, Mathematics 183 and 612. Second period. Mr. ———.

Physics

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

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

EXTENSION EDUCATION, June 27-July 15

Cornell University conducts one of four regional summer schools for the professional improvement of Cooperative Extension workers. Thirty states, Puerto Rico, and sixteen foreign countries were represented in the enrollment last year. Nine courses are offered in the morning. 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, with an additional \$10 fee if a third course is audited. For printed announcement with complete details, write to Professor Arthur E. Durfee, 102 Roberts Hall, Cornell University, Ithaca, N.Y.

8-9:30 a.m.

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

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

S5U. PRINCIPLES IN THE DEVELOPMENT OF YOUTH PROGRAMS. (G) 1½ hours credit. Warren 101. Mr. MCAULIFFE.

Especially designed for extension workers responsible for youth programs. Deals with the scope of extension's responsibilities for such programs. Special attention given to the interests and needs of boys and girls of different ages, methods and techniques of program planning, and leadership development. Conducted as a semi-workshop. Each student 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. Warren 160. Mr. ROBINSON.

Provides extension workers with both subject matter and techniques that will enable them to plan and conduct educational programs involving controversial policy issues. Deals with current farm-policy issues and methods of education adapted to public affairs. Questions relating to farm price supports given special attention.

9:45-11:15 a.m.

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

The objective is to increase the understanding and skill of extension personnel in working with groups. Deals with 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 given to the development of long-range program planning committees.

S7U. PSYCHOLOGY FOR EXTENSION WORKERS. (G) 1½ hours credit. Warren 160. Mr. TOM.

Designed primarily for extension workers who have had no more than an introductory course in psychology. Intended to help develop an understanding of some of the principles of human behavior as a basis for improving extension programs.

Consideration given to relevant contributions from the fields of educational, industrial, business, and social psychology.

S8U. EXTENSION EVALUATION. (G) 1½ hours credit. Warren 201. Mrs. SABROSKY.

Practical techniques that any extension worker may use to appraise his work. Emphasis on clarifying objectives and teaching procedures as steps in the evaluation process; on sampling procedures; and on analysis, interpretation, presentation, and use of data. Students will be helped to develop a concept of evaluation as an objective process helpful and necessary to program development and execution.

11:30-1 p.m.

S3U. COMMUNICATION IN EXTENSION WORK. (G) 1½ hours credit. Roberts 131. Mr. HECKEL.

Designed to develop a clearer understanding of the role of communications in extension work. Consideration given to ways of understanding the audience and how this understanding can add to the effectiveness of all communication efforts. Deals with the process of communication, efficiency in communications, barriers to communication, and communication planning. These topics related to actual situations faced by the students. Radio, television, and newspaper techniques considered only as a part of the over-all communications process.

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

The meaning of program development, analysis of the situation, extension principles and objectives, creating and keeping community interest and support, program continuity and evaluation. Includes such topics as using extension's resources in programing and developing and utilizing local leadership with special attention given to program projection.

S9U. ADMINISTRATIVE MANAGEMENT IN THE COUNTY EXTENSION OFFICE. (G) 1½ hours credit. Warren 160. Mr. McCORMICK.

Especially designed for county extension directors and those county agricultural agents, home demonstration agents, and 4-H club agents who have assistant or associate agents and other staff reporting to them. Deals with administrative management and personnel administration in the county extension office. Emphasis given to the development of executive leadership, effective administrative planning, communications, delegation of authority, principles of organization and administration, training, and personnel evaluation.

HIGH SCHOOL READING AND STUDY SKILLS PROGRAM

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

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

Classes. Meetings will be held on Monday through Friday from 9 to 12.

SESSION 1: June 27 through July 15

SESSION 2: July 18 through August 5.

Expenses. The tuition for the course is \$100, with an additional University and laboratory fee totaling \$25. The fee 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, N.Y.

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, Ithaca, N.Y.

PROGRAMS SPONSORED BY THE NATIONAL SCIENCE FOUNDATION

Institute for Earth and Space Sciences, June 27–August 6

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

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

Each participant will register for any two of the basic courses, Astronomy, Geology, Meteorology, and Soil Science, and for the Introduction to Space Science. Interested teachers who have had at least two years teaching experience may apply for admission to Professor R. William Shaw, Director of the Institute for Earth and Space Sciences, Department of Astronomy, Rockefeller Hall, Cornell University, Ithaca, N.Y. Applications must be submitted before February 15, 1960.

Science Training Program for Secondary School Students, June 27–August 6

Open to one hundred selected students of junior or senior standing having superior ability and interest in science and mathematics. Students have the choice of participating full-time either in research projects in the biological sciences or in one of four college-level courses.

Twenty-five students, preferably juniors, will be selected to assist in research projects under the direction of the scientist in charge. A choice of fields is available to the student, and he is assigned to a specific project according to his choice, ability, and preparation.

Seventy-five students will be admitted to courses in chemistry, mathematics, physics, or zoology according to their choice, ability, and preparation. Each course carries six hours of college-level credit and requires the full time of the student.

All students receive support to the extent of one half of the cost of room and board in University facilities provided especially for them. Those electing to work in research receive additional compensation for the work performed. Students registering for courses are granted free tuition.

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

Research Participation for Teacher Training, June 13–August 26

For teachers of science and mathematics in secondary schools and small colleges. The National Science Foundation is supporting a program to provide research experience for twenty-five such teachers selected for a period not to exceed eleven weeks and not less than six weeks during the summer. Earliest beginning date: June 13. Program terminates August 26. Latest date for starting: June 27.

Teachers will have opportunity to elect participation in one of a variety of research projects in the biological, earth, and physical sciences. Each will work under the direction of a senior scientist and will have experiences in all phases of the research during the period of participation as a junior colleague in the project.

Each participant will receive a stipend amounting to \$75 per week. An additional allowance of \$15 per week per dependent (to a maximum of four dependents),

and a travel allowance of four cents per mile for one round trip between the teacher's home and Ithaca (not to exceed \$80), are available.

For further information requests should be directed to Dr. Philip G. Johnson, Director, Research Participation for Teacher Training, 7 Stone Hall, Cornell University, Ithaca, New York.

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:

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

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

Considers the over-all problems of science and mathematics teaching in secondary schools and deals with the ways and means for initiating widespread improvement programs in schools and school systems. Special assistance from the visiting lecturers, the resident staff, and the supervisors and teachers. Guidance to groups and individuals who elect to work on special projects related to instruction.

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

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

Phys. A101. *TOPICS IN PRESENT-DAY PHYSICS*. (U,G) 3 hours credit. For a course description see Physics p. 52. One of the study groups will be restricted to Shell Merit Fellowship holders. Lecture, M 10-12. Study group, M T Th F 8-10. Film lecture, W 8-10. Mr. WHITNEY.

Phys. A109. *GENERAL PHYSICS LABORATORY*. (U,G) 1 hour credit. For a description of Physics A109 see Physics p. 52. Registration in a special section of Physics A109 will be restricted to Shell Merit Fellowship holders. This section will meet M T 2-4:30. Mr. WHITNEY.

CORNELL-COLUMBIA-HARVARD SUMMER FIELD STUDIES PROGRAM

An interuniversity program for advanced undergraduate students in which training is offered in the social sciences at foreign field stations. The purpose is to introduce advanced college students of any discipline to a foreign culture through supervised guidance and study under the direction of professional anthropologists. During the summer of 1960 there will be three parties of six students each, studying for approximately two and a half months in Mexico, Ecuador, and Peru. For completion of the course, a satisfactory paper must be presented by each student on his individual research in the field. Students for this program have already been selected for the summer of 1960, but the program will continue during the summer of 1961. Applications can be made to Professor Allan R. Holmberg, Department of Sociology and Anthropology, 229 Morrill Hall, Cornell University, Ithaca, N.Y. A limited number of scholarships were made available in 1960.

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

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INDEX

- Academic credit, 6
- Administration
 - educational, 28
 - personnel, 31
- Administrators' Conference, 29
- Admission, 4
 - to Graduate School, 12
- Adult education, 29
- Advanced degrees, 11
- Agricultural economics, 56
- Agricultural education, 56
- Agricultural engineering, 23, 56
- Agronomy, 57
- Animal husbandry, 57
- Anthropology, 53
- Application
 - for admission, 6
 - for Graduate School, 12
 - for rooms, 14
- Architecture, 57
- Art, 23
 - White Museum, 21
- Astronomy, 24
- Auditors, 6
 - tuition, 6
- Automobiles, 18
- Bacteriology, 24
- Biochemistry, 25
- Biology, 25
- Board, 13
- Botany, 25
- Cafeterias, 15, 20
- Calculus, 50
- Calendar, 3
 - weekly, 19
 - Willard Straight, 20
- Cancellation
 - of courses, 22
 - of registration, 9
- Change in registration fee, 8
- Chapel, 19
- Checks, cashing of, 10
- Chemistry, 26
 - engineering, 60
- Child development and family relationships, 42
- Choir, 19
- Citizenship education, five-year program, 38
- Classrooms, 22
- Clinic, 16
- Clothing and textiles, 46
- Concerts, 19
- Conduct and scholarship, 18
- Conservation, 27
- Contents, 2
- Cornell-Columbia-Harvard summer field studies program, 66
- Counseling services, 17
 - foreign students, 17
- Courses of instruction, 22
- Credit, 6
 - Cornell undergraduate, 7
 - for advanced degrees, 11
 - graduate, 7
 - non-Cornell undergraduate, 7
- Curriculum, 22
 - education, 38
- Dancing, 20
- Deposits, 9
 - Graduate School, 10
 - room, 15
- Development of human resources, 29
- Dining services, 15
- Dormitories, 13
- Drawing, 53
- Earth and Space Sciences Institute, 64
- Economics, 27
- Economics of the household and household management, 43
- Education, 28
 - advanced degrees in, 11
 - candidates in school of, 13
- Educational measurement, 30
- Elementary education, 31
- Engineering, 39, 58
 - civil engineering, 39
 - electrical engineering, 59

- industrial and engineering administration, 58
- industrial cooperative program, 57
- law, 39
- machine design, 58
- materials processing, 59
- mechanics, 39, 58
- mechanics and materials, 39, 58
- metallurgical engineering, 60
- thermal engineering, 59
- Engineering Industrial Cooperative Program, 58
- Engineering law, 39
- English, 40
- Examinations, 22
- Extension Education, 61
- Extracurricular activities, 19

- Faculty, 67
- Family relationships, 42
- Fees, 9, 10
- Films, 20
- Fine Arts, 24
- Food and nutrition, 43
- Foreign students, 17
- French, 49

- General Fee, 9
- Geometry, 50
- German, 49
- Golf, 21
- Government, 41
- Grades, 8
- Graduate School, 11
- Graduates, admission of, 5
- Guidance and personnel, 31

- Health services, 16
- High school programs
 - NSF Science Training, 64
 - Reading and study skills, 63
- History, 41
 - of education, 32
- Home Economics, 42
 - education, 32
- Hospital, 16
- Hotel administration, 63
- Household management, 43
- Housing, 13
 - men, 14
 - women, 13
 - application for, 14
 - married students, 14
 - off-campus, 15
- Housing and design, 44
 - 3-year sequence, 44
- Incomplete grade, 8
- Indonesian, 49
- Industrial and labor relations, 47
 - development of human resources, 29
 - special seminars, 48
- Infirmary, 16
- Institution management, 45
- Laboratory fees, 22
- Languages, 48
- Late registration fee, 10
- Lectures, 19
- Libraries, 17

- Map of campus, 36
 - key, 35
- Mathematics, 40, 50, 60
 - engineering, 40, 60
- Meals, 15
- Medical clinic, 16
- Mental health, 50
- Music, 51
 - recorded, 20

- National Science Foundation Programs, 64
 - Earth and Space Sciences Institute
 - Training Program for Secondary School Students
 - Teacher Research Participation
- Nature study, 33
- Noyes Lodge, 20
- Nutrition, 43

- Off-campus housing, 15
- Officers, 67
- Other programs, 56
 - Agricultural education, 56
 - Architecture, 57
 - Engineering industrial cooperative, 58
 - Extension education, 61
 - High school reading and study skills, 63
 - Hotel administration, 63
 - NSF institute for earth and space sciences, 64
 - NSF training program for secondary school students, 64
 - NSF research participation for teacher training, 64
 - Shell merit fellowship, 65
 - Cornell-Columbia-Harvard summer field studies, 66

- Painting, 23
- Personnel administration, 31
- Philosophy, 51
 - of education, 32
- Physics, 52, 60
 - engineering, 60
- Physiology, plant, 25
- Psychology, 52
 - educational, 30
- Reading and study skills, 63
- Recreation, 21
- Refunds
 - tuition, 9
 - dormitory deposit, 15
- Registration, 8
 - changes in, 8
 - in Graduate School, 12
- Religious services, 19
- Research (in education), 34
- Residential halls, 13
- Rural sociology, 53
- Russian, 49
- Schedules
 - class, 22
 - room, 22
 - examinations, 22
- Science education, 33
- Secondary education, 34
- Secondary school students training program (NSF), 64
- Shell science program, 65
- Social studies, five-year program, 38
- Sociology, 53
- Softball, 21
- Spanish, 49
- Special regulations, 18
- Special students, admission of, 5
- Speech and drama, 54
- Sports, 21
- Statistics, 30
- Student union, 20
- Summer field studies program, 66
- Supervision in education, 28
- Swimming, 21
- Taxonomy, 26
- Tennis, 21
- Textiles and clothing, 46
- Theatre, 20
- Tuition, 9
- Undergraduates, admission, 5
- Unit courses
 - agricultural economics, 56
 - agricultural education, 56
 - agricultural engineering, 56
 - agronomy, 57
 - chemistry, 26
 - description of, 22
 - extension education, 61
 - High school reading and study skills, 63
 - home economics education, 33
 - hotel administration, 63
 - housing and design, 51
 - institution management, 45
 - students, 6
 - tuition, 9
- Veterans, 11
- Vocational agriculture, 27
- Vocational guidance, 29
- Willard Straight Hall, 20
- Withdrawal, 9
- Zoology, 55

