



Cornell University

Announcements

Graduate School  
Social Sciences

1971-72

#### CORNELL UNIVERSITY ANNOUNCEMENTS

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The business office of the Graduate School and the Office of the Dean are in Sage Graduate Center. Office hours are 8:30 a.m. to 4:15 p.m., Monday through Friday. The office is closed on Saturday.

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## University Professors-at-Large

Professors-at-Large are distinguished nonresident members of the University faculty. During short visits to the campus, of up to a month's duration, made at irregular intervals, they hold seminars, give public lectures, and consult informally with students and faculty.

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The courses and curricula described in this *Announcement*, the teaching personnel listed therein, and the dates shown in the Graduate School Calendars are subject to change at any time by official action of Cornell University.

# Cornell University

## Graduate Education at Cornell

Graduate education at Cornell is based on the principle that no objective of a university lies deeper in its tradition or springs higher in its aspiration than does the nurture of scholarship. The advancement of learning, the methods of learning, and the criticism of learning occupy the highest reaches of university life and work. Graduate education brings into fruitful contact the most distinguished scholars and the most advanced students, that learning may be shared and that wisdom may be at least glimpsed.

The Graduate School provides an environment within which scholarly capability is encouraged to emerge, thrive, and transmit itself. The School arranges a set of conditions congenial to the student who is prepared to profit from the availability of advanced courses of study; the opportunity for sustained reflection; the companionship of active, full-time fellow students; the most highly developed libraries, laboratories, and other facilities for research; the prospect of independent discovery or recovery, of evaluation or revaluation; the daily presence of distinguished teachers; and the hope of attaining a firmly based structure of knowledge and a free and independent habit of judgment.

Freedom and independence are key qualities of scholarship, and graduate studies at Cornell are ordered so as to preserve them for both teacher and student. The Cornell principle is that scholars are begotten by other scholars, that judgments are formed by associating with the best judges, that learning lives in the unbroken succession of the learners and the learned, that genuine scholarship is always humane and rests ultimately on personal teaching and personal learning, that success in graduate studies must consist of satisfying the professor rather than a mute schedule of requirements. Graduate School standards are high, but they are maintained there not by the pronouncements of an office but rather by the men after whom such standards are themselves fashioned.

The Cornell graduate student selects not only the study he wishes to pursue, but also the scholar under whose tutelage he wishes to pursue it.

## 6 Admission

The candidate himself, no one else, makes the choice. Some candidates when they apply for admission have in mind the man or men with whom they wish to study. Those who do not are granted, under a temporary adviser, a semester in which to form an acquaintance and to come to a decision. The supervising professor is called the student's chairman. The chairman and his associate or associates, also chosen by the student, form the student's Special Committee. All such matters as the outlines of study, the observation of progress, the setting of general examinations, the conduct of the thesis, and other exercises leading to a graduate degree are determined within this small circle—the student and the professors he has selected to direct him. So successful is this arrangement and so strongly does Cornell believe in it, that the Special Committee enjoys extraordinary freedom and independence in conducting the student to his degree. The Graduate School sets no course requirement, no credit-hours requirement, no grade requirement. Within the broad agreements of the Graduate Faculty concerning residence, oral examinations, and thesis, the student will be recommended for his degree whenever his Special Committee judges him ready to receive it. When the Committee is satisfied, the requirements are.

The Cornell Graduate School has an enrollment of 3,500 students, and the Graduate Faculty consists of about 1,100 members. In contrast to many other graduate schools, approximately 98 percent of the students are full-time degree candidates, with the majority in programs leading to the Ph.D. degree.

The responsibility for administration of policies and procedures, including the general requirements, the establishment of Fields and subjects for study, admissions, and maintenance of records is placed in the hands of the dean and his staff under the guidance of the General Committee of the Graduate School. These matters are described in detail in *The Code of Legislation*, copies of which may be obtained by enrolled students from the Graduate School Office and which are also available for consultation in other academic and administrative offices of the University.

*The University expects that all graduate students at Cornell University shall, at all times, act with a mature and morally responsible attitude, recognizing the basic rules of society and the common rights of others.*

## Admission

*It is the policy of Cornell University actively to support the American ideal of equality of opportunity for all, and no student shall be denied admission or be otherwise discriminated against because of race, color, creed, religion, or national origin.*

Since instruction in the Graduate School is primarily individual, those interested in becoming students are encouraged to communicate with individual members of the faculty with whom they may want to study. Personal



interviews in advance of formal application for admission are especially encouraged. For the benefit of those who are not acquainted with appropriate members in the Field or Fields of their interest, each Field has selected a representative, as director of graduate studies, to whom inquiries may be addressed.

An applicant for admission to the Graduate School must (1) hold a baccalaureate degree granted by a faculty or university of recognized standing or have completed studies equivalent to those required for a baccalaureate degree at Cornell, (2) have adequate preparation for graduate study in his chosen field of instruction, (3) have fluent command of the English language, and (4) present evidence of promise in advanced study and research. Students from United States colleges and universities should be in the top third of their graduating class.

Applications for admission should be requested from the Graduate School, Sage Graduate Center, Cornell University, Ithaca, New York 14850. Two letters of recommendation should be sent from the applicant's major instructors. Official transcripts from all the institutions of higher learning attended and, where required, the Graduate Record Examinations or the Miller Analogies Test scores complete the application.

All applications from residents or citizens of the United States or Canada must be accompanied by a \$15 nonrefundable fee. Applicants from other countries who are accepted for admission must pay this fee before registration.

Fellowship and admission applicants are urged to take the Graduate Record Examinations (GRE) Aptitude (Verbal and Quantitative) Tests of the Educational Testing Service no later than December, and to have the scores sent to the Cornell Graduate School as part of their application materials. Information about the times and places of test administrations may be obtained directly from the Educational Testing Service, Princeton, New Jersey 08540. The Field listings, pp. 50 ff., should be consulted for Fields requiring the scores of both the Aptitude Test and the pertinent Advanced Test.

Foreign applicants whose native language is not English and who have received their secondary or advanced education in the English language should submit to the Graduate School a statement to this effect signed by a responsible officer of a United States Embassy or Consulate or by an appropriate official of the educational institution involved. If English has not been the medium of instruction, applicants must take the Test of English as a Foreign Language by arrangement with Educational Testing Service, Princeton, New Jersey 08540. This testing program is available throughout the world. The test is given four times a year; information on times and places may be obtained directly from the address given above. The test score must be reported directly by the testing organization to the Graduate School; since this test is diagnostic, no final action on applications will be taken until the scores have been received. Admission to those applicants whose scores indicate unsatisfactory command of English may be denied, or it may be made contingent upon evidence of improvement.

## 8 Degree Requirements

Many Fields will not accept new students for the spring term; applicants should check with the Field Representative about the Field's policy on spring admissions.

### Categories of Admission

**DEGREE PROGRAMS.** It is expected that most applicants for admission intend to pursue a program for an advanced degree. Applicants may specify candidacy for the Master of Arts or Master of Science or one of the professional Master's degrees listed on pp. 24–28. However, since Cornell has a strong commitment to doctoral work, most students are encouraged to enroll in a doctoral program. In some Fields, students registered in a doctoral program may be required to seek a Master's degree as an initial step in the program.

Only under unusual circumstances will anyone who already holds an advanced degree be permitted to apply for the same degree.

**PROVISIONAL CANDIDACY.** Under circumstances in which it is difficult to evaluate the academic background of qualified applicants, they may be admitted to *provisional* candidacy. Ordinarily only one semester of study in provisional candidacy is permitted, and the student who fails to qualify for candidacy at the end of that time may be requested to withdraw from the University.

**NONCANDIDACY.** When staff and facilities are available, the Graduate School will admit some applicants who do not intend to work toward an advanced degree at Cornell but who have special objectives for formal study or scholarly work at the graduate level, provided they satisfy all the entrance requirements expected of degree candidates. Registration in noncandidacy is restricted to two semesters.

**CHANGE OF STATUS.** A student who wishes to change his status from non-degree candidacy to regular candidacy or from one degree or Field to another, or who, after receiving the Master's degree, wishes to undertake candidacy for the doctorate, must submit to the Dean of the Graduate School a written request giving reasons for the proposed change. Provisional candidacy is automatically reviewed at the end of each semester; therefore, no letter is necessary.

## Degree Requirements

**THE SPECIAL COMMITTEE.** The general degree requirements of the Graduate School are kept at a minimum in order to give the student maximum flexibility in choosing a desirable program of studies. Since progress in graduate study depends so much on the individual student's situation, there are no course or grade requirements imposed by the Graduate School. The

student's program is developed with the aid and direction of a Special Committee chosen by the student and is designed to fit his specific needs and desires. Satisfactory progress toward the degree is judged solely by the Special Committee rather than by any arbitrary standards imposed by the Graduate School.

The Special Committee under which a Master of Arts or a Master of Science candidate carries on his work is composed of a chairman who represents the major subject, and one representative of an appropriate minor subject. The Special Committee of a doctoral student is composed of a chairman, representing the major subject, and two other members representing other areas of interest. The chairman of the Special Committee directs the student's thesis research. Some Fields require two minor subjects for doctoral programs while others require only one, but all Ph.D. Special Committees have three members.

The Field and the major subject, as well as the chairman of the Special Committee, are selected by the incoming student. It is his privilege to ask any member of the Graduate School Faculty in the Field of his major subject to serve as his chairman. The chairman in turn advises the student about minor subjects and faculty members who might represent them on his Special Committee. The choice of major and minor subjects and the formation of the Special Committee must be recorded in the Graduate School Office within two weeks of the beginning of residency. Since the student may be uncertain of his aspirations at that time, he is encouraged to change the membership of his Special Committee as his aims become more definite.

In some of the larger graduate Fields the difficulty in making a wise selection of a Committee is so great that the Field Representative or other faculty member may serve temporarily as the chairman while the student seeks a permanent chairman and Committee.

The members of the Special Committee direct the student's program and decide whether he is making satisfactory progress toward the degree. They conduct and report on oral examinations, and they approve the thesis. The Committee and the student constitute an independent working unit. All members of the Graduate School Faculty, however, are free to participate in the scheduled examinations and review the theses of candidates for degrees.

The organization of the Graduate School at Cornell is based on a concept of fields of study independent of colleges and departments. It is thus possible for a graduate student to take courses in any division of the University and to choose major and minor subjects without regard to organizational lines.

**RESIDENCE.** The Graduate faculty regards study in residence as essential. Although a person working off campus may attain proficiency in a technique or even in a field of knowledge, he may fail in other ways to attain the breadth of knowledge necessary for scholarly work. In addition to contact with the libraries and physical facilities of the University, he needs the daily acquaintance, company, aid, and stimulus of others engaged in similar pursuits. He should form the habit of attending lectures, seminars, and meetings of groups in whose activities he takes interest.

## 10 Degree Requirements

Full-time study for one semester with satisfactory accomplishment constitutes one residence unit. The Graduate School Faculty requires that each candidate for a Master's degree earn two units of residence, and for the Ph.D. degree, six units of residence. However, a longer time is generally required to obtain the degree.

A student must complete all the requirements for the Master's degree in four years and for a doctoral degree in seven years from date of first registration in the Graduate School.

A student in a doctoral program may earn no more than two units, and a student in a Master's program no more than one, for work done in Summer Research, Summer Session, and the Division of Extramural Courses. At least four of the six units required for the Ph.D. degree must be earned as a full-time student, earning three-quarters of a residence unit or more each term, and two of the last four units must be earned in successive terms of full-time study on the Cornell campus.

*Transfer of Residence.* Candidates for the Master's degree may not count study in other graduate schools as part of their residence. Candidates for the doctorate may be permitted to count study for the Master's degree as equivalent to two residence units if it is relevant to their doctoral program; those who have received training of an exceptional quality and amount may petition for more. No commitment regarding this may be made until after the student has entered into residence and his Special Committee has had opportunity to judge his accomplishments. The residence transferred must not exceed that which would have been earned under similar circumstances at Cornell. Credits for study as an undergraduate or as a special student, even in courses designed primarily or wholly for graduate students, will not be allowed.

*Summer Session.* To receive residence credit for the Summer Session, the candidate must register in both the Summer Session and the Graduate School and must file a statement of courses satisfactory to his Special Committee. A student may, with his Special Committee's prior approval, earn one-half of a residence unit by completing eight hours or more of credit in the eight-week session, or two-fifths of a unit for six hours or more in the six-week session, but no more than two units in a twelve-month period.

Requirements for Master's degrees may, upon advanced approval of the General Committee, be completed solely during the summer period if instruction in the chosen major and minor subjects is offered. Residence may be transferred for study during one Summer Session preceding matriculation in the Graduate School if this study is an integral part of the graduate program subsequently undertaken, and if the transfer is recommended by the student's Special Committee and approved by the dean of the Graduate School.

*Summer Research.* To encourage students to continue their studies during the summer period, no tuition or fees are charged for Summer Research if the student has been registered during the previous academic year. Substantial funds are also available for Summer Research assistantship support.

The student has access to the regular services of the University Clinic and Infirmary during the summer with charge if he has been registered as a full-time student during the previous academic term and is registered for Summer Research on a non credit basis. Under certain conditions, students may also accumulate residence credit in Summer Research.

*Part-Time Studies.* Essentially, all graduate students at Cornell are full-time students. If employment is necessary, students may hold positions requiring up to ten hours of work per week without reduction of residence credit. Teaching fellows and research assistants whose duties require up to twenty hours a week can obtain full residence credit.

Part-time employees are eligible for residence units as follows.

Employment	Residence Units Allowable per Semester		
	<i>Contributory in the major field of study and on campus</i>	<i>Noncontributory but on campus</i>	<i>Off campus</i>
<i>Total clock hours per week</i>			
0-10 hours	1 unit	1 unit	1 unit
11-20 hours	1 unit	$\frac{3}{4}$ unit	$\frac{3}{4}$ unit
21-30 hours	$\frac{3}{4}$ unit	$\frac{1}{2}$ unit	(See below)

Those employed for more than twenty clock hours per week off campus, or more than thirty clock hours per week under any circumstances, may earn a maximum of two-fifths of a residence unit per semester through registration in the Division of Extramural Courses, but this will be permitted only on the basis of petition approved prior to the time that the work is undertaken.

Students enrolled in the Division of Extramural Courses are not legally graduate students.

To accumulate residence units for course work completed through the Division of Extramural Courses, fifteen credit hours are the equivalent of one residence unit, and six credit hours the equivalent of two-fifths of a unit—the smallest fraction that will be recorded by the Graduate School toward fulfillment of residence requirements. Detailed information concerning extramural courses and registration procedures may be obtained from the Division of Extramural Courses, B-20 Ives Hall.

**EXAMINATIONS.** The Special Committee conducts the examinations required for the degree. At the discretion of the Special Committee these examinations may be entirely oral or both oral and written.

For the Master's degree a final examination is required, which under certain conditions may be combined with the admission to (Ph.D.) candidacy examination.

For the doctoral degree: (1) A comprehensive admission to candidacy examination for formal admission to doctoral candidacy is required. This examination may not be taken until two units of residence credit have been

## 12 Degree Requirements

accumulated; it must be attempted before the beginning of the student's seventh unit of residence. Two units of residence must be credited after this examination; (2) A final examination, given after completion of the doctoral dissertation and covering subject matter related to the dissertation topic, is also required.

In some Fields a qualifying examination is given at an early date to determine the student's fitness for advanced study and to help the Special Committee plan his program.

In Fields that so desire, the Special Committee may, after the admission to candidacy examination has been taken, nominate the student for a Master's degree without the requirement of a thesis whether or not admission to candidacy for the Ph.D. has been approved. The degree would be awarded after the completion of four units of residence.

**FOREIGN LANGUAGE REQUIREMENTS.** Each Field has its own foreign language requirements which it considers most useful to the particular area of study. Any Special Committee may, at its discretion, require knowledge of foreign languages beyond the announced requirements.

Candidates required by the Field or their Special Committee to demonstrate reading ability in a foreign language should find out from their Special Committee chairman how the requirement is to be satisfied. The method required is up to the Field or the Special Committee but typically could be a Field-administered examination, a passing grade in a specified language course, a passing score on either the Educational Testing Service Graduate School Foreign Language Tests or the College Entrance Examination Board language tests, or in case of the more unusual languages, an examination given by a faculty member of the Division of Modern Languages.

A student may petition the dean to transfer a language examination taken elsewhere to his record at Cornell.

Courses designed to aid graduate students in learning how to read French, German, Russian, and Spanish are given by the Division of Modern Languages in cooperation with the Graduate School Faculty.

**THESIS.** Candidates for the degree of Master of Arts or Master of Science are required to submit a thesis in fulfillment of the requirements for the degree (except as stated on p. 12). Some Fields also require a thesis for professional Master's degrees. Candidates for the doctoral degree must complete a thesis which constitutes an imaginative contribution to knowledge. The faculty requires publication of Ph.D. theses by abstract or microfilm.

## Financial Support

Extensive financial resources are available to Cornell graduate students to help them defray the cost of their education. Currently, approximately 3,100 of the 3,500 graduate students receive financial aid in the form of fellowships, teaching assistantships, and research assistantships. But the amount of support available from outside the University is contracting sharply, so that the number of students with fellowships or assistantships is expected to decrease.

In most cases the stipends awarded to graduate students are not high enough to cover living expenses completely. A great deal depends on the level of subsistence to which the individual has become accustomed and the sacrifices that he is willing to make for his education. Experience has shown that married students with dependent children have particular financial difficulties. The minimum subsistence income which such students need is about \$4,000 plus tuition and the General Fee per academic year. Since stipends are frequently lower than this figure, it may be necessary for the student to find other sources of supplementary income, such as loans, in order to complete his studies.

Since the demands of graduate study are so great, students are discouraged from trying to support themselves by unrelated employment.

No special forms are available for financial aid. The applicant should check the type or types of appointment for which he wishes to be considered on the application for admission form.

**TEACHING FELLOWSHIPS.** The duties of a teaching fellow normally involve classroom and laboratory instruction of undergraduates and, as such, play a major role in the educational process and the academic atmosphere of the University. Since a large majority of Cornell's graduate students eventually seeks a career in teaching, the experience gained from these appointments is an invaluable part of the student's development. In most Fields students are encouraged to spend some time in teaching, and in some Fields the faculty believe the experience so important that they require it of all students in doctoral programs. An appointment as a teaching fellow is usually in the student's major Field or in one that is closely related. The duties require from ten to twenty total clock hours of the student's time a week, depending on the Field. A teaching fellow whose duties are in his major Field of interest and do not exceed twenty hours is eligible for full residence credit. Salary for a fifteen-hour week will be \$2,700 with a slightly higher amount for longer hours, supplemented by a fellowship which covers tuition and the General Fee. Because of possible problems in communication with undergraduates, applicants from non-English-speaking countries are not normally appointed as teaching fellows in their first year at Cornell. Teaching appointments are made by department chairmen. Applications for these positions should be made to the Field Representative of the Field offering the major subject of interest to the student.

**RESEARCH ASSISTANTSHIPS.** The duties of a research assistant involve work on a research project. The work performed is frequently applicable to

## 14 Financial Support

the student's thesis research and is under the direction of the chairman of his Special Committee. The student is required to spend twenty hours a week, but if the research is in the Field of his major interest he can earn full-time residence credit. In many Fields of study such appointments are normally made after completion of at least one year of graduate study.

**FELLOWSHIPS.** A fellowship ordinarily is awarded in open competition to a full-time student who is a candidate for a higher degree (usually a Ph.D.), primarily on the basis of scholastic ability and promise of achievement as a graduate student. The award is made as a tax-exempt gift, and it usually not only covers tuition and the General Fee but also may provide a substantial stipend for living expenses during tenure. Because of the competition for a decreasing amount of funds, the inclusion of financial need criteria is currently under consideration. A student who holds a fellowship is free to select his own research project, subject to the approval of his Special Committee, and his primary responsibility is to pursue his studies for his degree. The award of the fellowship does not obligate the holder to render services to the University, except that in certain fields some teaching is required of all graduate students for the sake of experience and training, nor is the holder of a fellowship committed in any way with respect to future employment. The holder of a fellowship may accept no other appointment or employment without permission of the Cornell Graduate Fellowship Board; however, teaching responsibilities will usually be approved as a routine matter if they contribute to the student's graduate program and do not exceed ten clock hours of work per week.

More than 450 fellowships are under the direct supervision of the Fellowship Board or of academic units of Cornell. The range of stipend (in addition to tuition and the General Fee and, in some cases, dependency allowances) for different categories of fellowships available to first-year students is indicated below.

Cornell Andrew D. White Fellowships—\$2,500–\$3,000

Cornell Graduate Fellowships—\$2,000

Cornell Fellowships from Special Endowments—\$1,000–\$2,000

Industrial Fellowships—\$1,500–\$2,500

Many other fellowships are offered to students majoring in certain Fields of study, and some of these are noted in the descriptions of the Fields.

Many private and federally supported fellowships are also administered by the Graduate School. National Science Foundation Traineeships, as well as National Defense Education Act (NDEA) Title IV Fellowships, are available to United States citizens. The application deadline for these is February 1 for the following academic year; candidates for these fellowships are nominated by the Field, having been chosen from among those students applying. NDEA Title IV Fellowships offer three years of support to doctoral students who intend to enter a teaching career. (Since completion of a Ph.D. program at Cornell normally requires four years, and because the program is aimed at prospective teachers, NDEA Fellows are normally expected to gain teaching experience and have support during one of the years as teaching fellows.)



The purpose of the NDEA Title VI (NDFL) Fellowship program is to encourage individuals taking advanced training in languages and in associated area studies designated as being of critical importance to the United States. (For area studies, see pp. 31-40.) Applicants who are interested in NDFL Fellowship support must so indicate when requesting their application materials for admission. National Institutes of Health Traineeships are available and are offered by Fields which have been awarded such grants.

A space is provided on the admission application form in which the student may indicate the type of support for which he wishes to be considered. There is no special fellowship application form.

Prospective graduate students should also consider applying for fellowships awarded on a national basis by the National Science Foundation, the Atomic Energy Commission, the Woodrow Wilson National Fellowship Foundation, and the Ford Foundation. These programs have deadlines for applications, some as early as December 1. Applicants should check on the date pertinent to the fellowship. In some cases it is possible for winners of NSF and AEC awards to hold half-time appointments as teaching fellows for an additional stipend.

New York State provides several forms of financial support. The Herbert H. Lehman Fellowship program is open to applicants from all states whose interests are in social sciences or public or international affairs. These Fellowships are awarded on a competitive basis and may be used only in New York State institutions; they provide each recipient with \$4,000 for the first year of graduate study and \$5,000 for each subsequent year. New York State residents are eligible for Regents College Teaching Fellowships or Regents Fellowships for Doctoral Study in Arts, Science, and Engineering. Applications for these must be made by December 1 on forms obtained from the Regents Examination and Scholarship Center, New York State Education Department, Albany, New York 12224.

As agreed upon by some of the members of the Council of Graduate Schools in the United States, the regular time for notification of award from Cornell of fellowships and scholarships for the succeeding academic year is April 1. *All fellowship and scholarship applications received by February 1 will be considered for April awards*, and every effort will be made to notify each applicant approved for award no later than April 6 as to whether he has a fellowship or is named as an alternate. It is hoped that the awardees will notify the Graduate School no later than April 15 of their acceptance or rejection of the award; failure to do so will be considered a declination. Applications received after February 1 will be considered only if vacancies occur.

**MINORITY GROUP FELLOWSHIPS.** Recently the Fellowship Board has awarded a number of fellowships to applicants from minority groups who were not awarded support through the regular channels (regular fellowships, traineeships, teaching and research assistantships, etc.). The student does not apply for these fellowships directly, but is nominated by the Field to which he was admitted if the Field finds that the student cannot be offered support from the other sources mentioned above.

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RESIDENCE HALL ASSISTANTSHIPS are available for single or married men and women graduate students in any academic field. These positions are most appropriate for students who desire experience in working with undergraduate students and University staff while contributing financially to their own study.

There are approximately twenty-five resident positions available. Remuneration includes payment of one-half tuition and full fees plus a board supplement and stipend which varies according to responsibilities. Details about the assistantships and application forms may be obtained from the Office of the Dean of Students, 133 Day Hall. A personal interview is required of all applicants. Applications must be completed by February 1, 1971.

PRIZES. Several University prizes are open for competition to all students, including graduate students. The Committee on Prizes of the University faculty publishes an *Announcement of Prize Competitions*, which may be obtained from the Visitor Information Center, Day Hall.

Two prizes are open exclusively to graduate students:

*The Guilford Essay Prize.* Until at least 1971 a special prize of \$120 will be assigned annually to that graduate student who, in the judgment of the Graduate Faculty, writes the best English prose. Each competitor must submit, at or before 4:30 p.m. of the last Monday in November, specimens of his English prose, preferably prepared as a normal part of his training in candidacy for an advanced degree.

*The Philosophy Prize.* A prize of \$50 is awarded to the graduate student who submits the best paper embodying the results of research in the Field of Philosophy. The subject of the paper may be historical or critical or constructive. It may be concerned either with problems of pure philosophy or with the philosophical bearing of the concepts and methods of the sciences. Papers must be submitted on or before the first day of May.

Papers submitted in competition for either prize must be typewritten on bond paper (a clean *ribbon* copy), double-spaced, at least 1,500 and not more than 5,000 words in length, and signed with an assumed name, the real name and address of the competitor being enclosed in a sealed envelope, superscribed with the assumed name. They are to be deposited in the Office of the Graduate School. A student may not submit more than one paper.

LOANS. Applications for National Defense and University loans are available at the Office of Scholarships and Financial Aid, 105 Day Hall.

Increasingly the University is referring both undergraduate and graduate students to their state loan program sponsored under a federal program. Applications for this program can generally be obtained from the student's home bank.

Only graduate students duly registered in a degree-granting program are eligible for loans. Provisional or noncandidate students are not eligible.

The application date for National Defense and University loans is the mid-April prior to the student's September matriculation.

**PART-TIME EMPLOYMENT.** Opportunities for part-time work are often available in connection with departmental research projects or other activities. Applications for this type of work should be made directly to the department concerned. A candidate may find employment in research or other work closely allied to his academic interest valuable. On the other hand, progress in candidacy is difficult when a student attempts to support himself wholly or partially by work unrelated to his studies. It usually is sounder economy to borrow from the Office of Scholarships and Financial Aid and keep employment to a minimum. However, the University maintains a part-time employment service in that office.

**EMPLOYMENT FOR WIVES OF STUDENTS.** Cornell University offers many nonacademic positions for working wives through the Personnel Department, B-12 Ives Hall. Types of work include secretarial and clerical work, work for technicians in the various laboratories, library work, limited nursing positions, and some administrative positions. Applications may be made through the Personnel Department upon arrival on campus. Applications for academic positions should apply to the specific departments in which they are interested.

In addition to the University positions, the Ithaca area offers opportunities for similar positions in small industrial plants, at Ithaca College, the local hospital, and various businesses, as well as for teaching positions in the public school system and some professional positions in service agencies. Applicants should go to the New York State Employment Office for further information regarding these opportunities.

## General Information

**COURSES AND GRADES.** The Graduate School is not a course-offering agency. Therefore, students wishing information about courses or grades should inquire at the Office of the Registrar. However, the Graduate Faculty has ruled that a course may not be dropped or changed from credit to audit after the tenth week of classes.

**ACTIVITIES FOR GRADUATE STUDENTS.** Cornell students enjoy the advantages of a small academic community while having access to many cultural events that rival those of any large city. Lectures, movies, dramatic productions, special art exhibitions, and concerts fill the University's weekly calendar. The Bailey Hall Concert Series brings internationally famous artists and orchestras to Ithaca.

Many graduate students participate with undergraduates in extracurricular activities such as intramural sports, Glee Club, Sage Chapel Choir, publications, music, and folk dancing. A Graduate Student Activities Committee is active in scheduling weekly social events. A Graduate Wives' Club has had a long tradition of activity for the wives of graduate students. Willard Straight Hall and the Sage Graduate Center provide facilities for graduate groups and aid in planning special functions for them.

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Cornell United Religious Work (CURW) includes a range of activities for graduate students. Its offices are in Anabel Taylor Hall, which serves as headquarters for chaplains who represent several denominations and who may be consulted by students.

Cornell's location in the Finger Lakes Region of New York State encourages outdoor activity. Many swimming and boating facilities are available. In addition, Cornell operates a private eighteen-hole golf course; indoor and outdoor swimming facilities; an indoor skating rink; tennis, handball, and squash courts; a gymnasium; and riding stables. Several ski resorts also operate nearby.

Many Fields sponsor weekly seminars for their faculty and graduate students.

**COUNSELING.** The University maintains a variety of counseling services available to graduate students. A student's primary academic counselors are the members of his Special Committee. Other counselors who are able to help in matters of various kinds will be found in the Office of the Dean of Students, the Office of Scholarships and Financial Aid, the International Student Office, the Gannett Medical Clinic, and the Sage Graduate Center.

**INTERNATIONAL STUDENTS.** Cornell has, since its founding, welcomed students from abroad. Currently about 1,100 foreign students representing ninety countries are pursuing study in a variety of fields.

In addition, each year more than one hundred faculty members spend some time abroad in study and research, often in close association with foreign universities. This creates within the University community opportunities for students from other countries to meet and exchange ideas with members of the Cornell faculty who have firsthand knowledge of several countries and understand and appreciate a variety of cultures.

Special programs within the Graduate School permit study in depth of particular areas such as Africa, Asia, Southeast Asia, Latin America, and the Near East (see p. 31 ff.) Students from these areas have an opportunity to contribute to such programs.

A group of Cornell faculty and Ithaca families maintain a Host Family Program, in which foreign students are invited to share in some aspects of American family life in the Ithaca community. Because the University population is a varied one, the community itself, although not large, tends to have a more cosmopolitan atmosphere than most other small cities, and the student can usually find an outlet for a wide variety of interests. Tours of the community are conducted at the beginning of the fall semester.

The University maintains an International Student Office at 142 Day Hall. Students from abroad are asked to report to this Office upon arriving in Ithaca and are invited to consult the staff on any questions they may have. The Office works in close association with academic advisers and sponsors, and also with persons involved in a number of student and community programs in efforts to enrich the international and cultural life of Cornell.

**HEALTH REQUIREMENTS ON ENTRANCE.** The following health requirements for entering graduate students have been adopted by the Board of Trustees of Cornell University. The responsibility for fulfilling these require-

ments rests upon the student; failure to do so may result in loss of the privilege of registering the following term.

***Immunization.*** A satisfactory certificate of immunization against smallpox, on the form supplied by the University, must be submitted before registration. It will be accepted as satisfactory only if it certifies that within the last three years a successful vaccination has been performed. If this requirement cannot be fulfilled by the student's home physician, opportunity for immunization will be offered by the Cornell medical staff during the student's first semester, with the cost to be borne by the student. If a student has been absent from the University for more than three years, immunity will be considered to have lapsed and a certificate of revaccination must be submitted.

The University Health Services strongly recommend that all graduate students be immunized against tetanus before entering the University. Students may, however, obtain initial and all booster tetanus toxoid immunizations at the Gannett Clinic for a nominal charge.

***Health History.*** Graduate students, when accepted, must submit *health histories* on forms supplied by the University. These should be returned promptly to the Gannett Medical Clinic. A University physician will review the material before it becomes part of the student's permanent health record. All information given is confidential. After arrival at Cornell, if the medical history indicates a need, a student will be given an appointment to consult a physician at the Clinic. When a student has been away from the University for more than a year, he must, upon reentrance, submit an interim health history on a University form.

***X Ray.*** Every student is required to have a chest x ray. Opportunity to satisfy this requirement is given during the student's first week on campus. The cost of the x-ray examination is included in the General Fee. When a student who has been away from the University for more than a year wishes to re-enter, he must, at his own expense, once more fulfill the chest x-ray requirement.

**HEALTH SERVICES AND MEDICAL CARE.** Health services and medical care for students are centered in two Cornell facilities: the Gannett Medical Clinic (outpatient department) and the Sage Infirmary.

Students are entitled to unlimited visits at the Clinic. Appointments with individual doctors at the Clinic may be made by calling or going there in person. (An acutely ill student will be seen promptly whether he has an appointment or not.) Students are also entitled to laboratory and x-ray examinations indicated for diagnosis and treatment, hospitalization in the Sage Infirmary with medical care for a maximum of fourteen days each term, and emergency surgical care.

On a voluntary basis, insurance is available to supplement the services provided by the General Fee. For further details see the *Announcement of General Information*. If, in the opinion of the University authorities, the student's health makes it unwise for him to remain in the University, he may be required to withdraw.

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If a student prefers to consult a private physician rather than go to the Clinic, or to have the services of a private doctor while a patient in Sage Infirmary, he must bear the cost of these services.

**LIVING ARRANGEMENTS.** For information about and applications for the University housing described below, write to the Department of Housing and Dining Services, 223 Day Hall.

*Dormitory Accommodations.* The University has established Sage Graduate Center as a graduate residential center. Its dormitory facilities accommodate approximately 75 men in the north side of the building and 115 women in the south side. The Graduate Center, which is available for use by graduate students and faculty, also contains a cafeteria seating 200, study rooms, and lounges. In addition, Cascadilla Hall has accommodations for approximately 160 men and women.

*Family Accommodations.* The University has three apartment developments for married students and their families. They are Cornell Quarters, Pleasant Grove Apartments, and Hasbrouck Apartments, with housing for a total of 420 families. All apartments are unfurnished.

*Off-Campus Housing.* The Department of Housing and Dining also maintains files of voluntarily listed accommodations for use of students and staff members who call at the office. Because the list of available accommodations is constantly changing, it is not practical to mail listings, nor is it feasible to maintain a waiting list of persons seeking accommodations.

**MOTOR VEHICLES.** The University does not encourage student use of motor vehicles but recognizes that in certain cases there may be important reasons why a student needs a motor vehicle. University regulations apply to all types of motor vehicles, including automobiles, motorcycles, motor bikes, and motor scooters.

Every Cornell University student who owns, maintains, or for his or her own benefit operates a motor vehicle in Tompkins County while the University is in session must register that vehicle with the Board on Traffic Control, unless such vehicle is currently registered with the Board on Traffic Control.

All students required to register motor vehicles must do so within the time designated for academic registration at the beginning of the fall term or the beginning of the Summer Session. Students who enter the University at the beginning of the spring term must register upon entering. Students who re-enter the University after a period of absence must register upon reentering. Students who do not own, maintain, or operate motor vehicles which must be registered at one of these times but who later acquire a vehicle or otherwise become subject to registration requirements must complete their vehicle registration within five days after becoming so subject.

The following requirements must be met for vehicle registration:

- (1) The applicant must be legally qualified to operate a motor vehicle in New York State.

(2) The vehicle must be registered in New York State or in some other state or jurisdiction that qualifies it for legal operation in the state of New York.

(3) The owner of the vehicle must be covered by effective public liability insurance in the minimum amounts of \$10,000–\$20,000 for personal injury and \$5,000 for property damage. Such insurance must cover any liability incurred while the vehicle is driven either by the registrant or by someone with the registrant's explicit or implicit permission. If at any time such insurance lapses or ceases to be fully effective, the registration of the vehicle shall be automatically cancelled.

(4) There must be no unpaid University-imposed parking fines outstanding against the applicant or the vehicle to be registered.

No vehicle may be parked on the grounds of the University without valid registration and without displaying an appropriate registration and parking permit, as explained in *Regulations Governing Motor Vehicles*, unless the vehicle is not subject to such registration and is parked at a parking meter, parked in a parking area designated for visitors, or has the prior approval of the Board on Traffic Control or its authorized representative.

The student vehicle registration sticker is not a parking permit. Except for those holding parking permits, no student shall park his motor vehicle on the grounds of the University during the hours from 8:00 a.m. to 5:00 p.m. Monday through Friday or from 8:00 a.m. to 1:00 p.m. on Saturdays (except in posted unrestricted time zones and/or unrestricted metered parking spaces).

The student's registration in the University is held to constitute an agreement on his part that he will abide by all its rules and regulations with regard to traffic and parking or suffer the penalty prescribed for any violation of them.

For more detailed information regarding motor vehicle regulations, see the brochure *Regulations Governing Motor Vehicles*, available from the Division of Safety and Security in Barton Hall. Correspondence regarding motor vehicles should be addressed to the Board on Traffic Control, G-2 Barton Hall.

**CAREER, SUMMER PLANS, AND PLACEMENT CENTER.** The Career, Summer Plans, and Placement Center at 14 East Avenue is a clearing house for jobs in business, industry, government, and teaching, as well as for study programs leading to the professions. It serves as an information center for careers, teacher placement, fellowships, techniques of job hunting, and summer experiences (work, study, travel, service projects). More than a thousand recruiters visit the campus each year representing employers and graduate schools. Students and faculty may keep up to date on the activities of the Center by registering to receive its *Newsletter*. Alumni may be served by either the *Job Bulletin* or the *Registrants Available Bulletin*. Through the support and cooperation of the Cornell Club of New York and the Cornell Society of Engineers, a placement office is maintained in New York City primarily for alumni living in that area.

## Tuition and Fees

Tuition and fees\* become due when the student registers. Any student who fails to pay his tuition, fees, and other indebtedness to the University at the Treasurer's Office within the prescribed period of grace will be dropped from the University unless the treasurer has granted him an extension of time to complete payment. The treasurer is permitted to grant such an extension when, in his judgment, the circumstances of a particular case warrant his doing so. For any such extension the student is charged a fee of \$5. A reinstatement fee of \$10 is assessed against any student who is permitted to continue or return to classes after being dropped from the University for default in payments. The assessment may be waived in any instance for reasons satisfactory to the treasurer and the registrar when such reasons are set forth in a written statement.

Students registering at any time during the last ten weeks of any term are required to pay tuition at the rate of 10 percent of the regular tuition of the term for each week or fraction of a week between the day of registration and the last examination day of the term.

*Tuition or fees may be changed by the trustees at any time without previous notice.*

**REGISTRATION DEPOSIT.** Every applicant for admission must make a deposit of \$35 after receiving notice of acceptance, unless he has previously matriculated as a student at Cornell University. This deposit is used at the time of first registration to pay the matriculation fee, chest x ray, and examination-book charge, and covers certain expenses incidental to graduation if the student receives a degree. The deposit will not be refunded to any candidate who withdraws his application after May 10 or more than fifteen days after his admission approval. This fee is *not* covered by University fellowships, scholarships, or assistantships.

**TUITION.** Tuition is \$200 a term for all students registered in the Graduate School (1) whose major chairman is on the faculty of the statutory division† of the University or (2) who are enrolled in a Master of Arts in Teaching program. Those with major work in the School of Nutrition, the Field of Education, and the Division of Biological Sciences also pay \$200 a term. All students in other divisions must pay tuition of \$1,010 a term. Tuition is payable at the beginning of each term.

Upon recommendation by the appropriate college dean and by action of the controller, a student who is a teaching or research assistant in one of the statutory schools or colleges may obtain waiver of tuition in the Graduate School if his major field of study is in a statutory school or college.

Assistants in statutory schools or colleges who are on twelve-month appointments and who are registered for Summer Research for credit in the

\* All statements in this section are prepared by the University treasurer, who alone is authorized to interpret them.

† The statutory divisions are the Veterinary College, the Colleges of Agriculture and Human Ecology, and the School of Industrial and Labor Relations.



Graduate School may be recommended for waiver of tuition during the summer period under the above limitations. This waiver of tuition does not apply if the student registers in the Summer Session or is not doing productive work for the department.

Any student who is to receive less than full residence credit because of his employment should apply for proration of tuition on forms procurable at the Graduate School Office. *Tuition is based on residence eligibility.* See p. 11.

**GENERAL FEE.** A fee of \$312.50, payable at the beginning of each term, is required of each student registered in the Graduate School whose major chairman is on the faculty of one of the statutory divisions, the School of Nutrition, the Field of Education, or the Division of Biological Sciences. All others pay a fee of \$290. This General Fee contributes toward the services supplied by the libraries, Clinic and Infirmary, and the student union in Willard Straight Hall, and pays a portion of the extra cost of laboratory courses and general administration.

A student who is regularly registered in the Graduate School for either one or both terms of the academic year and has paid the above fee is entitled to these services while in residence during the summer immediately following the academic year without payment of an additional General Fee. If such a student registers with the University during the summer, he is liable for payment of any tuition and other fees, and must present his ID card at the time of payment of these charges in order to claim exemption from payment of the General Fee.

A graduate student who returns to the University to present his thesis and to take the final examination for an advanced degree, all other work for that degree having been previously completed, must register as a "Candidate for Degree Only" and pay a fee of \$35.

**THESIS FEE.** Each doctoral candidate must pay \$30 when he deposits the approved thesis and abstract in final form. This fee covers the cost of preparing a master microfilm of the entire thesis; of publishing the abstract in the bimonthly periodical *Dissertation Abstracts*; of mailing the microfilm and abstract to the microfilm publisher; and of binding both copies of the thesis for deposit in the University Library.

**LIMITED REFUNDS.** Part of the tuition and General Fee will be refunded to students who officially withdraw or take a leave of absence during the first nine weeks of a term. A student arranges for a leave of absence or withdrawal at the Graduate School Office. Students who withdraw are charged tuition and the General Fee at the rate of 10 percent for each week or fraction of a week from registration to the effective date of withdrawal. No charge is made if the student begins his leave of absence or withdraws within six days of registration. No part of the registration or matriculation fee is refundable.

**SUMMER SESSION.** Graduate students who attend classes in the Summer Session must register both in the Graduate School and in the Summer Ses-

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sion; they must pay the tuition and fees listed in the *Announcement of the Summer Session*.

**SUMMER RESEARCH.** Students registered for Summer Research pay one-half of the General Fee for a registration period of not more than eight weeks and the full fee for a longer registration period unless they were regularly registered in the Graduate School during the previous academic year. For those students eligible for and desiring residence, a prorated tuition is charged in accordance with the fraction of a residence unit to be earned, based on the tuition in effect for the subsequent academic term.

**IN ABSENTIA.** A graduate student registered *in absentia* will pay a fee of \$35 each term.

**Advanced Professional Degrees**

Advanced professional degrees are designed as preparations and training for a special profession.\* The admissions, requirements, and curricula for such degrees, as approved by the Graduate Faculty, are announced by the faculty of a professional school or college, which, for this purpose, acts as a Division of the Graduate Faculty. Degrees are awarded upon recommendation of the Division to the Graduate Faculty. Detailed information regarding admission or academic requirements for any professional degree is included in the *Announcement* of the separate school or college in which the degree is offered. Inquiries addressed to the Graduate School will be forwarded to the proper official. The professional degrees listed below are approved by the Graduate Faculty.

**Agriculture**

**MASTER OF AGRICULTURE (M.Agr.).** This degree is intended for professional agriculturists seeking opportunity to study in depth some subject or problem which is pertinent to their profession. Detailed information may be obtained from Director Herbert L. Everett, 192 Roberts Hall.

**Architecture, Fine Arts, City and Regional Planning**

The following three degrees are administered by the Division of Architecture, Art, and Planning of the Graduate School. Inquiries should be addressed to the listed professor.

\* The following are advanced degrees which are also first degrees of a school or college and therefore are not subject to the jurisdiction of the Graduate Faculty. For information regarding them, address the school or college indicated.

Master of Engineering (Aerospace) .....	Graduate School of Aerospace Engineering
Master of Business Administration .....	Graduate School of Business and Public Administration
Master of Public Administration .....	
Doctor of Law .....	Law School
Doctor of Medicine .....	Medical College, New York City
Doctor of Veterinary Medicine .....	Veterinary College

For more detailed information on these degrees, as well as those in architectural structures, architectural history, and art, see also the *Announcement of the Graduate School: Humanities*.

**MASTER OF ARCHITECTURE (M.Arch.).** Training in urban design. Only graduates of a five-year professional program in architecture or graduates of a program in city planning or landscape architecture are admitted as candidates. (Professor Colin Rowe.)

**MASTER OF FINE ARTS (M.F.A.).** Advanced training in the practice of painting, sculpture, or graphic arts. (Professor Jason Seley.)

**MASTER OF REGIONAL PLANNING (M.R.P.).** Training for a professional career in the field of city planning or regional planning. (Professor Kermit C. Parsons.)

## Communication Arts

**MASTER OF COMMUNICATION ARTS (M.C.A.).** The focus of this program is more on the *strategic application* of communication knowledge and technology than on technical competence in media operation. The curriculum is designed for those students who wish to work with agencies in which organized public communication is a key concern. Emphasis is placed on three key elements: (1) analysis of what is known about the communication process, (2) exploration of the potential of current and new communication techniques and technology, and (3) application of the first two elements to specific communication problems.

## Education

Two professional degrees are administered by the Field of Education of the Graduate School. The programs leading to each of the degrees include courses, seminars, projects, and investigations that will develop the student's ability to perform acceptably the professional duties required of the several types of educational specialization.

**MASTER OF ARTS IN TEACHING (M.A.T.).** This program is designed for and limited to those preparing for teaching the following subjects only in secondary schools: agriculture, biology, chemistry, earth science, English, French, home economics, physics, and social studies. The student and his Special Committee will select those courses and seminars in his teaching specialty and in education which are deemed most appropriate for developing competence as a teacher. The student will be required to demonstrate his teaching skill in a supervised field experience. Completion of two regular semesters and one summer of full-time study, or two and two-fifths residence units is required. Graduates of a teacher-training program are not eligible for this degree.

**DOCTOR OF EDUCATION (Ed.D.).** The program for this degree is designed to prepare the candidate within a broad cultural context for positions of

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professional leadership in education. The program of studies must include advanced work in each of the following: educational psychology, history or philosophy of education, educational measurement and statistics, and research in education. At least fifteen hours of credit must be earned in courses other than those in professional education. A minimum of sixty-five credit hours beyond the Bachelor's degree is required, of which thirty-five hours should be completed beyond the Master's degree or its equivalent. A candidate is required to complete a minimum of five residence units beyond the Bachelor's degree and a year of directed field experience.

### Professional Teaching

**MASTER OF SCIENCE FOR TEACHERS (M.S.T.).** This is a coordinated program of training in the biological and physical sciences for practicing teachers. Each degree candidate must satisfy a broad core program in mathematics and science and complete advanced work in his selected field of study. This degree is administered by the Division of Professional Teaching of the Graduate School. Detailed information may be obtained from the Graduate School Office, Sage Graduate Center.

### Engineering

**MASTER OF ENGINEERING.** The Master of Engineering degree is administered by the Engineering Division of the Graduate School. Specially oriented graduate programs of study are in the areas of agricultural, chemical, civil, electrical, industrial, materials, mechanical, and nuclear engineering, and in engineering physics. The following titles designate the professional Master's degrees offered in engineering: Master of Engineering (Agricultural), Master of Engineering (Chemical), Master of Engineering (Civil), Master of Engineering (Electrical), Master of Engineering (Engineering Physics), Master of Engineering (Industrial), Master of Engineering (Materials), Master of Engineering (Mechanical), Master of Engineering (Nuclear). The Graduate School of Aerospace Engineering administers the Master of Engineering (Aerospace) degree program.

The general requirements for the degrees listed above are:

1. A minimum of thirty credit hours of advanced technical course work in the specific field or in related subjects.
2. A minimum of three credit hours (included in the above) of engineering design experience involving individual effort and formal report.
3. A minimum grade point average of 2.5 and a minimum final grade of C minus for all courses counting toward the degree.

There are no residence requirements, although all course work must, in general, be completed under Cornell University staff instruction. The degree requirements must normally be completed within a period of four calendar years.

Graduates of Cornell University who hold Bachelor of Engineering degrees may be granted up to fifteen hours credit for advanced courses taken during

their fifth undergraduate year, provided they enter the Master of Engineering program not later than the fall term following the sixth anniversary of their receiving the Bachelor of Engineering degree.

The *Announcement of the College of Engineering* should be consulted for further details on the various professional Master's programs.

## English

**MASTER OF FINE ARTS (M.F.A.).** The degree of Master of Fine Arts in creative writing is designed to prepare candidates for careers in professional writing or in the teaching of creative writing. The program is administered by a specially appointed committee of the Department of English, acting as a Division of the Graduate School.

## Industrial and Labor Relations

**MASTER OF INDUSTRIAL AND LABOR RELATIONS (M.I.L.R.).** The four-semester program leading to this degree provides a basic course of graduate study for those with professional interests in industrial and labor relations and further provides limited opportunities for specialized professional study where broad competence has been established. This degree is administered by the Division of Industrial and Labor Relations of the Graduate School. Students possessing a law degree may be eligible for a two-semester M.I.L.R. program. More information may be obtained by writing to: Graduate Field Representative, School of Industrial and Labor Relations, Ives Hall.

## Law

The following two degrees are administered by the Division of Law of the Graduate School. The *Announcement of the Law School* should be consulted for a complete description of the program and requirements.

**MASTER OF LAWS (LL.M.).** This degree is intended primarily for the student who desires to increase his knowledge of the law by working in a specialized field.

**DOCTOR OF THE SCIENCE OF LAWS (J.S.D.).** This degree is intended primarily for the student who desires to become a proficient scholar by original investigation into the functions, administration, history, and progress of law.

## Music

The following two degrees are appropriate for mature composers who seek further professional training as well as knowledge of the other arts and humanities, both to enrich their creative perspectives and to prepare them for the teaching of composition and theory at the university level.

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### MASTER OF FINE ARTS (M.F.A.)

### DOCTOR OF MUSICAL ARTS (D.M.A.)

These degrees are administered by the Department of Music, acting as a Division of the Graduate School for this purpose. More information may be obtained from Professor Robert M. Palmer, 218 Lincoln Hall.

## Nutritional and Food Science

The following two degrees are administered by the faculty of the Graduate School of Nutrition acting as a Division of the Graduate School. More information may be obtained by writing to: Secretary, Graduate School of Nutrition, Savage Hall.

**MASTER OF NUTRITIONAL SCIENCE (M.N.S.).** This program emphasizes fundamental study in the basic biological sciences that can lead to specialization in such areas as nutritional biochemistry, human and clinical nutrition, experimental or animal nutrition, and public health and international nutrition. The program is open to students who have had no previous course work in nutrition. For candidates interested in the biological sciences, the program serves as a valuable preliminary for graduate study for the Ph.D. degree in such areas as biochemistry and physiology, as well as human or animal nutrition.

**MASTER OF FOOD SCIENCE (M.F.S.).** The fundamental sciences, chemistry, biochemistry, and bacteriology, that are involved in food processing and utilization, are emphasized. Electives are available to meet individual needs in engineering, economics, marketing, business administration, and international programs. The specialized training serves as a preparation for technical work in the food industry or for more advanced graduate study.

The *Announcement of the Graduate School of Nutrition* should be consulted for further details on the professional Master's degree programs.

## Theatre Arts

**MASTER OF FINE ARTS (M.F.A.).** The degree of Master of Fine Arts in theatre arts is intended for students who wish to increase their professional competence as actors or directors through a studio-oriented program. It is administered by the Department of Theatre Arts, acting as a Division of the Graduate School for this purpose.

## Veterinary Medicine

**DOCTOR OF SCIENCE IN VETERINARY MEDICINE (D.Sc. in V.M.).** This degree is characterized by a professional rather than a general research objective, and it is designed especially for experienced persons in the basic and clinical sciences who need more specific, advanced, scientific, and professional knowledge in order to equip themselves for careers in teaching and research. This degree is administered by the Division of Veterinary Medicine of the Graduate School.

## Graduate School of Medical Sciences

The opportunity for graduate work leading to advanced general degrees was first offered in the Medical College in 1912 in cooperation with the Graduate School of Cornell University. In June 1950, the trustees of Cornell University entered into an agreement with the Sloan-Kettering Institute for Cancer Research whereby a new division of the Medical College, namely, the Sloan-Kettering Division, was created for the purpose of offering additional opportunities for graduate study toward advanced degrees, thus extending the areas of the basic sciences.

That expansion of the New York City component of the Graduate School resulted in the establishment, in January 1952, of the Graduate School of Medical Sciences which, with the approval of the Faculty of the Graduate School of Cornell University, was given the full responsibility for administrative matters related to the advanced general degrees granted for study in residence at the New York City campus of Cornell University.

**DEGREES.** The general degrees of Ph.D. and M.S. are awarded for advanced study and scholarly, independent research in the fields of anatomy, biochemistry, biomathematics, biophysics, biostatistics, cell biology, genetics, microbiology, neurobiology and behavior, pharmacology, and physiology.

**FACILITIES.** The facilities for graduate work at the Graduate School of Medical Sciences include those of the Medical College and of the Sloan-Kettering Division. The five buildings of the Medical College, extending along York Avenue from Sixty-eighth to Seventieth Street in New York City, contain the lecture rooms, student laboratories, library, and research facilities for graduate and undergraduate work. The Sloan-Kettering Division is located in the Sloan-Kettering Institute and the Kettering Laboratory on East Sixty-eighth Street in New York City, and in the Walker Laboratory in Rye, New York. The special facilities and experienced investigators of the Sloan-Kettering Division offer ample opportunity for advanced graduate work in the basic science aspects of research related to cancer and allied diseases.

**FINANCIAL ASSISTANCE.** Predoctoral fellowships are available to qualified applicants. The fellowships may be renewed yearly providing the academic performance of the fellowship holders is satisfactory. Teaching fellowships and research assistantships are available to qualified graduate students in some departments of the Medical College. In addition to a stipend, the costs of tuition and fees are defrayed for those students receiving financial assistance.

**FURTHER INFORMATION.** Information on financial assistance and the entire program of the Graduate School of Medical Sciences is provided in the *Announcement of the Graduate School of Medical Sciences*. Requests for that *Announcement* should be addressed to the Graduate School of Medical Sciences, Cornell University, Medical College, 1300 York Avenue, New York, New York 10021.

## Special Resources for Research and Advanced Study

The descriptions below are limited to major general facilities available to graduate students. Other substantial collections and facilities, in many instances unique, have been assembled for the use of graduate students. Although the facilities cannot be described adequately in this *Announcement*, some of them are mentioned in the statements given under the Fields of Instruction on p. 50 ff.

### Cornell University Libraries

The libraries are among the principal facilities in the University's program of graduate studies. The total number of volumes at Cornell is now over 3,600,000 and that figure increases by about 200,000 each year. For the convenience of students and faculty, the holdings are organized into a controlled system of distinct libraries. Some of the libraries are large; some have limited holdings. Some are general; some selective. Each library, whether within one of the colleges or housed in a building of its own, is situated where its books and its facilities lie most easily available to those who use them most. The libraries, whatever their nature, have been developed over many years by scholarly librarians and professors with the view of achieving breadth and depth in the central libraries, utility and coherence in the specialized ones.

The University's libraries offer support for graduate studies at several levels. They provide basic readings in virtually all subjects, collateral studies for classroom and seminar instruction, and highly specialized materials for advanced students. An unusually rich collection of reference works, both modern and antiquarian, expedites both daily study and dissertational research. Of journals and periodicals, about 50,000 titles are available, most of them in complete runs, some of them in multiple copies, all of them immediately available. Special departments are maintained for maps, microtexts, documents, newspapers, and other such collections.

To most graduate students, Olin Library, designed primarily as a research library, becomes the most familiar. Olin Library, completed in 1961, offers every modern library facility for its readers. The building is completely air-conditioned, scientifically lighted, comfortably furnished, and organized for efficient operation. It provides easy access to the book stacks, convenient photocopying facilities, and a comfortable lounge area for graduate students. Congestion is eliminated not only because of architectural design but also because undergraduates have their own open-stack library in a separate building. A graduate student whose work has advanced to the writing stage may apply for use of a carrel adjoining the book stacks in order to facilitate completion of his dissertation. Olin Library is open during the term from 8:00 a.m. to 12:00 midnight weekdays, and from 1:00 p.m. to 12:00 midnight Sundays.



Within Olin are a number of special collections likely to be of particular interest to advanced students of the social sciences and the humanities. The Department of Rare Books houses several distinguished collections, among them books and manuscripts relating to Dante, Petrarch, Wordsworth, Joyce, Shaw, and other literary figures. The Noyes Collection is rich in American historical documents, especially those pertaining to Lincoln and the Civil War. Students in the social sciences will also find extraordinarily interesting manuscripts and books in the collections of slavery and abolition, of witchcraft, of the French Revolution, and of the life and times of Lafayette. Long familiar to professional scholars are the Wason Collection on China, Japan, and Southeast Asia, and the Old Icelandic Collection. The History of Science Collections include the Adelmann Library of Embryology and Anatomy, and the library of the French scientist, Lavoisier. The Collection of Regional History and Cornell University Archives is a manuscript depository with total holdings of more than 20,000,000 items. These manuscripts relate to all aspects of the economic, political, and social history of this region and the areas historically connected with it. Here, too, are the documents and manuscripts relevant to the founding and development of Cornell University. In addition to the collections in Olin Library, many of the college and department libraries also contain materials unique in their respective fields. Curators and reference librarians in all the libraries are available for counsel concerning the availability and use of research materials.

The University libraries in aggregate consist of Olin Library, as mentioned, Uris Library for undergraduates, the Physical Sciences Library, the Mann Library of Agriculture and Human Ecology, and the libraries of the following colleges and schools: Fine Arts, Business and Public Administration, Engineering, Hotel Administration, Industrial and Labor Relations, Law, Medicine (in New York City), and Veterinary Medicine. Added to these are the libraries of academic divisions and departments, together with those of the Agricultural Experiment Station at Geneva, New York.

## International Studies Programs

### Center for International Studies

The primary function of the Center for International Studies is to foster, coordinate, and support the University's international activities. In addition to its role as a link between the activities of the specialized programs, the Center routinely crosses interdisciplinary lines in its endeavor to interest faculty and students in innovative international teaching and problem-centered research.

Students interested in foreign area studies or in international problems will find that the flexibility of both undergraduate and graduate requirements permits considerable latitude in selecting subjects. Appropriate courses of study can be selected from the regular offerings of various departments of the University. For example, in the College of Arts and Sciences the Department of Government offers instruction in comparative government, international relations, and international law and organization; in the Department

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of Economics there are offerings in international economics, economic development, international trade, and the economics of workers' management; the Department of Sociology offers courses in population problems and international urbanization. In the College of Agriculture courses are available in the economics of agricultural development, international agriculture, and rural sociology. The School of Business and Public Administration offers courses in international development and comparative administration. The School of Industrial and Labor Relations offers courses in international and comparative labor relations.

The graduate student seeking specialized foreign-area knowledge may arrange a minor in one of the interdisciplinary area programs: Asian Studies or Latin American Studies. It is also possible to pursue an area interest in European Studies, Soviet Studies, or African Studies.

In cooperation with the Program on Science, Technology, and Society (STS), the Center is developing a Peace Studies Program. The core of this Program is an interdisciplinary seminar, "The Impact of Technology on Foreign Defense and Disarmament Policies," complemented by several other courses on defense and arms control.

Another area being developed jointly by the Center and STS is international flows of scientific information and manpower. Two new courses have been designed to explore this phenomenon. One deals with flows between developed and developing countries; the other concentrates on scientific/technological flows among developed countries.

A new doctoral specialization in the economics of participation and labor managed systems is offered as part of an interdisciplinary teaching and research program on the problem of participative management.

The International Population Program is being expanded to include the policy, administration, and communications problems related to the development of family planning programs in an international and comparative perspective.

Other activities of the Center include lectures and seminars presented by distinguished visitors, overseas and domestic research projects, conferences, student training, and publication.

The continued growth of the international programs has been accompanied by the creation of an outstanding and comprehensive infrastructure of staff, library, language facilities, and other necessary resources.

The work of the Center and of associated programs and activities is more fully described in the Center's *Annual Report of International Studies at Cornell University*. Further information may be obtained from the Center's office in 217 Rand Hall.

### China Program

FACULTY: Knight Biggerstaff, Nicholas C. Bodman, Nai-Ruenn Chen, Chuen-tang Chow, John C. H. Fei, Ta-Chung Liu, John McCoy, David Mazingo, Charles A. Peterson, Harold Shadick, Judith M. Treistman, Martie W. Young.

The China Program provides comprehensive graduate-level training and sponsors a wide range of research. The faculty represent the following fields:

anthropology, economics, government, history, history of art, linguistics, and literature.

Graduate students in the program take a major in one of the fields listed above. They are expected at an early stage to attain sufficient mastery of the Chinese language to permit use of Chinese sources in their courses and seminars and in their research.

The focus of much of the research and teaching in the Program is the society, polity, economy, culture, and arts of modern and contemporary China. Students with this concentration are also expected to develop a general knowledge of traditional institutions and culture. Students majoring in history concentrate on medieval or modern China; no chronological limits apply to those in the history of art, linguistics, or literature.

The China Program supports three projects: political organization, social change, and personality development; economic development within a Chinese cultural setting; and linguistic studies in Southeast China and in the southwest border regions. Research Assistantships are available to advanced graduate students working in these areas, and occasionally in other fields as well. London-Cornell Studentships are open to advanced Ph.D. candidates in the social sciences and humanities who are in the China Program. They are tenable for study during an academic year at the London School of Economics and Political Science or at the School of Oriental and African Studies of the University of London. Stipends include air fares and tuition and fees.

London-Cornell Field Research Grants are open to Ph.D. candidates whose interests directly concern problems of social change in East Asia. Grantees may conduct dissertation research in any part of East Asia, and stipends for this purpose include travel and research expenses.

National Defense Foreign Language Fellowships and Foreign Area Training Fellowships are tenable in the Program. Graduate students may also apply for other assistantships, fellowships, and scholarships offered by the University and its departments.

Additional information on the Program and the various fellowships and awards may be obtained by writing to the Director, China Program, 100-A Franklin Hall.

### **Program on Comparative Economic Development**

The Program on Comparative Economic Development at Cornell University was founded in 1966 by a group of economists in the Department of Economics, the Department of Agricultural Economics, and the School of Industrial and Labor Relations. Its primary purpose is theoretical and empirical research into the causes and forces of economic development, emphasis being placed on the multiplicity and diversity of forms of the development phenomenon.

Several secondary benefits derive, or are expected to derive, from the activities of the Program. One is the educational feedback in the form of seminars, guest lecturers, and the availability of research scholarships to graduate students in the Department of Economics. Further arrangements

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are being made for the establishment of regional research and educational centers in selected focal development countries.

The Program is not restricted to economists. On the contrary, it is hoped that as time goes on cooperation will be obtained from other fields. In fact, the philosophy of a wider basis of development science, not restricted to economics, is intended to become the central strength of the Program.

Additional information may be obtained by writing to Jaroslav Vanek, Director of the Program, Goldwin Smith Hall.

### **International Agricultural Development Program**

Cornell University provides unusual scope and facilities for graduate-level study and research concerning development of the critical agricultural sector of newly developing nations. An integrated program of research and graduate training is available in the various biological, physical, and social sciences fields which are relevant to agricultural development.

A student preparing for work in international agricultural development majors in a specific Field. In addition to basic preparation in that Field, he may minor in the Field of International Agricultural Development. The student may take courses which help him in applying his knowledge to the special conditions of newly developing nations, consult with experienced faculty members in regard to such application, and pursue a research project for his dissertation which is relevant to the special problems of newly developing countries. In much of this work the program in agriculture draws upon the strong international programs in other colleges of the University, including the area study programs and the varied offerings in modern languages.

Faculty experience in overseas work is continuously developed through work in College of Agriculture overseas programs and individual consulting assignments. Several faculty members, who devote themselves full time to research and teaching in international agricultural development, have built special programs of research and continuing contact with particular geographic areas. The environment for the International Agricultural Development Program is further enhanced by more than 250 foreign graduate students majoring in the various fields of studies represented by the College of Agriculture.

Substantial expansion has recently taken place in the international program of several departments. Most departments have a number of assistantships and teaching fellowships designed to finance graduate students while they work closely with the teaching and research program in international agricultural development. Doctoral candidates in these departments who are interested in international agricultural development generally do field research in newly developing countries for their doctoral dissertations.

Additional information may be obtained by writing to Professor K. L. Turk, Director, International Agricultural Development Program, 102 Roberts Hall.

### **International Legal Studies Program**

The Cornell Law School offers a program of concentrated study in international legal subjects. The full program is ordinarily pursued by J.D. candi-

dates in their second and third years of regular law study, but all the courses in the Field are open to graduate students in law. Some of the courses are offered by visiting faculty members who come to the Law School under its program for distinguished foreign professors. A number of foreign scholars and students also come to Cornell for research and study in the comparative and international law fields. Other activities of the International Legal Studies Program have included faculty seminars in comparative law, summer conferences in public international law, and a program of speakers and seminars open to students. In addition, the Law School sponsors a small number of fellowships for foreign students to pursue graduate work in law.

For more detailed information, see the current *Announcement of the Law School*, and the current *Annual Report of the Center for International Studies*. Further information may be obtained by writing to Professor Robert A. Anthony, Chairman, Graduate Study Committee, Cornell Law School, or to the Director, Center for International Studies, 217 Rand Hall.

### **Latin American Studies Program**

**FACULTY:** Donald K. Freebairn, director; Frederick B. Agard, Solon Baraclough, Jerome S. Bernstein, Dalai Brenes, Loy V. Crowder, David Davidson, Tom E. Davis, Martin Dominguez, Matthew Drosdoff, Charles L. Eastlack, Rose K. Goldsen, Thomas Gregor, Joseph A. Kahl, Eldon Kenworthy, Anthony G. Lozano, Thomas F. Lynch, Robert E. McDowell, James O. Morris, John V. Murra, Thomas Poleman, Glenn F. Read, Bernard Rosen, Donald F. Solá, J. Mayone Stycos, H. David Thurston, William F. Whyte, Lawrence K. Williams, Frank W. Young.

The Latin American Studies Program enables the graduate student to develop specialized competence in the history, culture, social organization, and languages of Latin American countries. The student majoring in a relevant discipline can minor in Latin American Studies.

Some forty courses directly pertaining to Latin America are offered by the Departments of Agricultural Economics, Agronomy, Animal Science, Anthropology, Consumer Economics and Public Policy, Development Sociology, Economics, Government, History, History of Art, Industrial and Labor Relations, Romance Studies, and Sociology. The courses constitute the basis for formulating programs leading to a graduate *minor* in Latin American Studies. Normally, five or six semester-long offerings satisfy the formal course requirements. In addition, the degree candidate minoring in Latin American Studies must exhibit proficiency in reading and speaking either Spanish or Portuguese.

Applications for scholarships, fellowships, or teaching fellowships should be made to the department in which the student is taking his major. Students minoring in Latin American Studies qualify for NDEA Title VI Modern Language Fellowships. Application forms may be obtained from the Graduate School.

Summer research travel grants and support for on-campus course work during the summer are available to selected graduate students through the Latin American Studies Program. Although thesis research may be supported

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by the Program, support should first be sought from the Foreign Area Training Fellowship Program, the Social Science Research Council, Fulbright-Hays, the Doherty Foundation, and the Organization of American States.

Because of the considerable volume of research on Latin America currently being carried out by Cornell faculty members, students will normally be afforded the opportunity of participating in ongoing projects while in residence and will generally be expected to do field work in Latin America at some stage of their graduate training. Major research projects are under way in the fields of Andean community development, comparative economic development, fertility and population, descriptive linguistics, and urbanization.

Additional information may be obtained by writing to Donald K. Freebairn, Director, Latin American Studies Program, Rand Hall.

### South Asia Program

(Bhutan, Ceylon, India, Nepal, Pakistan, Sikkim)

STAFF: Gerald Kelley, director; Messrs. Douglas E. Ashford, Harold R. Capener, Arch T. Dotson, Harold Feldman, James Gair, Leighton W. Hazlehurst, Michael Hugo-Brunt, Kenneth A. R. Kennedy, John W. Mellor, Stanley J. O'Connor.

The increasing importance of the peoples of the Indian subcontinent and of the role they play in world affairs enhances the need for providing opportunities in America for training and research in the field of Indic studies. The South Asia Program at Cornell, dealing primarily with India, Pakistan, Ceylon, and Nepal, is organized and equipped to help meet this need. Since 1948 it has sponsored a series of research projects on India and Ceylon, and it has trained a distinguished group of younger American and South Asian scholars in South Asian area and language studies. The Program faculty includes members from agricultural economics, anthropology, government, history of art, human development and family studies, business and public administration, development sociology, city and regional planning, and languages and linguistics. Sanskrit, Pali, Hindi, Urdu, Telugu, and Sinhalese are languages regularly offered at Cornell. Cornell participates in the interuniversity summer program which provides instruction in other South Asian languages and selected social sciences and humanities disciplines each summer on the campus of a member eastern university.

Qualified graduate students interested in specializing in the study of South Asia minor in Asian Studies with concentration on South Asia, in South Asian art history, or in South Asian linguistics. The doctoral candidate must have a reading knowledge of Hindi or, depending upon the subarea of his specialization, some other important language of South Asia.

RESEARCH AND FIELD TRAINING. The doctoral dissertations of students in the South Asia Program are normally based on research done in India, Pakistan, Ceylon, or Nepal. Students' field research may benefit from advice and guidance in the field by a Program staff member. At least one member of the faculty of the South Asia Program has been in South Asia for each of the last several years. Cornell is a charter member of the American

Institute of Indian Studies, which was organized to facilitate study and research in India by American advanced students and by faculty specializing in various aspects of Indian civilization and contemporary affairs. The University also maintains close links with a number of research agencies, programs, and institutions of higher learning, such as the Deccan College Postgraduate Research Centre, Delhi University, Osmania University (Hyderabad), and universities in Ceylon. Staff members of these institutions have provided valuable assistance to Cornell students working in India. There are opportunities for graduate students to become associated with Cornell-sponsored research in South Asia or to carry on independent research abroad. Every effort is made by the Program staff to aid qualified students to obtain financial support for a field training or research project in one of the countries of the area.

Research interests under the South Asia Program are focused largely on recent or contemporary developmental problems of the countries of the area—on changes taking place in the economic, political, social, religious, artistic, and intellectual life of the region. A long-term research project in progress in India is primarily concerned with the ramifying problems of introducing technological changes and the influence of such changes when adopted. Since 1949 faculty and students in anthropology have carried on an extended and varied series of rural and urban community studies in several different regions of India from the Deccan into the Himalayan foothills. A major related project, the Cornell International Agricultural Development Program, which is supported by Ford Foundation funds, is concerned with the development of the entire agricultural sector of the Indian economy. With Ford Foundation support, Cornell is assisting Delhi University to become a major center in the field of linguistics. At the same time, other studies in urban renewal and regional planning, public administration, the role of government in cultural change, and recent movements in the arts and in religions and ideologies are in progress under faculty direction. Cornell is also making a special study of the Sinhalese language and of linguistic problems of Ceylon. Research is also under way on Oriya and Telugu, important regional languages of India. The new nations of South Asia present so many problems for study that the areas of inquiry open to students and staff members are limited only by availability of research means.

**FELLOWSHIPS AND ASSISTANTSHIPS.** Fellowship and assistantship awards are available to qualified graduate students minoring in Asian Studies with a concentration on South Asia. The South Asia Program fellowships are open to incoming graduate students with South Asia interests and should be applied for by writing to: Director, South Asia Program, 221 Morrill Hall. These fellowships are normally given to provide supplementary support for student research projects, at Cornell or in the field. Students in the South Asia Program are also eligible for assistantships in their major discipline departments, for fellowships and scholarships offered by the Cornell Graduate School, for National Defense Foreign Language Fellowships, and for Foreign Area Training Fellowships. Additional information on financial aid may be obtained by writing to the director, at the address given above.

### Southeast Asia Program

**FACULTY:** Benedict R. Anderson, Arch T. Dotson, John M. Echols, Frank H. Golay, Alexander B. Griswold, Robert B. Jones, Jr., George McT. Kahin, Stanley J. O'Connor, Robert A. Poison, Robert M. Quinn, Lauriston Sharp, James T. Siegel, John U. Wolff, O. W. Wolters.

The Southeast Asia Program possesses substantial facilities for study and research on the graduate level and provides exceptional opportunities for general or specialized work on all of Southeast Asia in various disciplines of the humanities, social sciences, and some natural sciences, as well as in interdisciplinary area seminars. Instruction in the major languages of the area is an integral part of the graduate training of the Southeast Asia Program. Much basic and pioneering research remains to be done in this area, and the Southeast Asia Program is organized and equipped to help meet such needs.

Special intensive instruction in Southeast Asian languages is available during summer sessions. Entering graduate students intending to study one of these languages are encouraged to begin such study during the summer preceding registration in the Graduate School. Inquiries should be made as early as possible to the director of the Southeast Asia Program.

Southeast Asia Program fellowships are available on a competitive basis to graduate students. They carry stipends of up to \$3,200 plus tuition and General Fee, and are available only to qualified candidates for advanced degrees at Cornell. Competition for these awards is open to citizens of the United States or Canada, nationals of Southeast Asian countries, and, in exceptional cases, nationals of other countries.

The fellowships are available to applicants who are able to demonstrate a serious scholarly interest in Southeast Asian studies; who show the greatest promise of becoming qualified regional experts with specialization in a relevant discipline of the humanities, social sciences, or certain natural sciences; and who are admitted to the Cornell Graduate School for advanced work in such a discipline. Previous experience in Southeast Asia or in the study of that area is not necessarily required. It is important that the applicant be able to show that advanced work in a major subject offered at Cornell, combined with work in the Southeast Asia Program, will make his future professional activities more effective; this requirement is particularly important for a student in the natural sciences.

Fellowships are normally awarded for one academic year. If the student's work during the first year has been of high caliber, reappointment is sometimes possible. In such cases, formal reapplication is expected from the student. The primary purpose of these awards is to encourage graduate students to acquire a substantial knowledge of Southeast Asia while majoring in one of the discipline Fields of the Graduate School. Accordingly, they are usually offered only to students who take a minor in Asian Studies and participate fully in the Southeast Asia Program. The recipient of a fellowship may be asked to devote up to six hours a week under faculty supervision to work connected with the Program.



London-Cornell Studentships are available for advanced Ph.D. candidates in the social sciences and the humanities who have already had at least one year of resident study in the Southeast Asia Program. These fellowships are tenable for study during an academic year at the School of Economics and Political Science or the School of Oriental and African Studies in the University of London. Stipends range up to \$3,000 plus air fares and tuition and fees. London-Cornell Field Research Grants are open to Southeast Asia Program Ph.D. candidates in the social sciences and humanities after they have had appropriate training at Cornell, or at Cornell and London. They are tenable for up to twenty-two months for the purpose of dissertation research in any part of Southeast Asia. Stipends range up to \$12,000 for twenty-two months including travel and research expenses.

Cornell-Philippines Field Research Fellowships are available, under a grant from the Rockefeller Foundation, for advanced graduate students who plan to write dissertations in the social sciences or the humanities, based upon field research in the Philippines. Fellowship support is for ten to fifteen months in the Philippines and includes living costs, local transport, and round-trip transportation from the United States for the graduate student and dependent wife or husband.

National Defense Foreign Language Fellowships, Title VI, are offered by the United States Office of Education for study during the academic year, the summer, or both. Application should be made to Sage Graduate Center, Cornell University. Information about Foreign Area Training Fellowships, administered by the Social Science Research Council, may be obtained by writing to the Foreign Area Fellowships Program, 444 Madison Avenue, New York, New York 10022. Graduate students may also apply for other fellowships, teaching fellowships, assistantships, and scholarships offered by the University and its departments.

Additional information on the Program and the various fellowships and awards may be obtained by writing to the Director, Southeast Asia Program, 108 Franklin Hall.

### **Soviet Studies**

COMMITTEE ON SOVIET STUDIES: George Gibian, chairman; Urie Bronfenbrenner, M. Gardner Clark, Walter Galenson, Richard Leed, Walter Pintner, Myron Rush, George Staller.

OTHER FACULTY MEMBERS IN SOVIET STUDIES: Patricia Carden, Frederick Foos, Antonia Glasse, Boris Glasse, Augusta Jaryc, Alla Novosilzova, Hugh Olmstead, Marla Wykoff.

The University offers a number of courses and seminars on the Soviet Union as well as pre-1917 Russia. Instead of a separate area program, graduate students have a choice of majors and minors in the established Fields of the Graduate School. Some of the subjects focus on area specialization: Russian history, Russian literature, Slavic linguistics. Other subjects combine area specialization with a nonarea framework: comparative government, economic planning, regional planning, social psychology.

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Graduate students pursuing Soviet Studies in any of these subjects are expected to attain proficiency in the Russian language either before entering the Graduate School or soon thereafter.

The University's academic activities related to Russia are coordinated by the Committee on Soviet Studies. The Committee also sponsors a colloquium for faculty members and graduate students in Soviet Studies. In the Soviet Studies Graduate Study in the John M. Olin Library, major reference works and key current periodicals from and about the U.S.S.R. are brought together.

The Committee on Soviet Studies selects a limited number of graduate students each year as research assistants. The Russian section of the Division of Modern Languages and the Department of Russian Literature also appoint several graduate students annually as teaching fellows in the Russian language. For other teaching fellowships, fellowships and scholarships, students apply directly to the Graduate School or to the department concerned. NDEA Title IV and Title VI Fellowships are available in various subjects.

A list of faculty specialization follows: *Economics*: M. Gardner Clark, Walter Galenson, George J. Staller; *History*: Walter M. Pintner; *Languages and Linguistics*: Frederick Foos, Boris Glasse, Richard Leed, Augusta Jaryc, Alla Novosilzova, Hugh Olmstead, Marla Wykoff; *Literature*: Patricia Carden, George Gibian, Antonia Glasse, Hugh Olmsted; *Political Science*: Myron Rush; *Psychology*: Urie Bronfenbrenner.

Inquiries about fellowships and other aspects of Soviet Studies should be addressed to Professor George Gibian, Chairman, Committee on Soviet Studies, Goldwin Smith Hall.

## Other Programs and Studies

### American Studies

COMMITTEE ON AMERICAN STUDIES: S. Cushing Strout, chairman; Archie R. Ammons, LeGrace G. Benson, Jonathan P. Bishop, Douglas F. Dowd, Robert H. Elias, Robert T. Farrell, Heywood Fleisig, Paul W. Gates, Rose K. Goldsen, Andrew Hacker, Baxter L. Hathaway, Richard I. Hofferbert, Michael G. Kammen, Michael Kaufman, Walter LaFeber, Thomas W. Leavitt, John E. Martin, James H. Matlack, Dan E. McCall, James R. McConkey, Andrew J. Milnor, Arthur M. Mizener, Richard Polenberg, Albert S. Roe, Joel H. Silbey, Walter J. Slatoff, James M. Smith, Fred Somkin, Gordon F. Streib, Robin M. Williams, Jr.

Although there is no formal program leading to a degree in American Studies, candidates for the doctorate in English and history will find ample opportunity to do interdisciplinary work in conjunction with a major in American Studies within their field. There are members of the staff in both fields who are professionally trained and currently active in the study of the interrelationships of American intellectual, literary, and social history, so that a student concentrating in American literature or American history may take advantage of the freedom permitted by Graduate School regulations and, in collaboration with his Special Committee, readily build an individual doctoral program that systematically embraces more than a single discipline. Inquiries concerning

opportunities in this area should be addressed to: Professor S. Cushing Strout, Chairman, American Studies Committee, Goldwin Smith Hall.

### **Brookhaven National Laboratory**

Cornell is one of nine eastern universities participating in Associated Universities, Inc. (AUI). Operating under contract with the Atomic Energy Commission, this corporation has the responsibility for the management of Brookhaven National Laboratory. The Laboratory provides unusual research facilities for studies in biology, chemistry, applied mathematics, medicine, physics, high energy particle physics, and reactor and nuclear engineering.

Graduate students may participate in research at Brookhaven by association with Cornell staff members who are engaged in research at the Laboratory. Members of a variety of science departments at Cornell are currently involved in programs at Brookhaven. The Laboratory also offers temporary summer appointments to a limited number of selected graduate and undergraduate students in science or engineering.

### **Center for Environmental Quality Management**

The Center for Environmental Quality Management brings together the faculties of the Cornell Medical College in New York and the various colleges and schools in Ithaca to study the manifold questions of environmental health in both urban and rural settings.

Current approaches to the modification and control of the environment, in concentrating on limited objectives such as air quality control, disease control, water quality control, pest control, food sanitation, and occupational health have had limited success since they have been unable to take into account the interdependence of environmental health problems. The character and the urgency of the total environmental quality problem facing us appears insoluble short of an overall approach that will enable decision makers to consider simultaneously the significant variables and relationships relevant to the management of environmental quality.

Scientific management through systems analysis has begun to make it possible to consider these multiple relationships within the framework of common objectives and subject to predetermined constraints. It provides mechanisms by which various innovations can be examined in terms of their short- and long-term effects upon the environment. Such an approach provides rational bases for establishing environmental quality goals and for the allocation of scarce resources to achieve these goals.

The Center is frequently able to provide predoctoral and postdoctoral fellowships for students interested in pursuing research topics in environmental health. For information regarding specific programs, write to: Professor Walter R. Lynn, Director, Center for Environmental Quality Management, 302 Hollister Hall.

### **Center for Urban Development Research**

The purpose of the Center for Urban Development Research is to enable the University to expand its research, training, and service in the field of urban

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problems. It is intended to provide a continuing forum for questions pertaining to urban development; encourage new combinations of interdisciplinary problem-centered research; encourage and cooperate with interdisciplinary educational developments; provide for participation by faculty, staff, and students on an interdisciplinary basis in urban studies; assure integration and dissemination of the results of research.

The Center supersedes the Center for Housing and Environmental Studies. The acting director of the Center is Professor Barclay G. Jones, 109 West Sibley Hall.

### Center for Radiophysics and Space Research

The Center for Radiophysics and Space Research unites research and graduate education carried on by several academic departments in the space sciences. It furnishes administrative support and provides facilities for faculty members and graduate assistants who are engaged in space research activities, and it offers opportunity for graduate students to undertake thesis work leading to the degrees of Master of Science and Doctor of Philosophy. A student's major professor can be chosen from the following Fields in the Graduate School: Aerospace Engineering, Applied Physics, Astronomy and Space Sciences, Chemistry, Electrical Engineering, Physics.

Thesis research in the following areas is now possible:

(a) *Astronomy and astrophysics.* Astronomical aspects of cosmic rays, gamma-radiation, x rays, neutrinos; cosmology; experimental studies and theory relating to the surface of the moon and the planets; processes in the interstellar gas; solar-system magnetohydrodynamics; stellar statistics; theory of stellar structure, stellar evolution, nuclear processes in stars.

(b) *Atmospheric and ionospheric radio investigations.* Dynamics of the atmosphere; incoherent electron scattering; study of refraction, scattering, attenuation due to the inhomogeneous nature of the troposphere and ionosphere; theory and observation of propagation of radio waves in ionized media such as the ionosphere.

(c) *Radar and radio astronomy.* Distribution and classification of radio sources; radar investigations of the moon and planets; solar radio observations; studies of gaseous nebulae.

(d) *Space vehicle instrumentation.* Instrumentation relating to lunar exploration; magnetic field measurements; tenuous gas and particle flux measurements; infrared observations from rockets.

The facilities of the Center include the lunar surface and electronics laboratory on the Cornell campus, the radio astronomy and ionospheric laboratories close to Ithaca, and the Arecibo Observatory in Puerto Rico. At Arecibo an extremely sensitive radio telescope and an unusually powerful space radar are available for use by qualified graduate students. In addition, certain facilities of Sydney University, Australia, are available through the Cornell-Sydney University Astronomy Center (see p. 43).

### **Center for Research in Education**

The Center for Research in Education provides an instructional focus within the University for the interests of faculty members from different disciplines in educational research and development. In addition, the Center attempts to stimulate investigation of socially significant educational problems and to train students in educational research. At present, research projects in adult-child interaction and cognitive socialization, in language development and literacy, in science education, and in early school learning are under way. Research programs in mathematics education and in undergraduate education are being planned.

The Center provides predoctoral and postdoctoral training through research assistantships, training grants, and postdoctoral fellowships. For information write to Professor Alfred L. Baldwin, Director, Center for Research in Education, Rand Hall.

### **Cornell-Sydney University Astronomy Center**

The Center is an interuniversity organization designed to create a larger pool of facilities and skills for research in astronomy and related fields than would be separately available to either university. Graduate students can be interchanged between the two institutions whenever appropriate for the research work in which they are engaged. Both universities recognize research supervision extended by the sister university, and the time spent by a student on thesis work in the sister university can be accepted toward residence requirements with the proviso that the approval of the home research supervisor is given and also that the home university bylaws are not contravened.

The facilities available through the Center, in addition to those of Cornell's Center for Radiophysics and Space Research, are the one-mile by one-mile Mills Cross situated at Hoskintown, New South Wales; the stellar intensity interferometer situated at Narrabri, New South Wales; the Criss-Cross, the Shain Cross, and Mills Cross situated at Fleurs, New South Wales; the Wills Plasma Physics Department, the Basser Computing Department, the Falkner Nuclear Department, and the facilities of the cosmic ray group at the University of Sydney. The Center includes H. Messel, R. Hanbury Brown, W. N. Christiansen, C. B. A. McCusker, and B. Y. Mills from the University of Sydney faculty.

Further information can be obtained from Professor T. Gold, Joint Director, Cornell-Sydney University Astronomy Center, Space Sciences Building, Cornell University.

### **Developmental Studies**

Specializations in this area normally involves participation in a program jointly sponsored by the Fields of Human Development and Family Studies, and Psychology. The program presently emphasizes cognitive development. Students interested in the program should apply to either the Field of Human Development and Family Studies or the Field of Psychology. Training in research skills in both Fields is recommended. Students admitted to the program fulfill the requirements of whichever Field they enter. Current research interests of the faculty include development of language, perception,

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thinking, intellectual development in natural settings, conceptual and affective behavior in infancy, cognitive socialization, and biological maturation. For further information see the description of the Field of Psychology and the Field of Human Development and Family Studies, or write to either Field Representative.

### **Division of Biological Sciences**

The Division of Biological Sciences was established in 1964 to bring together into a single administrative unit a number of investigators and teachers representing a broad spectrum of interests in basic biology. Its members hold appointments in one or more of four schools and colleges but serve the University as a whole through the Division. The Division is responsible for all the undergraduate teaching of biology, including the establishment of requirements for the major in its various branches. It also has the primary responsibility for the promotion of research in basic biology, and its members, as part of the Graduate School Faculty, teach in appropriate Fields. At present the following subject areas are represented by separate sections of the Division: biochemistry and molecular biology; ecology and systematics; genetics, development, and physiology; microbiology; and neurobiology and behavior. A number of graduate fellowships, teaching fellowships, research assistantships, and traineeships are available through the Division. For further information, write to Professor Richard O'Brien, 201 Roberts Hall.

### **Materials Science Center**

The Materials Science Center (MSC) at Cornell is an interdisciplinary laboratory created to promote research and graduate student training in all phases of the science of materials. The subjects of study represented in the MSC program are applied physics, chemistry, electrical engineering, materials engineering, materials science, mechanics, metallurgy, and physics.

The extent of the benefits a graduate student may derive from the MSC program depends on the actual research he pursues. If the student chooses to follow the more conventional course of becoming a specialist in one specific area, the MSC program could help him by providing new equipment, financial assistance through research assistantships, or, in some cases, the help of a technician to carry out routine measurements.

If the student wishes to follow a program of considerably more breadth than usual in his research training, the MSC program provides an additional advantage. Several central facilities have been set up where more specialized apparatus such as crystal-growing furnaces, high-pressure equipment, x-ray and metallography equipment, electron microscopes, etc., are available to all MSC members and their students. In addition to the equipment, expert advice on its use and the interpretation of the results will be available. In these central facilities, it is expected that the student will come in contact with students from other disciplines, resulting in a mutually profitable interaction.

The office of the Director of the Materials Science Center, Professor R. E. Hughes, is in Room 627, Clark Hall.

## Plasma Physics

Established in 1966, the Laboratory for Plasma Studies at Cornell enables students and faculty members to deal with plasma, electron, and laser physics on a unique, interdisciplinary basis. In the future, plasmas will provide power for cities, will power spacecraft, will help to explain the composition of the universe, and may unlock the energy resources of the sea. Nothing less than an integrated scientific and technological approach to these and other vital areas of plasma research is feasible.

The unified, interdisciplinary approach to plasma studies has added a new dimension to education at Cornell, enabling the University to give the best counsel to graduate students who want to combine their knowledge of some field of science or engineering with work in plasma studies. A program now exists whereby graduate study in plasma physics is offered to students in aerospace engineering, applied physics, chemistry, electrical engineering, mechanical engineering, and physics.

Graduate research assistantships are available through the Cornell Laboratory for Plasma Studies as well as from several departments within the University. It is also possible to obtain positions as postdoctoral research associates with the Laboratory. Prospective graduate students should also consider applying for fellowships awarded on a national basis by the Atomic Energy Commission and the National Science Foundation. The deadlines for these programs are usually in the fall for the following academic year. For further information, write to Professor Peter L. Auer, Director, Laboratory for Plasma Studies, Upson Hall.

## Program on Science, Technology, and Society

F. A. Long, director; R. Bowers, deputy director; R. A. Rettig, executive secretary. Steering Committee: P. Bereano, U. Bronfenbrenner, M. Drosdoff, G. Gordon, E. Heitowit, G. Likens, W. Lynn, R. Morison, M. Nelkin, C. Stern, G. Winter

The purpose of the interdisciplinary Program on Science, Technology, and Society is to stimulate teaching and research on the interaction of science and technology with contemporary society. The Program is initiating a number of new research and teaching efforts and also plays a role in providing coherence and support to activities in this area which are already proceeding at the University.

The topics of concern to the Program are illustrated by the following examples: science, technology, and national defense; world population and food resources; legal and moral implications of modern biology and medicine; national policy for the development of science; sociology of science; the ecological impact of developing technology.

The mechanisms for studying these problems will vary and will probably include courses, seminars, short workshops, and summer studies as well as individual research programs. The Program welcomes the participation of students and faculty from all colleges and schools. A list of relevant courses in all parts of the University may be obtained from the Program office, Clark Hall.

## **46 Research Facilities**

### **Society for the Humanities**

Henry Guerlac, director. Fellows (1970–71): Darrell Jackson (Queens College), Philosophy; Paul Schwaber (Wesleyan University), Literature; Hayden White (University of California, Los Angeles), History; Joseph Kerman (University of California, Berkeley), Music; Bojan Bujic (University of Reading, England), Music; Edward Morris and Thomas Hill (Cornell University), Romance Literature and English Literature.

The Society awards three categories of fellowships for research in the humanities: Senior Visiting Fellowships, Faculty Fellowships, and Junior Postdoctoral Fellowships. The Fellows offer, in line with their research, informal seminars intended to be off the beaten track. Details about these seminars are circulated to interested departments.

Membership in the Society's seminars is open, upon written application, to graduate students and suitably qualified undergraduates. All seminars are held in the Society's house at 308 Wait Avenue. Only those officially enrolled, or specifically invited to attend, are admitted as visitors.

A student wishing to attend any of these seminars should write to the Secretary of the Society, 308 Wait Avenue, Ithaca, New York 14850, giving his name, address, telephone number, and a brief summary of his qualifications.

### **Statistics Center**

The methods of statistics find important applications in many diverse fields of research. It is therefore necessary that (1) subject matter specialists be able to obtain assistance in using or developing statistical theory, (2) students who intend to do research work in a particular field which makes extensive use of statistical methods receive adequate training in statistics, and (3) individuals be trained as statisticians.

The staff members of the various schools and colleges of Cornell University who are interested in the development and application of statistical methods are associated with the Cornell Statistics Center. A major responsibility of the Center is to provide a focal point to which individuals, projects, and departments may come to receive assistance and guidance with respect to the statistical aspects of research and training programs.

The acting director of the Center is Professor Philip J. McCarthy, Ives Hall.

### **Center for Water Resources and Marine Sciences**

The Center is an interdisciplinary organization serving the entire University at the graduate study and research level. Its purpose is to promote and coordinate a comprehensive program in water resources planning, development, and management that includes the sciences, engineering, agriculture, law, economics, government, regional planning, and public health.

Its responsibilities are to undertake and support water resources research in engineering, in the physical, biological, and social sciences, and in the humanities; to encourage and contribute to graduate studies in water resources; to coordinate research and training activities in water resources; to encourage new combinations of disciplines in research and training which



can be brought to bear on water resource problems; to disseminate the results of research; and to develop and operate central facilities which may be needed to serve participants in research and training.

Correspondence concerning the Center should be directed to Professor L. B. Dworsky, Director, Center for Water Resources and Marine Sciences, Hollister Hall.

Correspondence related to graduate study in the Field of Water Resources should be directed to the Field Representative, Professor C. D. Gates, Hollister Hall.

## Special Facilities and Service Organizations

### **Military Science, Naval Science, and Aerospace Studies**

#### **(ROTC, NROTC, and AFROTC)**

The advanced course in military science (Army ROTC), naval science (Naval ROTC), and aerospace studies (Air Force ROTC) is open to graduate students who have satisfactorily completed a basic course in ROTC or who enroll in a two-year ROTC program. Successful completion of a two-year advanced ROTC course will qualify a graduate student for appointment as a second lieutenant in the United States Army, Air Force, or Marine Corps Reserve; or ensign in the United States Naval Reserve; or as second lieutenant in the Regular Army or Air Force. Interested graduate students should consult the *Announcement of Officer Education* and apply to Professor of Military Science, Professor of Naval Science, or Professor of Aerospace Studies (ROTC), Barton Hall.

### **New York State Agricultural Experiment Station at Geneva**

The New York State Agricultural Experiment Station was established in 1880 to promote agriculture through scientific investigations and experimentation. It is located at Geneva, fifty miles from Ithaca, and has been under the administration of Cornell University since 1923.

Professors on the Geneva staff are eligible to serve as members of the Special Committees of graduate students along with professors on the Ithaca campus of the University. Normally the graduate training provided at Geneva consists of research experience and supervision of the student's work on a thesis problem. The formal course work of the student's training program is given on the Ithaca campus. Student who plan to do part of their graduate work at Geneva should correspond with their major advisers or with the dean of the Graduate School concerning regulations as to residence, Special Committees, etc.

The Station is equipped to care for graduate students in certain specific lines of research, viz., chemistry, economic entomology, food technology, microbiology, plant pathology, pomology, seed investigations, and vegetable crops. Ample facilities are available for graduate research under laboratory, greenhouse, pilot plant, insectary, orchard, and other field conditions.

Certain phases of the investigations now being conducted at the Station

## **48 Research Facilities**

and other problems for which the facilities of the Station are suitable may be used as thesis problems by graduate students.

The director is Professor D. W. Barton, who may be addressed at the New York State Agricultural Experiment Station, Geneva, New York 14456.

### **Office of Computer Services**

The principal computing facility at Cornell is an IBM 360 Model 65 located at Langmuir Laboratory at the Cornell Research Park. The system is equipped for remote access of several kinds, and the operating system is designed so that very few users find it necessary to visit Langmuir. The primary terminals are high-speed reader-printers located in Upson, Clark, and Warren Halls. While these are remote job-entry and delivery devices rather than conversational terminals, they permit convenient access, job turnaround-time in terms of minutes, and the use of on-line files. Each of these terminals is the core of a small computing center, with auxiliary equipment, consulting assistance, reference material, and work space. In addition to these high-speed terminals, teletypewriter terminals are available to individual projects that require interactive capability. This computing system is busy but not saturated, and use by graduate students is encouraged.

The University has one IBM 1800 computer, which is located in the Wilson Synchrotron Laboratory.

The Office of Computer Services is responsible for the operation of this system and for the provision of consulting and programming assistance. The Office cooperates with the Department of Computer Science in providing courses in programming and computing techniques. The Department of Computer Science employs a limited number of graduate students on assistantships for this work.

For further information write to the Office of Computer Services, Langmuir Laboratory.

### **University Press**

Cornell University Press, founded by Andrew D. White in 1869, was the first university press in America and is among the leaders in number of volumes published annually. The Press publishes scholarly books on nearly every academic subject, serious nonfiction of general interest, and advanced or experimental textbooks for universities. The imprint of Comstock Publishing Associates, a division of the Press, is placed on certain books in the biological sciences. The Press also publishes a paperbound series, Cornell Paperbacks. More than twenty percent of the books published by the Press in recent years were written by members of the Cornell University faculty. All printing for the Press is done under contract by various book manufacturing firms; the Press has no production facilities of its own.

### **Visual Aids**

The University owns and operates the Photo Science Studios, which create, or cooperate in the creation of, photographic studies and visual aids of all kinds.

The extension services of the New York State Colleges, which form integral parts of the University, disseminate knowledge through an intensive program of publication, photography, and recording supervised by professional staffs. Materials produced by graduate students may find outlets through these channels.

### **Other Research Units**

Some other research units allied with the University, either as wholly owned and operated divisions or as wholly or partially autonomous organizations with which the University has a working agreement, are the Sloan-Kettering Cancer Research Institute in New York City, through the Graduate School of Medical Sciences, and the Veterinary Virus Research Institute in Ithaca.

Cornell is also one of fourteen founding members of the University Corporation for Atmospheric Research which, under National Science Foundation support, operates the National Center for Atmospheric Research at Boulder, Colorado. In addition to Brookhaven National Laboratory, Cornell, as a member of Associated Universities, Inc., has access to the facilities of the National Radio Astronomy Observatory in Greenbank, West Virginia.

Further opportunities for formal study, field work, and independent research by Cornell graduate students are available in many institutions, laboratories, and libraries both in the United States and in other countries. For example, the Cornell-Harvard Archaeological Exploration at Sardis, Turkey, and the Museum of Northern Arizona at Flagstaff, Arizona, both provide opportunities for field research related to doctoral work of Cornell graduate students. Information on that kind of arrangement is available directly from the Field Representatives.

# Fields of Instruction

## African and Afro-American Studies

### Faculty

James Cunningham, C. Dalton Jones, Gloria I. Joseph, J. Congress Mbata, Rukudzo Murapa, James Turner

### Field Representative

J. Congress Mbata, Africana Studies and Research Center

### MINOR SUBJECT \*

#### Africana Studies

The program in this Field is primarily intended for students interested in specializing in scholarly work—teaching, research, or creative arts—in some facet of the rapidly developing academic area of Black studies.

**ADMISSION REQUIREMENTS.** An applicant for admission must previously have taken courses in the following groups of subjects: *African Heritage*—ancient history of African peoples, African dispersion, the Black man in the twentieth century; *African Behavior*—psychology, sociology, anthropology, adaptations to changing environments; *Black Expression*—literature, language, theatre, art; *Africanization and African Political Thought*; *Racism, Social Structure, and Social Analysis*—urban and rural social conditions of the Black population, land use patterns and community development, social institutions and political processes; *Techno-Africana*—technology and the Black man, the professions (the medical practitioner and the Black community, the lawyer and the Black community, etc.). The student must have selected one of these groups as an area of concentration and must have taken at least one course from each of *four* of the remaining groups. With the special permission of the Africana Graduate Studies Committee, part of the admission requirements may be taken concurrently with graduate work; however, the final stages of the graduate program may not be entered upon until all admission requirements have been met.

**AIMS AND OPERATION OF THE FIELD.** Work in Black studies is under the supervision of the Africana Studies and Research Center. The area of Black studies is still being established and defined, and students will participate significantly in its direction and development. Interaction with the surrounding Black community, and with Black students and faculty on other campuses and in other

countries will also aid in the development of a valid program. To assure continued relevance to the community as well as to provide an area for field research and experience and a base for functional community programs, an urban resident center is being established. Planned areas of research include many previously ignored facets of Black existence as well as the contemporary political, economic, and social policies that shape the life of the Black community. The Africana Center also wishes to encourage creative artists searching for a Black aesthetic. Development of new materials, approaches, and personnel for teaching Black studies and Black children is another major concern.

## Courses

The following list of courses is illustrative rather than inclusive; current offerings will be announced at the beginning of each semester.

**340 Culture, Politics, and the Black Writer.**

**346 African Socialism.**

**352 Pan-Africanism and Contemporary Black ideologies.**

**370 Main Currents in African and Afro-American History.**

**372 Cultural Life Styles and Social Process in Black Communities.**

**420 Politics and Social Organization in the Black Community.**

**484 African Liberation Movements.**

**490 Seminar in Black History.**

**492 Seminar in Advanced Black Literature.**

**566 Politics and National Integration in Africa.**

**620 Advanced Research Seminar in African and Afro-American History.**

**Anthropology 438 Ethnology in Africa.**

**Anthropology 520 Ethnolinguistics.**

**Anthropology 539 Africa.**

\*A Master's degree program is in the process of development.

**Economics 373-374 Economic Development of the Urban Ghetto.**

**Economics 671-672 Economics of Development.**

**Education 476 The Urban School.**

**English 467 The Afro-American Novel and Its Tradition.**

**Government 338 Politics and Modernization.**

**Government 349 Political Role of the Military.**

**Government 350 Comparative Revolutions.**

**History 488 Problems in the History of Brazil.**

**History 673-674 Seminar in American Political History and the Antebellum Period.**

**History 685-686 Seminar in the History of the American South.**

**Linguistics 515-516 Sociolinguistics.**

**Sociology 536 Demographic Research Methods.**

**Sociology 539 Population in Tropical Africa.**

**Center for International Studies 550 Research in Comparative Modernization.**

**Center for International Studies 572 Processes of Economic Growth and Development.**

## **Agricultural Economics**

### **Faculty**

David J. Allee, Richard D. Aplin, Solon L. Barraclough, Sanford A. Belden, C. Arthur Bratton, Earl H. Brown, Max E. Brunk, David L. Call, George L. Casler, Howard E. Conklin, George J. Conneman, Lawrence B. Darrah, Bennett A. Dominick, Jr., Wendell G. Earle, Doyle A. Eiler, Olan D. Forker, Donald K. Freebairn, Dana C. Goodrich, Jr., Glenn W. Hedlund, Herbert R. Hinman, R. Brian How, Robert J. Kalter, C. Del Mar Kearl, Eddy L. LaDue, Clifton W. Loomis, Edward A. Lutz, John W. Mellor, Joseph F. Metz, Jr., Timothy D. Mount, Daniel I. Padberg, Thomas T. Poleman, Kenneth L. Robinson, Daniel G. Sisler, Robert S. Smith, Bernard F. Stanton, Robert P. Story, William G. Tomek, Stanley W. Warren

### **Field Representative**

Kenneth L. Robinson, 40 Warren Hall

### **MAJOR AND MINOR SUBJECTS**

**Agricultural Economics**

**Farm Management and Production Economics**

**International Economics and Development**

**Marketing and Food Distribution**

**Policy and Prices**

**Public Administration and Finance**

**Resource Economics**

The Field offers graduate training leading to the Master of Science and Doctor of Philosophy degrees. The emphasis of the graduate program is on training for independent study and research at the Ph.D. level; however, a student may elect to follow a terminal M.S. program. The intent of the faculty is to make available high-quality, flexible programs that recognize the needs of individual students.

Students who wish to obtain a Ph.D. degree are usually expected to obtain a Master's degree first; direct admission to a Ph.D. program may be considered if the applicant has an outstanding scholastic record and strong preparation for graduate work in agricultural economics.

One major and one minor are required for the M.S. degree. A candidate for the Ph.D. degree must have one major and two minors, one of which must be taken outside the Field; other minors available in the Social Sciences are indicated in this *Announcement*.

**ADMISSION REQUIREMENTS.** Each applicant must meet the minimum standards of the Cornell Graduate School. All applicants are urged to take the Graduate Record Examination Aptitude Test; those seeking fellowships must do so. An undergraduate major in agricultural economics is not required, but strong motivation to do graduate work in this area is expected.

**LANGUAGE REQUIREMENT.** No foreign languages are required by the Field for either the M.S. or the Ph.D. degree. However, a knowledge of one or more foreign languages is sometimes a prerequisite to acceptable professional work. The student's Special Committee members may set such language requirements as they deem necessary.

**EXAMINATIONS.** The Field requires only the examinations required by the Graduate School, as described on p. 11 of this *Announcement*.

**RESEARCH AND STUDY OPPORTUNITIES.** The student may pursue research in any of the areas suggested by the major subjects. Other faculty interests include agricultural cooperatives, agricultural geography, busi-

## 52 Agricultural Economics

ness management, farm finance, international trade, regional agricultural development, resource economics, and quantitative methods as applied to problems in agricultural economics. Within the area of economic development, staff members have special interests in Latin America, South Asia, Southeast Asia, and tropical agriculture.

The primary subject matter interests of the faculty follow.

Farm management and production economics: Messrs. Bratton, Casler, Conklin, Conne-  
man, Hinman, Kearl, LaDue, Loomis, Smith,  
Stanton, Warren.

International economics and development: Messrs. Barraclough, Freebairn, Mellor,  
Poleman.

Marketing and food distribution: Messrs. Ap-  
lin, Belden, Brown, Brunk, Call, Darrah,  
Dominick, Earle, Eiler, Forker, Goodrich,  
Hedlund, How, Metz, Padberg, Story.

Policy and prices: Messrs. Mount, Robinson,  
Sisler, Tomek.

Public administration and finance: Mr. Lutz.  
Resource economics: Messrs. Allee and  
Kalter.

**FINANCIAL ASSISTANCE.** Assistantships in this Field provide an opportunity for part-time employment in teaching, research, or extension. Thesis research is often conducted as a part of assistantship duties in connection with research projects supervised by the staff. Students with exceptional academic records are urged to apply for fellowships offered by Cornell University and by New York State; see pp. 13-15 of this *Announcement*.

### Courses

The following list of graduate-level courses in the Field is for the general information of the applicant. Specific information regarding time, location, and content of these courses is provided in the *Announcement of the College of Agriculture*. Attention is also directed to course offerings in Economics, Statistics, and other related Fields in this *Announcement*.

**402 Advanced Farm Business Management** Spring term. Credit three hours. Prerequisite: 302 or equivalent. Mr. Conne-  
man.

**403 Cost Accounting for Farm Business Management.** Fall term. Credit three hours. Prerequisite: 302. Mr. Kearl.

**405 Farm Finance.** Spring term. Credit three hours. Prerequisite: 302. Mr. Smith.

**406 Farm Appraisal.** Fall term. Credit three hours. Prerequisite: 302. Mr. Warren.

**408 Production Economics.** Spring term. Credit three hours. Prerequisite: Economics 101-102. Mr. Casler.

**441 Food Distribution.** Fall term. Credit four hours. Mr. Earle.

**443 Food Industry Management.** Spring term. Credit four hours. Mr. Earle.

**445 Field Study of Food Industries.** Spring term. Credit two hours. Registration by permission. Mr. German.

**450 Resource Economics.** Fall term. Credit three hours (four hours with supplemental work). Prerequisite: Economics 102 and Conservation 201 or consent of the instructor. Mr. Allee.

**452 Regional Agricultural Studies.** Spring term. Credit three hours. Prerequisite: 150 and 302, which should precede or accompany this course. Mr. Conklin.

**464 Economics of Agricultural Development.** Spring term. Credit three hours. Prerequisite: 150 or Economics 101-102 or consent of the instructor. Mr. Mellor.

**507 Farm Management Research Methods.** Fall term. Credit two hours. Mr. Stanton.

**508 Quantitative Methods in Production Economics.** Fall term. Credit four hours. Mr. Robinson.

**515 Applied Econometrics in Agricultural Economics.** Spring term. Credit three hours. Prerequisite: ILR 311 (Statistics II). Mr. Tomek.

**540 Introduction to Marketing Research.** Spring term. Credit two hours. Mr. Brunk.

**541 Food Merchandising.** Fall term. Credit two hours. Mr. Brunk.

**544 Interregional Competition.** Spring term of even-numbered years. Credit two hours. Prerequisite: 508. Mr. How.

**548 Quantitative Methods in Agricultural Economics.** Spring term. Credit three hours. Prerequisite: 508 and some knowledge of computer programming, which may be obtained concurrently. Mr. How.

**550 Economic Analysis of Public Resource Investment.** Spring term. Credit four hours. Prerequisite: Economics 311 or 511 or consent of the instructor. Mr. Kalter.

**552 Special Problems in Land Economics.** Fall or spring term. Credit one or more hours. Registration by permission. Messrs. Conklin and Allee.

**560 World Food Economics.** Fall term. Credit four hours. Prerequisite: at least three courses in economics. Mr. Poleman.

**615 Seminar in Econometrics.** Fall term. Credit three hours. Prerequisite: 515 or equivalent. Mr. Mount.

**626 Seminar in Agricultural Cooperation.** Spring term. Credit two hours. Mr. Hedlund.

**637 Administration of Public Agricultural Programs.** Spring term. Credit two hours. Mr. Lutz.

**641 Marketing and Pricing Efficiency.** Fall term. Credit three hours. Registration by permission. Mr. Forker.

**642 Market Organization and Structure.** Spring term. Credit three hours. Registration by permission. Mr. Padberg.

**650 Workshop on Resource Economics.** Fall term. Credit two to four hours. Prerequisite: 550 or consent of the instructor. Mr. Kalter.

**651 Seminar in Agricultural Policy.** Spring term. Credit two hours. Mr. Robinson.

**652 Readings in Philosophy.** Spring term. Credit three hours. Open only to students in a Ph.D. program. Mr. Conklin.

**664 Seminar in the Agricultural Development of South Asia.** Spring term. Credit three hours. Prerequisite: 464 or equivalent. Mr. Mellor.

**665 Seminar in Latin American Agricultural Policy.** Fall term. Credit two hours. Prerequisite: basic economics; a knowledge of Spanish or Portuguese is desirable. Mr. Freebairn.

**668 Seminar in the Economics of Agricultural Development.** Fall term. Credit two hours. Registration by permission. Messrs. Call, Conklin, Freebairn, Mellor, Poleman, Sisler, and staff.

**690 Seminar in Agricultural Economics Extension.** Fall term. Credit two hours. Mr. Bratton.

## Anthropology

### Faculty

Robert Ascher, Donald R. DeGlopper, Davydd J. Greenwood, Thomas Gregor, Leighton W. Hazlehurst, Charles F. Hockett, Kenneth A. R. Kennedy, Anthony Thomas Kirsch, Bernd Lambert, William W. Lambert, Thomas F. Lynch, Michael E. Meeker, John V. Murra, John M. Roberts, Lauriston Sharp, James T. Siegel, Robert J. Smith, William A. Stini, R. Brooke Thomas, Judith M. Treistman, Frank W. Young

### Professor-at-Large

L. S. B. Leakey, Centre for Prehistory and Palaeontology

### Field Representative

Kenneth A. R. Kennedy, 225 McGraw

### MAJOR SUBJECT

Anthropology

### MINOR SUBJECTS

Applied Anthropology\*

Archaeology

Physical Anthropology

Psychological Anthropology

Social Anthropology

**MAJOR AND MINOR SUBJECTS.** The Field strongly recommends that candidates seeking a career in anthropology elect the Ph.D. program, but M.A. candidates are occasionally accepted. Because the faculty conceives of

its discipline as a unified field, only one major, anthropology, is offered.

Within the context of the approved major subject, a student may opt for training as a generalist or he may choose a specialization. *The student's choice of a specialization is by no means limited to the list of minor subjects appearing above.* However, if he does choose a specialization corresponding to an approved minor subject he may *not* elect that subject as a minor. Except for this important limitation, the student is free to choose his minor or minors either from among these four or from among those offered by other Fields. All five minor subjects in this Field are available to students in other Fields.

A student in a doctoral program in Anthropology may take one minor subject or two. He makes this decision in consultation with the chairman of his Special Committee.

**ADMISSION REQUIREMENTS.** A faculty committee of the Field, with the Field Representative as chairman, evaluates all applications for admission and awards. All applicants resident in the United States during the year preceding matriculation at Cornell must submit the scores of the Graduate Record Examination Aptitude Test with their credentials. Those who are accepted, but who are not in the United States at the time of application, must submit scores by the close of their first year at Cornell.

\*Applied Anthropology is available only to those whose major is in another Field.

## 54 Anthropology

The Field requires that a candidate for a higher degree demonstrate a thorough reading knowledge of one language other than English. Any language may be offered which, in the judgement of the candidate's Special Committee, will further his research and professional competence. This is the minimum language requirement of the Field; a student's Special Committee may require a mastery of additional languages or a greater degree of language competence.

Every graduate student is required to gain experience in classroom teaching.

Examinations required by the Graduate School are described on p. 11 of this *Announcement*.

**RESEARCH AND STUDY OPPORTUNITIES.** The special interests and competence of a large faculty permit a full and varied curriculum. New, modern laboratory facilities have given impetus to instruction and research in archaeology and physical anthropology. Some of the lines of inquiry and training available, and the faculty members primarily associated with them, follow.

American Indian: C. F. Hockett, J. M. Roberts  
Anthropological history and theory: K. A. R.

Kennedy, B. Lambert, L. Sharp, R. J. Smith  
Applied anthropology and culture change: L. Sharp, R. J. Smith

Archaeology: R. Ascher, T. F. Lynch, J. M. Treistman

Chinese studies: D. R. DeGlopper, J. M. Treistman

Comparative religion: A. T. Kirsch, L. Sharp, J. T. Siegel

Cross-cultural studies: W. W. Lambert, J. M. Roberts, F. W. Young

Economic anthropology and technology: D. J. Greenwood, J. V. Murra, J. M. Treistman

Ethnohistory: J. V. Murra

Expressive culture (art, folklore, literature, games, models): J. M. Roberts, R. J. Smith

Japanese studies: R. J. Smith

Latin American studies: T. Gregor, T. F. Lynch, J. V. Murra, R. B. Thomas, F. W. Young

Legal anthropology: J. M. Roberts

Linguistics: C. F. Hockett

Near Eastern studies: M. E. Meeker

Oceania: B. Lambert, L. Sharp

Physical anthropology: K. A. R. Kennedy, W. A. Stini, R. B. Thomas

Political anthropology: J. V. Murra, J. M. Roberts, L. Sharp

Psychological anthropology: W. W. Lambert, J. M. Roberts

Social organization: T. Gregor, L. W. Hazlehurst, B. Lambert, M. E. Meeker, L. Sharp, J. T. Siegel

South Asian studies: L. W. Hazlehurst, K. A. R. Kennedy

Southeast Asian studies: A. T. Kirsch, L. Sharp, J. T. Siegel

Urban studies: L. W. Hazlehurst, J. T. Siegel, R. J. Smith

## Courses

**412 Contemporary Anthropological Theory.** Spring term. Credit four hours.

**416 The Content of Culture.** Spring term. Credit four hours. Mr. Roberts.

Attention is given to the description and management of the informational resource known as culture with a view to developing a theory of culture content. Codes, models, and inventories are given special attention.

**418 Ethnohistory.** Spring term. Credit four hours.

**421 Comparative Social Systems.** Fall term. Credit four hours. Mr. Hazlehurst.

Topics will include the comparative study of systems of kinship, politics, religion, and magic in preliterate societies and the relationship between these types of systems in particular societies. Also age and sex differentiation; age-sets and age-grades; division of labor, types of specialization, occupational associations; rank and occupation; social classes, caste, slavery, pawnship, and serfdom; secret associations; social networks and social mobility. References will also be made to theories concerning these phenomena.

**424 Myth, Ritual, and Symbol.** Spring term. Credit four hours. Mr. Kirsch.

A survey of anthropological approaches to the study of myth, ritual, and world view taken as symbolic systems. The general characteristics of symbol systems, their perpetuation and elaboration, and their role in shaping social life will be explored. The social and psychological functions of myth and ritual in primitive and complex societies will be compared. An attempt will be made to discover what conditions are conducive to or inhibit radical symbolic transformations and what the implications of such changes might be.

**427 Constants and Variables in Culture.** Fall term. Credit four hours. Mr. Roberts.

An examination of those similarities and differences in cultures throughout the world which have claimed the attention of behavioral scientists. Major cross-cultural studies are reviewed, and specific use is made of the Human Relations Area Files in Olin Library.

**451 Archaeology and the Humanities.** Fall term. Credit four hours.

**452 Archaeology and the Sciences.** Spring term. Credit four hours.



**453 Environment and Archaeology.** Fall term. Credit four hours. Prerequisite: 102 or Archaeology 200 or relevant scientific background. Miss Treistman.

Exploration of the relationships of human ecology through the study of archaeology. The uses of environmental evidence in tracing and interpreting the culture histories of societies of the past will be emphasized through detailed site analysis. A laboratory or field project will be required.

**466 Technology.** Spring term. Credit four hours.

**471 Physical Anthropology Laboratory.** Fall term. Credit four hours. Mr. Kennedy.

Practical exercises and demonstrations of modern approaches to the methodology of physical anthropology. Emphasis upon comparative primate anatomy, the human paleontological record, description of skeletal and living subjects, paleopathology, skeletal maturation, and relevant field techniques for the archaeologist.

**472 Physical Anthropology Laboratory.** Spring term. Credit four hours. Mr. Stini.

Contemporary human physiological and morphological variation, blood group serology, anthropometry and statistical analysis of discrete and continuous traits are treated with emphasis on laboratory and field methodology. Techniques suitable for comparative growth studies and assessment of the nutritional status of populations are demonstrated and discussed.

**497-498 Topics in Anthropology.** Throughout the year. Credit to be arranged. Prerequisite: consent of instructor. Staff.

## Graduate Seminars

**501 Proseminar: The Scope of Anthropology.** Fall term. Credit four hours. Staff.

**502 The Design of Field Research.** Spring term. Credit four hours. Mr. Greenwood.

**503 Human Biology and Cultural Behavior.** Fall term. Credit four hours. Mr. Stini.

**507-508 Special Problems in Anthropology.** Either term. Credit to be arranged. Staff.

**512 History of Anthropological Thought.** Spring term. Credit four hours. Mr. Kirsch.

**513 Contemporary Anthropological Theory.** Fall term. Credit four hours. Mr. Meeker.

**514 Applied Anthropology.** Spring term. Credit four hours.

The uses of anthropology in the modern

world. Designed not only for students of the humanities and social sciences, but also for natural scientists concerned with the cultural problems involved in technological change, community development, native administration, and modernization in various regions of the world.

**515 Models in Culture.** Fall term. Credit four hours.

The place of natural models in culture is examined from the viewpoints of ethnography, anthropological method, and anthropological theory. Attention is given to natural models which are primarily expressive (e.g., games, myths, paintings, etc.) and to models which are primarily cognitive (e.g., maps, quipus, tallies, etc.). The involvements of individuals and groups in such models and the place of models in the management of cultural information by individuals and groups are considered.

**517 Conceptual Systems in Anthropology.** Fall term. Credit four hours. Mr. Kirsch.

**518 Cultural Processes: Role "Theory" and Cultural Change.** Spring term. Credit four hours.

**520 Ethnolinguistics.** Spring term. Credit four hours.

**523 Social Systems: The Anthropology of Face-to-Face Interaction.** Spring term. Credit four hours. Mr. Gregor.

**528 Political Anthropology: Culture and Politics (Government 550).** Spring term. Credit four hours. Messrs. Anderson and Siegel.

**530 North America.** Spring term. Credit four hours.

**531 Middle America.** Fall term. Credit four hours.

**532 South America: Lowland Research.** Spring term. Credit four hours.

**534-535 Southeast Asia: Readings in Special Problems.** Either term. Credit to be arranged.

**540 South Asia.** Spring term. Credit four hours. Mr. Hazlehurst.

**541-542 South Asia: Readings in Special Problems.** Either term. Credit to be arranged. Messrs. Hazlehurst and Rowe.

**543 China.** Fall term. Credit four hours.

**545 Japan.** Fall term. Credit four hours. Mr. Smith.

## 56 Asian Studies

**548 Comparative Studies in Complex Societies: Agrarian Civilizations.** Spring term. Credit four hours. Mr. Hazlehurst.

**563 Problems in Asian Archaeology.** Spring term. Credit four hours. Miss Treistman.

**564 Problems in Archaeology: The Andes.** Spring term. Credit four hours. Mr. Lynch.

**565 Archaeology: Agriculture and Civilization.** Fall term. Credit four hours. Prerequisite: 364.

**573 Human Adaptation.** Fall term. Credit four hours.

**575 Physical Anthropology: History and Theory.** Spring term. Credit four hours. Mr. Kennedy.

**576 Physical Anthropology: Problems, Methods and Theory.** Spring term. Credit four hours.

**578 Paleoanthropology: South Asia.** Spring term. Credit four hours.

**601-602 Field Research.** Either or both terms. Credit to be arranged. Staff.

## Asian Studies

### Faculty

China: Knight Biggerstaff (Modern History), Nicholas C. Bodman (Linguistics), Nai-ruenn Chen (Economics), Chuen-tang Chow (Literature), Ta-Chung Liu (Economics), John McCoy (Linguistics and Literature), David Mazingo (Government—International Relations), Charles A. Peterson (Medieval History), Harold Shadick (Literature), Judith M. Treistman (Archaeology), Martie W. Young (Art History).

Japan: Robert J. Smith (Anthropology), Et-suko Terasaki (Literature).

South Asia: D. E. Ashford (Government: Public Administration), H. R. Capener (Sociology), Arch T. Dotson (Government: Development Planning), Harold Feldman (Child Development), James W. Gair (Linguistics), Leighton W. Hazlehurst (Anthropology), Gerald Kelley (Linguistics), Kenneth A. R. Kennedy (Anthropology), John W. Mellor (Economics).

Southeast Asia: Benedict R. O'G. Anderson (Government), Arch T. Dotson (Government), John M. Echols (Linguistics and Literature), Frank H. Golay (Economics), Robert B. Jones, Jr. (Linguistics), George McT. Kahin (Government), Thomas A. Kirsch (Anthropology), Stanley J. O'Connor (Art History), Robert M. Quinn (Linguistics), Lauriston Sharp (Anthropology), James T. Siegel (Anthropology), John U. Wolff (Linguistics), O. W. Wolters (History), David K. Wyatt (History).

### Visiting Professors

#### Southeast Asia

Alexander B. Griswold, Director, Breezewood Foundation  
D. G. E. Hall, Professor Emeritus, London University

### Field Representative

Chuen-tang Chow, 103 Franklin Hall

### MINOR SUBJECTS

#### Asian Studies

##### East Asian Linguistics

##### South Asian Linguistics

##### Southeast Asian Linguistics

The Ph.D. candidate specializing in Asia (or with a serious interest in the area) may select a minor in the Field of Asian Studies consisting of either: (a) concentrated interdisciplinary study of one area of Asia, or (b) disciplinary or topical concentration which cuts across area boundaries. Details of the minor are to be worked out in consultation with the member of the candidate's Special Committee representing Asian Studies. Because specialization in Asia usually involves the study of an Asian language, it is essential that the candidate discuss the problem of language work with the entire membership of his Committee, particularly with the member representing his major Field.

Major and minor work is also offered in various Social Science Fields (see appropriate discipline listing in this *Announcement*). Work is also offered in Oriental art, in Chinese literature, in medieval or modern Chinese history, and in Southeast Asian history (see the sections Chinese Literature, History of Art and Archaeology, and History in the *Announcement of the Graduate School: Humanities*).

There are at Cornell three programs concerned with teaching and research on Asia—the China Program, South Asia Program, and Southeast Asia Program. (Selection of a minor in Asian Studies does not in all cases qualify the candidate for membership in one of these programs.) Requirements for membership and information on fellowships and research assistantships available in these programs will be found under their individual descriptions, on pp. 32, 36, and 38 of this *Announcement*.

The work of the Department of Asian Studies is recognized and supported by the United States Office of Education. Under the National Defense Education Act, Cornell has three language and area centers: East Asia, South Asia, and Southeast Asia. Languages currently offered are Burmese, Cebuano, Chinese (Mandarin, Cantonese, and Hokkien), Hindi, Indonesian, Japanese, Javanese, Malay, Pali, Sanskrit, Sinhalese, Tagalog, Thai, Urdu, and Vietnamese. Graduate students in Asian Studies are eligible for the National Defense Foreign Language Fellowships offered by the United States Office of Education. Application forms should be requested directly from the Graduate School and returned to it for forwarding to the United States Office of Education, if approved.

Graduate students in Asian Studies are also eligible for the Foreign Area Training Fellowships administered by the Social Science Research Council for study in the United States and for research overseas. Qualified graduate students who are citizens of the United States may apply for Fulbright teaching and research awards for Taiwan, India, Japan, Malaysia, Pakistan, Philippines, and Thailand.

For additional details, consult the Department of Asian Studies, 100 Franklin Hall.

## Courses

**501-502 Southeast Asia.** Throughout the year. Credit to be arranged.

A graduate-level survey of the cultures and history of Southeast Asia covering the pre-European, colonial, and postcolonial periods, but with particular emphasis on postwar developments and contemporary problems; will occasionally focus on a problem common to the area as a whole, but usually deals with a different country of Southeast Asia each term.

**506 Seminar: Contemporary Vietnam.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

**591-592 Seminar: Field Research.** Throughout the year.

Field research seminars for selected advanced studies are conducted in South Asia, Southeast Asia, Hong Kong, Taiwan, or Japan by staff members who are themselves working in these areas.

**676 Southeast Asian Research Training Seminar.** Spring term. Credit to be arranged.

Open only to advanced graduate students preparing for field work in Southeast Asia.

All other courses relevant to the minor in Asian Studies are listed under various disciplines in this *Announcement* and in the *Announcement of the Graduate School: Humanities*. They are listed as a group under Asian Studies in the *Announcement of the College of Arts and Sciences*.

## Business and Public Administration

### Faculty

Douglas E. Ashford, Roger M. Battistella, Frederick T. Bent, Harold Bierman, Earl Brooks, Douglas R. Brown, H. Justin Davidson, Arch T. Dotson, Thomas R. Dyckman, Edward S. Flash, Frank F. Gilmore, Jerome E. Hass, Thomas R. Hofstedt, G. David Hughes, John G. B. Hutchins, James G. Kinard, David C. Knapp, Thomas M. Lodahl, Alan K. McAdams, John O. McClain, Vithala R. Rao, John M. Rathmell, Richard A. Rettig, Richard Schramm, Seymour Smidt, David B. Smith, Bernell K. Stone, David A. Thomas, L. Joseph Thomas, Robert D. Tollison, Richard R. West, Thomas D. Willett

### Field Representative

Thomas R. Dyckman, 502 Malott Hall

### MAJOR AND MINOR SUBJECTS

A candidate for the degree of Doctor of Philosophy must offer one major and two minor subjects of competence. The major subject must be selected from either Group I or

Group II as detailed below. The first minor must be selected from the group not used for the major, with exceptions in some instances as indicated below.

### GROUP I

Managerial Economics  
Organization Theory and Behavior  
Quantitative Analysis for Administration\*

### GROUP II

Accounting  
Business Policy  
Business and Public Policy  
Finance  
International Development  
Marketing  
Medical Care Organization and Administration  
Production and Operations Management\*  
Public Administration  
Transportation Economics and Policy  
Administration of Higher Education (minor subject only)

\*These two subjects may not be taken together as major and first minor.

## 58 Business and Public Administration

The Field recognizes that some candidates electing a major subject in Group II may wish to take a first minor in a basic discipline offered in another Field of the Graduate School. This is permitted whenever the proposed subject is reasonably related to the student's major subject. Permission for candidates electing a major subject in Group I to take their first minor in an applied subject in another Field will probably be less frequent, since the applied subjects are the special area of interest in this Field. All substitutions must be approved by the chairman of the Committee on Advanced Degrees.

The first minor is expected to be relatively extensive and to require a level of competence equivalent to that expected of majors. The second minor may be selected from the above subjects or from another Field. If the first minor is taken within this Field, a student may be encouraged to take a second minor relevant to his program in another Field.

**AIMS AND OPERATIONS OF THE FIELD.** The objective of the Ph.D. program in this Field is to prepare students for teaching and research in administration in the context of one or more of the institutional frameworks involved—business, government, health care, and higher education. Unlike the professional M.B.A. and M.P.A. programs, its task is not envisioned primarily as preparing practitioners. However, it is highly important that Ph.D. candidates have the same training in relevant core subjects, and a student who has been admitted directly from a Bachelor's degree program is normally required to take such courses. The Ph.D. candidate is, however, expected to study deeply in the disciplinary subjects which form the basis of administrative action and to relate these studies in a meaningful way to such action.

A student entering with a two-year M.B.A. or M.P.A. degree, or the equivalent, may expect to complete the program in approximately three years; if he enters directly from a Bachelor's degree program, four years are normally required. In each case the minimum time is one year less.

The candidate is required to write a thesis under the direction of one or more members of his Special Committee.

The candidate may, at the discretion of his Special Committee, be required to demonstrate oral or written proficiency, or both, in one or more foreign languages.

Besides course examinations, a candidate must pass three major examinations. The first, the qualifying examination, is given soon after registration to determine if he is properly prepared to continue in the subjects selected, and to serve as a basis for working out a study program. The comprehensive admission to candidacy examination is given on the major and minor subject areas after the

candidate has had adequate preparation therein, and is always in two parts, written and oral. Finally, an oral defense of the thesis must be undertaken after the completed manuscript has been approved in substance by the Special Committee.

**ADMISSION REQUIREMENTS.** Admission to the Ph.D. program depends on suitable preparation and evidence of high competence. The most desirable preparation is considered to be strong undergraduate work in such relevant fields as economics, government, sociology, psychology, mathematics, or engineering plus a distinguished record in a professional program leading to the M.B.A. or M.P.A. degree, or the equivalent. While some students are admitted directly from a Bachelor's degree program, the majority come with a relevant Master's degree.

A knowledge of mathematics at least through calculus is desirable.

A student may not register for an M.A. or M.S. degree in this Field. A student desiring a Master's degree should examine the *Announcement of the Graduate School of Business and Public Administration*, which outlines the program for the degrees of Master of Business Administration and Master of Public Administration.

Applicants, both foreign and domestic, are required to submit aptitude test scores for either the Admission Test for Graduate Study in Business or the Graduate Record Examination.

**FINANCIAL ASSISTANCE.** The Field normally nominates a limited number of candidates with strong records for the University fellowship competition. In addition, a considerable number of assistantships are awarded annually to both resident and incoming students.

## Subject Descriptions

### Group I

**MANAGERIAL ECONOMICS** concentrates on economic analysis for decision making. A candidate may study the problems of the total economy, of industries, or of the firm, and may do so within the context of any particular study area, such as international economic relations, economic development, business-government relations, money and banking, investment project analysis, or transportation. He is expected to develop a thorough grasp of relevant economic theory and institutions and a basic understanding of both qualitative and quantitative analysis.

**ORGANIZATION THEORY AND BEHAVIOR** focuses on social and behavioral science approaches to the study of human activity in organizational settings. The major concern is

with regularities, differences, and relationships in behavior directed toward purposive ends. Systematic observation, theoretical analysis, and empirical investigation are stressed. A fundamental grounding in at least one of the basic behavioral disciplines is required.

**QUANTITATIVE ANALYSIS FOR ADMINISTRATION** stresses the modern developments in the uses of mathematical and statistical tools and computer technology for the solution of managerial problems. A high level of mathematical competence is an essential element.

## Group II

**ACCOUNTING** involves the study of the theory and practice of developing financial data for the two purposes of enabling management to control and plan the development of the enterprise and of enabling others to appraise its condition.

**BUSINESS POLICY** involves the study of business corporations, and particularly of the strategy developed to meet various problems, both internal and external. A substantial knowledge of the functional areas of marketing, production, finance, personnel and labor relations, and accounting is essential.

**BUSINESS AND PUBLIC POLICY** involves the study of the three-way relationship among individuals, business firms, and government. Emphasis may be either on the United States or a foreign area. A substantial knowledge of the political and economic background of public policies is essential. Emphasis is placed on the impact of public policies and regulation on business and of business policies on government, and on the problems of developing socially desirable policies in both the public and private sectors.

**FINANCE** focuses on: the financial structures and requirements of corporations of various types, the problems of developing and maintaining sound financial condition, the organization and behavior of financial markets of different types, and the influence of public policies at home and abroad on these markets and on corporate finance. A knowledge of accounting is essential.

**INTERNATIONAL DEVELOPMENT** is the study of the problems of establishing effective public and business institutions in developing parts of the world, with special emphasis on problems of administration, public and private, both indigenous and American, in such areas. A good background in one or more of the basic disciplines of economics, government, sociology, or anthropology is highly desirable.

**MARKETING** is the study of how the analytical tools derived from economics, psychology, sociology, and operations research can be applied in the conduct of the marketing function and in appraising markets. Potential areas of study range from analysis of consumer behavior to research in the decision-making process in the management of marketing organizations.

**MEDICAL CARE ORGANIZATION AND ADMINISTRATION** comprises the study of the complex problems of public policy and administration associated with the organization, financing, and delivery of personal health services. Health services are studied employing a systems framework. Public and private health care arrangements are examined both in hospitals and in the larger framework of public agencies and private firms.

**PRODUCTION AND OPERATIONS MANAGEMENT** emphasizes the study of quantitative methods of analysis, including the use of the computer, in the solution of major economic decision problems of production and operations management.

**PUBLIC ADMINISTRATION** involves an interdisciplinary approach to the study of governmental policies, policy formulation, power relationships, administrative behavior, basic management functions such as personnel and finances, and the broad environment of public affairs. The student is expected to gain competence in bureaucratic and organizational theory and in the methods of the social sciences.

**TRANSPORTATION ECONOMICS AND POLICY** is the study of the economics of an important business function influencing the geographical structure of economic life, and of the associated problems of carriers, shippers and travelers, and governments.

**ADMINISTRATION OF HIGHER EDUCATION** focuses on the application of behavioral, economic, and quantitative methods of analysis and such applied subjects as accounting and finance to the peculiar problems of the large American university.

## Courses

### Managerial Economics

**124 Economic Analysis for Management I.** Fall term. Credit three hours. Messrs. Hass and Tollison.

**125 Economic Analysis for Management II.** Spring term. Credit three hours. Messrs. McAdams and McClain.

## 60 Business and Public Administration

**375 Economic and Business History.** Fall term. Credit three hours. Mr. Hutchins.

**377 Competitive Behavior and Public Policy.** Fall term. Credit three hours. Mr. Tollison.

**379 Economic Evaluation of Capital Investment Projects.** Fall term. Credit three hours. Mr. Smidt.

**380 Managerial Economics Workshop.** Spring term. Credit three hours. Mr. McAdams.

**433 Seminar in Organized Markets.** Fall term. Credit three hours.

### Organization Theory and Behavior

**120 Organization Theory and Behavior.** Fall term. Credit three hours. Miss MacColl and Messrs. Kover, Lodahl, and Smith.

**121 Personnel Administration and Human Relations.** Fall and spring terms. Credit three hours. Mr. Brooks.

**500 Human Relations in Administration.** Spring term. Credit three hours. Mr. Lodahl.

**501 Public Personnel Management.** Spring term. Credit three hours.

**502 Organizational Behavior and Administration.** Fall term. Credit three hours. Mr. Brooks.

**503 Business and Industrial Personnel.** Spring term. Credit three hours. Mr. Brooks.

**902 Seminar in Organization Theory.** Fall term. Credit hour hours.

**907 Special Topics in Organization Theory and Behavior.** Spring term. Credit three hours.

### Quantitative Analysis for Administration

**123A Quantitative Methods for Management I.** Fall term. Credit two hours. Messrs. Kinard and L. Joseph Thomas.

**123B Introduction to the Computer.** Fall term. Credit one hour. Mr. Kinard.

**123C Quantitative Methods for Management II.** Spring term. Credit three hours. Mr. Dyckman.

**456 Seminar in Quantitative Methods.** Spring term. Credit three hours.

**600 Introduction to Probability Theory (Industrial Engineering 9460).** Fall term. Credit four hours.

**601 Introduction to Statistical Theory (Industrial Engineering 9470).** Spring term. Credit four hours.

**602 Operations Research I (Industrial Engineering 9522).** Fall term. Credit three hours.

**604 Operations Research II (Industrial Engineering 9523).** Spring term. Credit three hours.

**950 Information Processing Systems in Organizations.** Spring term. Credit three hours. Messrs. Kinard and Lyons.

**951 Economic Evaluation of Information Processing Systems.** Spring term. Credit three hours. Messrs. Kinard and Lyons.

### Finance

**128 Corporate Financial Management.** Spring term. Credit three hours. Messrs. Bierman, Hass, and Stone.

**426 Financial Management.** Fall term. Credit three hours. Mr. Stone.

**427 Investment Management.** Spring term. Credit three hours. Mr. Stone.

**429 The Economics of Securities Markets.** Fall term. Credit three hours. Mr. West.

**430 Money and Banking.** Spring term. Credit three hours. Mr. West.

**434 Current Problems in Corporate Finance.** Spring term. Credit three hours. Mr. Smidt.

### International Development

**627 American Business Operations Abroad.** Fall term. Credit three hours. Mr. Bent.

**628 Seminar in International Business and Economic Policy.** Spring term. Credit three hours. Messrs. Bent and Willett.

**629 Administration of Public Operations Abroad.** Spring term. Credit three hours. Mr. Bent.

**632 Seminar in Administration and Development.** Spring term. Credit four hours. Messrs. Ashford and Dotson.

**Gov 537 Political Development and Social Change.** Fall term. Credit four hours. Mr. Ashford.

**Gov 545 Ideology and Political Change.** Spring term. Credit four hours. Mr. Ashford.

### Business Policy

**200 Business Policy.** Fall term. Credit four hours. Mr. Jones.

**308 Law of Business Associations.** Fall term. Credit four hours. Mr. Bugliari.

**309 Advanced Business Law.** Spring term. Credit four hours. Mr. Bugliari.

**625 International Business Policy.** Spring term. Credit three hours.

## Business and Public Policy

**129 Issues in the Environment.** Fall term. Credit three hours. Messrs. Bent, Brown, Carter, Hass, and Kelman.

**202 Business Enterprise and Public Policy.** Spring term. Credit three hours. Mr. Hutchins.

## Accounting

**122 Managerial Accounting.** Fall term. Credit four hours. Messrs. Hofstedt and David A. Thomas.

**300 Intermediate Accounting.** Fall term. Credit three hours. Mr. Hofstedt.

**301 Advanced Financial Accounting.** Spring term. Credit three hours. Mr. Hofstedt.

**302 Cost Accounting.** Fall term. Credit three hours. Mr. Kinard.

**303 Seminar in Financial Policy and Managerial Accounting.** Spring term. Credit three hours. Mr. Bierman.

**304 Seminar in Financial Accounting.** Spring term. Credit three hours. Mr. Bierman.

**305 Federal Taxation and Decision Making.** Spring term. Credit three hours.

## Marketing

**126 Marketing.** Spring term. Credit three hours. Messrs. Edelstein and Rao.

**475 Marketing Operations.** Fall term. Credit three hours. Mr. Rathmell.

**476 Marketing Research.** Fall term. Credit three hours. Mr. Edelstein.

**478 Advertising Management.** Spring term. Credit three hours. Mr. Hughes.

**480 Marketing Strategy.** Spring term. Credit three hours. Mr. Rathmell.

**481 Seminar in Changes in Marketing.** Fall term. Credit three hours. Mr. Rathmell.

**482 Seminar in Marketing and the Management Sciences.** Spring term. Credit three hours. Mr. Rao.

## Medical Care Organization and Administration

**140 Introduction to Hospital and Medical Care Organization.** Spring term. Credit three hours. Mr. Battistella.

**141 Introduction to Clinical Medicine and Public Health.** Spring term. Credit three hours. Dr. Samson.

**142 The Social Psychology of Hospitals.** Spring term. Credit three hours. Mr. Smith.

**450 Evaluation of Community Health Services.** Fall term. Credit three hours. Mr. Brown.

**451 Psychiatric Institutions: Administration and Practice.** Spring term. Credit three hours. Drs. Daly and Johnson.

**452 Sociopolitical Aspects of Community Health Services and Planning.** Spring term. Credit three hours. Messrs. Battistella and Brown.

**453 Legal Aspects of Hospital Administration.** Fall term. Credit two hours. Mr. Bugliari.

**454 Policy and Planning for Health Care.** Fall term. Credit three hours. Mr. Van Ness.

**455 Seminar in Health Research.** Fall term. Credit three hours. Mr. Smith.

**457 Health Economics.** Fall term. Credit three hours. Mr. Kelman.

**458 Health and Welfare Policy: Foundations and Strategies.** Fall term. Credit four hours. Mr. Battistella.

**459 Political Economy of Medical Care Services.** Spring term. Credit three hours. Mr. Kelman.

**460 Quantitative Models in the Health Field.** Fall term. Credit three hours. Mr. McClain.

**461 Biomedical Research and Development and the Delivery of Health Services.** Fall term. Credit three hours. Mr. Rettig.

## Production and Operations Management

**127 Operations Management.** Fall and spring terms. Credit three hours. Messrs. McClain and L. Joseph Thomas.

**525 Problems and Techniques in Production Management.** Fall term. Credit three hours. Mr. L. Joseph Thomas.

## 62 City and Regional Planning

**526 Case Studies in Production and Operations Management.** Spring term. Credit three hours.

### Public Administration

**130 National Government: Institutions, Processes, Problems.** Fall term. Credit three hours. Mr. Rettig.

**131 Operations of the Intergovernmental System.** Spring term. Credit three hours. Mr. Flash.

**428 The Public Economy.** Spring term. Credit three hours. Mr. Tollison.

**553 The Politics and Economics of Metropolitanism.** Fall term. Credit three hours. Messrs. Carter and Tollison.

**554 Seminar in Urban Government and Administration.** Fall term. Credit three hours. Mr. Flash.

**555 Issues of Public Policy and Administration.** Spring term. Credit three hours. Mr. Flash.

**556 Seminar in Public Administration.** Fall term. Credit three hours.

**559 Science, Technology, and Public Policy.** Spring term. Credit three hours. Mr. Rettig.

**560 Application of Science and Technology in the Context of Intergovernmental Relations.** Spring term. Credit three hours. Mr. Rettig.

**633 Comparative Public Administration.** Fall term. Credit three hours.

**750-751 Integrative Seminar: Cornell Career Education Awards Program.** Fall and spring terms. Credit three hours each term. Mr. Flash and staff.

**Planning 580 An Introduction to Social Planning.** Fall term. Credit three hours.

**Planning 581 Case Studies in Human Resource Development Planning.** Spring term. Credit two hours.

### Transportation Economics and Policy

**575 Transportation: Rates and Regulations.** Fall term. Credit three hours. Mr. Hutchins.

**576 Transportation: Structures, Operations, and Policies.** Spring term. Credit three hours. Mr. Hutchins.

### Administration of Higher Education

**903 Current Research in University Administration.** Spring term. Credit three hours.

### Research

**905 Seminar in Research Methods.** Spring term. Credit three hours.

**908 Research Seminar for Doctoral Candidates.** Fall term. Credit three hours.

## City and Regional Planning

### Faculty

Pierre Clavel, Stanislaw Czamanski, Allan G. Feldt, William Goldsmith, Michael Hugo-Brunt, Barclay G. Jones, Burnham Kelly, Thomas W. Mackesey, Kermit C. Parsons, John W. Reps, Courtney Riordan, Sidney Saltzman, Stuart W. Stein

### Field Representative

Barclay G. Jones, 106 West Sibley Hall

### MAJOR SUBJECTS

City and Regional Planning  
Planning Theory and Systems Analysis  
Urban Planning History  
Urban and Regional Theory

### MINOR SUBJECTS

Environmental Planning and Design  
Planning Theory and Systems Analysis  
Regional Economics and Development  
Planning

### Social and Health Systems Planning

Urban Planning History  
Urban and Regional Theory

**ADMISSION REQUIREMENTS.** Applicants are expected to hold a Bachelor's degree from a recognized institution. It may be an academic or professional degree in any field. All applicants resident in the United States during the year preceding matriculation must submit scores of the Graduate Record Examination Aptitude Test taken within the previous two years. Applicants are urged to take the test as early as possible, preferably November, so the results will be available for review.

**FINANCIAL AID.** In addition to the general fellowships of the University, the Department makes a number of awards each year. These include several graduate research assistantships and teaching fellowships, and a number of Public Health Service Traineeships, available in three training programs: environmental



health planning, neighborhood environmental health planning, and comprehensive health planning.

Several national fellowship programs in the Field of City and Regional Planning are administered through the Department. These include fellowship programs of the Department of Housing and Urban Development, NDEA Title IV, Sears, Roebuck Foundation, and the Loula D. Lasker Foundation.

**AIMS AND OPERATIONS OF THE FIELD.** Candidates may apply for the professional Master's program or for the doctoral program as candidates for the Master's degree. Applicants with previous graduate work will be considered for advanced standing or direct admission to doctoral study provided that the amount of work they have taken is equivalent to that required in the Master's program at Cornell. The Master's program is intended to prepare students for professional practice, and the doctoral program is intended to prepare students to make creative contributions to the field through research, teaching, policy making, and practice.

The course of study for the Master of Regional Planning degree, which is administered by a professional division of the Graduate School, normally requires two years. Cornell undergraduates in the School of Civil Engineering, the School of Industrial Engineering and Operations Research, or in the Department of Architecture may, with permission of their advisers and the chairman of the Department of City and Regional Planning, follow a specialized program which may enable them, if admitted as graduate students, to earn the M.R.P. degree in two or three terms of graduate study.

Students in the first year largely follow a program of study designed to provide training in the basic elements of planning: history, urban and regional theory, planning theory, analytical methods, and design and practice. The second year provides opportunity to pursue these subjects in greater depth, to study problem areas of application such as housing and urban renewal, regional and comparative planning, environmental or comprehensive health planning, or social and social facilities planning, and to take electives outside the Field. A summer office practice and training program is offered in New York City. It is designed to provide work experience in planning agencies and consulting firms in the metropolitan area, combined with lectures, seminars, and field trips. Graduate credit is given, but participation is not a requirement for the M.R.P. degree.

Candidates for the Master's degree may request change of status upon completion of

two semesters or may take the Master's degree before applying for transfer to the Ph.D. program. Candidates for the Ph.D. degree must select a major subject from those listed above and must select a major adviser to direct their program of study. It is the Field's policy to encourage the selection of two minor subjects from other Fields. Applicants should therefore consult the *Announcements* of various areas of the Graduate School\* for possible minor subjects in such Fields as the following: *Social Sciences*: Agricultural Economics, Anthropology, Business and Public Administration, Consumer Economics and Housing, Development Sociology, Economics, Design and Environmental Analysis, Government, Industrial and Labor Relations, Law, Sociology, Statistics; *Biological Sciences*: Conservation, Psychology; *Humanities*: Architecture, History, History of Architecture and Urban Development, History of Art and Archaeology; and *Physical Sciences*: Civil Engineering, Computer Science, Operations Research.

Since work for the Ph.D. is considered preparatory to making creative contributions to the discipline, substantial competence in and knowledge of basic analytical and research methods will be required. Candidates may fulfill this requirement by preparation previous to entrance or by course work at Cornell, which may be in a minor subject. Candidates are also required to have some experience in teaching, research, and practice.

**LANGUAGE REQUIREMENTS.** The Field requires Ph.D. candidates to demonstrate (1) reading proficiency in two modern languages other than English, or (2) reading and speaking proficiency in one language; (3) foreign students whose native language is not English may substitute English for one of the languages under (1). The candidate may, with the recommendation of his Special Committee, petition the Field to substitute another research technique for one of the languages.

**EXAMINATIONS.** It is recommended that students take a qualifying examination early in their program. The admission to candidacy and final thesis examinations required by the Graduate School are described on p. 11 of this *Announcement*.

**RESEARCH AND STUDY OPPORTUNITIES.** The Department of City and Regional Planning conducts a program of research in urban and regional studies in cooperation with the Center for Urban Development Research (see p. 41). Research activities are closely related to and derived from faculty interests and specializations. The faculty interests follow.

\*When requesting information about the Fields of the Graduate School that are not described in this *Announcement*, the writer should list the subjects of study in which he is interested, so that the appropriate *Announcement* may be sent to him.

## 64 City and Regional Planning

Pierre Clavel: planning theory and administration.

Stanislaw Czamanski: economic analysis for planning, including urban growth models, regional social accounts, regional applications of input-output analysis, location theory, housing economics, and urban land economics.

Allan G. Feldt: urban sociology, human ecology, urbanization, comparative metropolitan studies, demography, methodology, and operational gaming.

William Goldsmith: regional development planning and administration, economic analysis, and urban and regional planning in developing countries.

Michael Hugo-Brunst: history of architecture, and city planning and development.

Barclay Gibbs Jones: urban and regional quantitative analysis, urbanization theory, planning theory, environmental health planning, and historic preservation.

Burnham Kelly: land-use regulation, development controls, and the housing industry.

Thomas W. Mackesey: history of city planning, and university planning.

Kermit C. Parsons: comprehensive land-use planning, institutional and urban university planning, urban design, urban renewal, and the history of college and university planning.

John W. Reys: land-use regulation, planning administration, comparative planning, and the history of city planning in the United States.

Courtney Riordan: environmental health planning, comprehensive health planning, and quantitative methods of economic analysis.

Sidney Saltzman: quantitative methods and systems analysis in planning, and computers and information-processing systems.

Stuart W. Stein: design of the urban environment, planning and urban design within the context of comprehensive planning, preservation of historic districts, and the enhancement of the visual assets of the city.

### Courses

All of the following courses carry Planning numbers. Most courses in the Department of City and Regional Planning are open to students in any college of the University who have fulfilled the prerequisites and who have the consent of the instructor.

### Planning History

**700 History of Planning I.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Messrs. Mackesey and Stewart.

Historical methods and research techniques, case studies and aesthetic evaluation, the urban revolution, classical societies, medieval urbanism, the Renaissance and the Ba-

roque in Europe, colonization in North America.

**701 History of Planning II.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Mr. Hugo-Brunst.

Introduction: the social, philanthropic, and planning movements from the 18th century to World War II; industrial revolution and technological change; reform; public health, housing, model industrialists; research techniques; planning pioneers and theorists; garden and lineal cities, high- and low-density solutions; new town theories.

**702 Seminar in the History of American City Planning.** Spring term. Credit two hours. Prerequisite: 700 or permission of the instructor. Mr. Reys.

**704 Architecture and Planning in the Orient (Architecture 435).** Fall term. Credit four hours. Prerequisite: 700 or 701, Architecture 400, or special permission. Mr. Hugo-Brunst. The evolution of architecture and urbanization in India, China, Cambodia, Japan, and Thailand.

**705 Introduction to the History of Landscape Architecture and Design.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Mr. Hugo-Brunst.

Classical landscape in the Mediterranean and the Middle East, the Islamic Byzantine tradition; medieval cityscape and the agrarian system; the Renaissance; landscape of gardens in Persia, India, China, Thailand, and Japan. The Victorians; landscape in North America; Colonial landscape; the Twentieth Century; horticulture and techniques; landscape in contemporary planning and architecture.

**707 The History of Colonial Planning.** Fall term. Credit three hours. Prerequisite: 700, Architecture 400, History 371, or special permission. Enrollment restricted to twelve persons. Mr. Hugo-Brunst.

Colonial city planning and civic design in Africa, America, Asia, and Australasia. Case studies from classical times to World War II.

**709 Informal Study in the History of City Planning.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

### Urban and Regional Theory

**410 Introduction to Urban Planning Theory and Practice.** Fall term. Credit three hours. Primarily for undergraduates. Messrs. Parsons and Smith.

A study of contemporary urban planning practice viewed within the context of the evolution of planning theory and theories of urban development.

**411 Introduction to Urban Planning.** Spring term. Credit one hour. May not be taken for credit by those who have taken 510. Staff.

A concise survey of urban planning.

**412 Introduction to Urban and Regional Theory.** Fall term. Credit four hours. Messrs. Goldsmith and Smith.

An eclectic course, borrowing theories from economics, sociology, and geography to explain the existence, functioning, and growth of cities. It will discuss why, how, and where people agglomerate, and attempt to apply theories to currently perceived urban problems.

**510 Principles of City and Regional Planning.** Fall term. Credit three hours. Mr. Clavel.

A review of the basic influences in the development of cities. A general view of the theory and accepted practice of city and regional planning, including a study of the social, economic, and legal phases.

**512 Introduction to Urban and Regional Theory.** Fall term. Credit four hours. Messrs. Goldsmith and Smith.

A first-year graduate course on the growth and structure of cities. Eclectic, borrowing theories from economics, sociology, and geography to explain size, functioning, and location of cities and their components.

**513 Introduction to Human Ecology.** Fall term. Credit three hours. Mr. Feldt.

An examination of the form and development of the human community with respect to spatial, temporal, and functional patterns of organization. Demographic, environmental, and technological characteristics are treated as parameters relevant to the ecological structure of the community.

**715 Seminar in Industrial Location and Regional Development.** Fall term. Credit three hours. Mr. Czamanski.

Topics include interregional location theory and a review of various techniques of selecting optimum locations. The effects of new plants upon regional development are discussed as well as economic problems of declining open regions. Knowledge of mathematics and of modern quantitative methods is not a precondition for admission, but ability to master them during the course is assumed.

**716 Advanced Urban and Regional Theory.** Fall term. Credit two hours. Prerequisite: permission of the instructor. Mr. Jones.

Seminar in the theory of urban spatial organization. Economic, technological, and social factors leading to urbanization and various kinds of spatial organization will be explored. Major theoretical contributions to the understanding of intraregional and intra-urban distribution of population and economic activity will be reviewed.

**717 Seminar in Urban and Regional Theory.** Spring term. Credit two hours. Prerequisite: permission of the instructor. Mr. Jones.

A continuation of 716 concentrating on recent developments.

**719 Informal Study in Urban and Regional Theory.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Planning Theory, Administration, and Implementation

**520 Planning Theory.** Fall term. Credit three hours.

Introduction to theory of city and regional planning. Planning is considered as a method of decision making with the purpose of achieving a command over the major tools for problem identification, analysis, and resolution.

**521 Politics of the Planning Process.** Spring term. Credit four hours. Mr. Clavel.

Theories of the planning process are compared with concepts of political process and political change. Points of tension, overlap, and complementarity are examined in the context of city and regional planning and development agencies, intergovernmental relations, the regulatory process, neighborhood and subregional development movements, and national planning agencies. Alternative models for the study of such institutions and processes will be assessed for their usefulness as guides to planners and researchers.

**523 Legal Aspects of Planning.** Spring term. Credit two hours. Prerequisite: 510 or permission of the instructor. Mr. Reps.

Legal aspects of preparing and administering zoning ordinances, subdivision regulations, housing codes, official map regulations, and related subjects.

**620 Planning Administration.** Fall term. Credit four hours. Prerequisite: 520 or permission of the instructor. Mr. Clavel.

A seminar examining organizational and administrative models relevant to plan formulation and implementation. The themes of hierarchy, control, specialization, representation, professionalization and organizational development are dealt with in the context of planning theory and social system change. Applications are made to such programs as community action, regional development, urban renewal, and land-use control.

**622 Techniques of Planning Implementation and Control.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Mr. Riordan.

The purpose of this course is to present one subset of new developments in computer-based management techniques: the network-based management control systems. Particular

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attention will be given to a discussion of the two most well-known versions of such systems, CPM (Critical Path Method) and PERT (Program Evaluation and Review Techniques). In addition, special attention will be focused upon the use of digital computer simulation as a potentially powerful extension of these systems.

**624 Urban Land Policy and Programs.** Fall term. Credit two hours. Prerequisite: 523 or permission of the instructor. Mr. Reps.

Consideration of major problems of urban land control and management and possible solutions. Subjects for discussion include taxation as a method of land-use planning, compensation and betterment, large-scale public land acquisition, subsidies and incentives, and acquisition of development rights or easements. Several public planning systems of other countries will be studied, contrasted with the United States, and evaluated.

**626 Metropolitan Growth, Open Space, and New Communities.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Mr. Reps.

Investigation of the role of new towns and programs of new town planning and development in western society. Topics to be covered will include the following: historical background of new towns programs in France, England, Switzerland, Ireland, and colonial America; Ebenezer Howard and the garden city movement in England; the British New Towns Act of 1946 and its administration; the planned capitals of Washington, Canberra, Brazilia, Chandigarh, Islamabad, Ankara, New Delhi; planned state capitals in the United States; greenbelt towns of the Resettlement Administration; postwar private enterprise new towns in America; federal, state, and local legislation for new towns; recent proposals for new towns in developing countries; and the design, social, and economic problems of new town development. Readings, research paper, and seminar presentations.

**629 Informal Study in Legal Aspects of Planning.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Mr. Kelly.

**720 Seminar in Planning Theory.** Fall term. Credit two hours. Prerequisite: permission of the instructor. Mr. Jones.

A survey of the works of scholars who have contributed to current thinking about planning theory. The course deals with alternative assumptions concerning models of man and theoretical concepts concerning the nature of planning today.

**729 Informal Study in Planning Administration.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Planning Analysis

**531 Planning Analysis.** Spring term. Credit four hours. Prerequisite: 520. Mr. Jones.

City planning applications of general analytical techniques of social science; population, economic, land-use, and transportation models.

**533 Planning Methods and Techniques.** Spring term. Credit three hours. Prerequisite: 510 or permission of the instructor. Mr. Parsons.

Standards and survey methods for measuring education, recreation, and other community facility needs. Commercial, industrial, and residential land-use planning; transportation, housing, and environmental quality surveys.

**536 Introduction to Computer Programming.** Fall term. Credit one hour. Mr. Saltzman.

An introduction to the use of computers in the problem-solving and planning processes. The simplified programming language CUPL will be taught, and students will run problems on the Cornell computer. The use of library routines will also be introduced. Advantages and limitations of using computers will also be considered.

**537 Management Information Systems.** Spring term. Credit three hours. Prerequisite: 536 or equivalent, or permission of the instructor. Mr. Saltzman.

Considers methods and techniques for the design and use of computer-based management information systems. The role of the computer and its effects on various administrative control and decision functions are also discussed. Important hardware and software considerations in storing, processing, and retrieving of management information are covered including data organization, on-line and batch processing, multiprogramming, interrupts, file structures, telecommunications, etc. Applications in various public, medical, and business organizations are examined. Students are expected to program and run assigned problems on the Cornell computer system.

**630 Planning Public Investments.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Mr. Riordan.

A detailed and rigorous examination, from the point of view of theory and practice, of the following methods currently used in the planning and evaluation of public investments: benefit cost analysis; cost-effectiveness analysis; and capital budgeting. In addition, the integration of these methods into planning-programming-budgeting systems will be discussed.

**631 Research Methods in Planning.** Spring term. Credit four hours.

Basic coverage of some of the more common research techniques used in the social

sciences, including a survey of basic data sources, methods of survey research, ecological methods, and some of the more fundamental statistical methods. A number of the methods covered will be utilized in developing a major research report in conjunction with requirements for the following year's field problem.

**636 Seminar in Urban and Regional Information Systems.** Fall term. Credit three hours. Prerequisite: 531 and 537 or permission of the instructor. Mr. Saltzman.

An examination of problems, methods, and uses of computer-based information systems in urban and regional planning. Topics to be covered will vary from year to year and may, for example, include definition, acquisition, and organization for large-scale data bases; economic considerations in the use of information systems; analysis of application in transportation, housing, health, and land-use studies; applications of computer graphics in planning, etc.

**732 Seminar in Regional Social Accounting.** Fall term. Credit three hours. Mr. Czamanski.

An advanced seminar in methods of construction and regional application of social accounting. Topics covered include income and product accounts, balance of payments, money flows, and wealth accounting. Extensive references are made to methods used in various countries and to recent regional case studies.

**733 Seminar in Regional Interindustry Analysis and Programming.** Spring term. Credit three hours. Mr. Czamanski.

Advanced treatment of regional industrial structure, methods of construction and applications of input-output, linear programming, integer and nonlinear programming, elements of game theory.

**739 Informal Study in Planning Analysis.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Planning Design and Practice

**540 Introduction to Planning Design.** Fall term. Credit three hours. For graduate planning students without undergraduate training in design. Mr. Stein.

Introduction to the tools of physical design and graphic presentation. Investigation of the sources of basic information for physical design, the formulation of a physical design program, the preparation of solutions to elementary design problems, and presentation techniques.

**541 Planning Design.** Spring term. Credit four hours. Graduate students in architecture may substitute one or more of the problems

for required design studies in Architecture 190 with permission of their adviser. Mr. Stein, visiting lecturers.

Lectures, seminars, and problems in the basic principles of site planning, subdivision, large-scale three-dimensional design, and the interrelationships of land uses in a variety of urban and metropolitan situations. Alternative patterns of urban development and their implications will be examined. Students are assigned a series of problems, including the design of the neighborhood, the district, parts of the existing city, and the new town. Students will work individually and in teams.

**542 Internship Program in Planning and Public Administration.** Summer term. Credit three hours. Open to graduate students in planning and public administration and others by permission. Mr. Parsons, staff, visiting lecturers.

Summer internship in the New York metropolitan area in public or private planning, housing, urban renewal and development agencies. Positions also available in various special functional agencies dealing with transportation, recreation, water resources, etc. Occasional openings with citizen groups and private consulting firms. Full-time work day at current salaries supplemented with evening lectures and discussions two evenings a week. In addition there are several field trips in the New York area and to other east coast cities. (Instruction period for the New York program is limited to July and August.)

**640 Field Problem in Urban Planning—Advocacy Planning.** Fall term. Credit six hours. Primarily for graduate students in city and regional planning, but open to those in other departments by permission of the faculty members in charge.

This course will offer the student the opportunity to apply some of the theories and techniques of analysis and planning to real problem situations. It also will give him the opportunity of learning first-hand about the problems of low-income individuals and groups and of developing an understanding of how planners can serve such a clientele. Much of the course work will be carried out in cities and towns convenient to Ithaca. Client contacts have already been made and the energy of the class will be devoted (a) to providing continuing services to assist the groups with problems that arise during the semester, and (b) to investigating the process of community organization and development. The format of the bulk of the course is still in the experimental stage. Much will depend upon the interests of the students and the needs of the clients.

**641 Field Problems in Urban Planning—Advocacy Planning.** Spring term. Credit three to

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six hours, as arranged individually by instructor and student. Prerequisite: permission of instructor. Staff.

Follow-up of work begun in 640 to provide continuous planning services to client groups. New students can enter in the spring term and students who completed 640 in the fall term can continue in this course.

**642 Seminar in Urban Design.** Fall term. Credit three hours. Prerequisite: 540 or Architecture 105 and permission of the instructor. Messrs. Parsons and Stein.

Investigation of historical and current thought on the visual aspects of cities, including evaluation of technological and cultural influences on urban design, perception of urban form, and relationships between contemporary city planning process and visual form in cities.

**644 Design and Conservation (Architecture 465).** Fall term. Credit four hours. Messrs. Jacobs and Jones.

The rationale for the methods of utilizing existing cultural and aesthetic resources in the planning and design of regions and cities.

**646 Workshop in Heuristic Gaming Techniques.** Fall term. Credit three hours. Limited enrollment with priority to students taking a planning field problem concurrently. Mr. Feldt and staff.

Exploration and use of a limited number of heuristic gaming devices dealing with problems in planning and urban theory. Special attention will be given to models representing the community under analysis in the field problems as well as to models dealing with more abstracted urban and regional configurations.

**648 Field Problem in Urban Planning—Comprehensive Planning.** Fall term. Credit three to six hours, as arranged individually by instructor and student. Prerequisite: 531 and 541 or permission of the instructor. Messrs. Stein, Parsons, and staff.

Research and analysis in an urban area leading to the preparation of comprehensive plans and effectuation programs; use of operational gaming techniques in the planning process; lectures, field trips, and individual and group reports.

**649 Informal Study in Planning Practice.** Fall, spring, or summer term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

**749 Informal Study in Urban Design.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Urban Renewal and Housing

**651 Seminar in Urban Renewal.** Spring term. Credit two hours. Prerequisite: 510 or permission of the instructor. Mr. Winston.

An exploration of current programs to revitalize our cities, the concepts of blight and urban renewal, and discussion of current policies and procedures in federal, state, and local government.

**655 Urban Ghetto Development.** Spring term. Credit one to four hours as arranged by instructor. Mr. Vietorisz.

The purpose of the course is to present broad aspects of the problem of ghetto development in a series of lectures, complemented by original research work carried on in a number of working groups which report on and discuss their progress in monthly sessions. Ghetto development is taken to mean comprehensive community development, including economic, social, cultural, and political aspects. The lectures will necessarily be given from the economist's point of view; the working groups, however, are expected to complement this with the points of view of other disciplines. While the lectures will be self-contained, much of the material to be presented and discussed in the working group sessions is to be put together by the participants.

**753 The Economics of Intrametropolitan Land Use.** Spring term. Credit two hours. Prerequisite: permission of the instructor. Mr. Czamanski.

The spatial arrangement of urban functions, value as determinant of land use, measurement methods, urban structures and forms, public interest and controls, urban renewal and redevelopment, and social and economic costs and benefits. Location of residential and industrial areas and retail center.

**759 Informal Study in Housing and Urban Renewal.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Regional and Comparative Planning

**660 Introduction to Regional Development Planning.** Fall term. Credit three hours. Prerequisite: 531 or permission of the instructor. Mr. Goldsmith.

The course will be focused on problems of and theories about development of lagging, underdeveloped, or poor regions of both industrial and developing nations. Readings will survey various theoretical works upon which regional development planning is, or ought to be, based. The latter parts of the course will deal with the difficult transition from theory to planning recommendations and policy implementation. Brief case studies will be used for illustration.

**663 Regional Planning and Development in Developing Countries.** Spring term. Credit four hours. Prerequisite: 660 or permission of the instructor. Mr. Goldsmith.

Selected theories and development problems from 660 will be elaborated, deepened, and applied. Several extensive case studies of development planning will be analyzed and evaluated with those theories and with criteria suggested by them.

**669 Informal Study in Comparative Planning.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

**760 Seminar in Regional Model Construction.** Fall term. Credit three hours. Prerequisite: 732, 733 or equivalent, or permission of the instructor. Mr. Czamanski.

Elements of a model, calibrating and simulation. Treatment of capital accumulation, existing resources, stability, disembodied and embodied technical progress. Vintage models, problems of capital valuation and capacity. Labor and migrations, balanced and unbalanced growth. The Harrod-Domar model, the two gaps, shift analysis. Some two and multi-sector models.

**761 Econometric Methods in Regional Planning.** Spring term. Credit three hours. Continuation of 760. Mr. Czamanski.

Dynamic elements in regional models, treatment of time, depreciation, replacement and gestation lags. Linear and nonlinear systems. Elements of regional growth, friction of space, factor mobility, externalities and allocation of resources, growth poles, industrial complex analysis. Methods of estimating regional models, identification, recursiveness, indirect methods. Some recent regional models.

**769 Informal Study in Regional Planning.** Either term. Credit as assigned. Prerequisite: permission of instructor. Staff.

## Environmental Health Planning

**570 Environmental Health Planning.** Fall term. Credit two hours. Mr. Riordan.

Introduction to concepts and issues in environmental health planning. Topics covered include the planning problems involved in the control of water quality, liquid and solid waste disposal, air quality, and housing quality.

**571 Seminar in Neighborhood Theory.** Spring term. Credit three hours. Limited enrollment, consent of the instructors required. Messrs. Feldt and Stein.

An examination of the concept of neighborhood in urban society based upon a consideration of the interrelationship between design elements and human behavior. Major theoretical and empirical approaches to the neighborhood will be reviewed and placed in the

context of recently developing thought, practice, and research in urban planning theory.

**671 Planning and Evaluation of Environmental Health Programs and Projects.** Spring term. Credit three hours. Prerequisite: 630 or permission of the instructor. Mr. Riordan.

The major focus is an examination of the use of quantitative methods and economic analysis as aids to social decision making with regard to action in the area of environmental health. The purpose is to expose the student who already possesses a methodological competence to the application of these methods in the study of the particular problems of environmental health. Topics covered include: rational social decision making and environmental health; the economics of environmental quality management; investment models for the size and location of regional systems of waste treatment, water treatment, and solid-waste-disposal facilities; and selected mathematical and statistical models used to describe, explain, or identify selected environmental health problems.

**672 Neighborhood Theory.** Fall term. Credit three hours. Prerequisite: 571 or permission of the instructor. Mr. Smith.

An advanced seminar on environmental health planning in neighborhoods, continuing the exploration of physical and social relationships in the design of the residential environment. Special emphasis is given to the decisions of the urban designer and the architect concerning physical aspects of the neighborhood and their relevance to social and psychological goals.

**673 Economic Analysis and Human Resources Planning.** Spring term. Credit three hours. Prerequisite: 630 or consent of the instructor. Mr. Riordan.

The purpose of this course is to examine economic analysis as it is currently being used in the areas of health planning, educational planning, selected areas of social planning, and urban renewal and housing, and to explore the potentiality for more extensive and powerful use in the future. The emphasis is upon application; students are assumed to have a foundation in basic economic theory, quantitative methods, and such techniques as PPBS, benefit cost analysis, and cost-effectiveness analysis.

**779 Informal Study in Environmental Health Planning.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

## Social and Social Facilities Planning

**580 An Introduction to Social Planning.** Fall term. Credit three hours.

Summary review of concepts and labels

## 70 Communication Arts

for various approaches to planning, with people (individually and collectively) as the units of analysis. Presentation of selected methods specific to social planning as applied to the social services. Examination in detail of planning in the social services, including both substance of policy and planning in these sectors, and their contextual assumptions of American society.

**581 Case Studies in Human Resource Development Planning.** Spring term. Credit two hours.

A review of methods and techniques of planning for human resource development. Specific illustrations from the field of social, health, and educational planning, as well as more comprehensive social planning efforts, will be examined.

**685 Institutional Planning.** Spring term. Credit three hours. Prerequisite: 510 or 520 or permission of the instructor. Mr. Parsons.

A seminar in programming and area planning of facilities for institutions including universities, medical centers, and churches. Administrative organization, space use studies,

program development, location and function analysis, enrollment projection, and institutional systems. Application of city planning techniques to institutional planning.

**789 Informal Studies in Social and Social Facilities Planning.** Either term. Credit as assigned. Prerequisite: permission of the instructor. Staff.

### Theses

**699 Thesis in City and Regional Planning.** Either term. Credit as assigned.

Independent research by candidates for the Master's degree.

**790 Planning Research Seminar.** Fall and spring term. Credit one hour. Staff.

Presentation and discussion of current departmental research. Registration limited to advanced doctoral candidates.

**799 Dissertation in City and Regional Planning.** Either term. Credit as assigned.

Advanced independent research by candidates for the Ph.D. degree.

## Communication Arts

### Faculty

Jack A. Barwind, Joseph B. Bugliari, Royal D. Colle, Robert H. Crawford, Chester H. Freeman, Holim Kim, Russell D. Martin, Keith A. Miller, Charles C. Russell, Victor R. Stephen, William B. Ward

### Field Representative

Robert H. Crawford, 640 Stewart Avenue

### MAJOR SUBJECT

Communication Arts

The Field offers graduate training leading to the degree of Master of Professional Studies (Communication Arts). The degree program places emphasis on three elements: (1) an analysis of the communication process, (2) exploration of the potential of current and new communication techniques and technology, and (3) application of these elements to specific communication problems. Focus of the program is more on the strategic application of communication knowledge and technology, both mass media and interpersonal, than on technical competence in media operation.

**ADMISSION REQUIREMENTS.** Normally, each applicant must meet the minimum requirements for the Cornell Graduate School. In cases of applicants whose academic records are outdated or are not pertinent to the profession, evidence of superior performance in

the professional field, normally for at least three years, will be considered in combination with evidence bearing on intellectual and personal development, undergraduate record, test scores, special course work taken after completion of the Bachelor's degree, and similar documentation.

An undergraduate major in communication arts is not required. It is expected, however, that an applicant for the program will have some competence in one or several areas of communication through course work or experience, or will be willing to spend time beyond the normal degree requirements to gain this competence. The extent of this competence will be decided on a case-by-case basis, determined partly by the applicant's educational and career goals.

**LANGUAGES.** No foreign languages are required by the Field. However, some professional opportunities may be dependent on the knowledge of one or more foreign languages. Upon evaluation of goals, the candidate and the chairman of his Committee determine the desirability of including languages in the program.

**EXAMINATIONS.** The Field requires only the examinations listed by the Graduate School on p. 11 of this *Announcement*.

**RESEARCH.** The faculty in this Field holds research interests in the following areas:



press, telecommunication, international communication, communication theory, interpersonal communication, visual communication, history of the mass media, advertising, and sociopolitical dimensions of the mass media.

## Courses

Specific programs are designed to fit the needs of each candidate. Information on time, location, and content of these courses is provided in the *Announcement of the College of Agriculture*.

The following courses are open to graduate students.

**200 Theory of Human Communication.** Fall term. Credit three hours. Mr. Barwind.

**214 History of Mass Media.** Spring term. Credit three hours. Mr. Crawford.

**215 Introduction to Mass Media.** Fall term. Credit three hours. Mr. Russell.

**301 Oral Communication.** Fall or spring term. Credit three hours. Messrs. Barwind, Freeman, and Martin.

**302 Advanced Oral Communication.** Fall or spring term. Credit two hours. Messrs. Barwind, Freeman, and Martin.

**303 Small Group Communication.** Spring term. Credit three hours. Mr. Miller.

**311 Radio and Television Communication.** Fall term. Credit three hours. Mr. Colle.

**312 Advertising and Promotion.** Spring term. Credit three hours. Mr. Russell.

**313 Magazine Writing.** Spring term. Credit three hours. Mr. Ward.

**315 News Writing.** Fall term. Credit three hours. Mr. Kim.

**316 Science Writing.** Spring term. Credit three hours. Mr. Kim.

**318 Radio Writing and Production.** Spring term. Credit three hours. Mr. Colle.

**319 Television Writing and Production.** Fall term. Credit three hours. Mr. Colle.

**401 Communication Law.** Spring term. Credit three hours. Mr. Bugliari.

**403 Communication and Society.** Fall term. Credit three hours. Mr. Miller.

**404 Psychology of Human Communication.** Spring term. Credit three hours. Mr. Barwind.

**430 Visual Communication.** Fall term. Credit three hours. Mr. Stephen.

**431 Art of Publication.** Spring term. Credit three hours. Mr. Kim.

The following are graduate-level courses.

**501 International Communication.** Spring term. Credit three hours. Mr. Crawford.

Analysis of the purposes, techniques, and effects of organizations involved in cross-national communication, with particular emphasis on the mass media. Also considered are the international conventions and other agreements that pertain to international communication.

**512 Seminar: International Communication.** Spring term. Credit three hours. Mr. Barwind.

A study of recent advances and research in listening, conference, small-group interaction, and nonverbal communication. New developments will be examined as they relate to business, administration, and education.

**521 Seminar: United States Communication.** Fall term. Credit three hours. Mr. Colle.

An examination of the structure of communication in the United States focusing particularly on the organization, content, controls, and audience of the print, broadcast, and film media. Selected media of other nations are included in the analysis to provide a perspective on the U.S. system.

**524 Communication in Developing Nations.** Fall term. Credit three hours. Mr. Crawford.

An examination of existing communication patterns and systems and their contributions to the development process. Special attention is given to the interaction between communication development and national development in primarily agrarian societies.

**526 Comparative Mass Media.** Spring term. Credit three hours. Mr. Colle.

A study of the mass media in several national settings with particular attention to the structure, controls, audience, and content of press and telecommunications.

**531 Studies in Communication.** Fall term. Credit three hours. Mr. Crawford.

An analysis of classic and contemporary research in communication, emphasizing both the findings of the studies and the methods of investigation.

**532 Methods of Communication Research.** Fall term. Credit three hours. Mr. Barwind.

An analysis of the methods employed in communications research. Particular concern is given to the philosophical rationale behind experimental, descriptive, and historical-critical research methods.

## 72 Consumer Economics and Housing

**543 Frontiers in Communications.** Fall term. Credit three hours. Mr. Colle.

A study of current developments in communication, with an emphasis on the creative application of the newest methods, materials, and technology in visual, print, film, oral, and telecommunication media to contemporary and future problems in communication. Examples include the applications and implications of satellite communication, multimedia "self-teaching" systems, mobile printing technology, facsimile, computer retrieval systems,

heat-power radio, electronic video recorder, laser beams, etc.

**550 Advanced Communication Seminar.** Fall and spring terms. Credit three hours. Mr. Russell and staff.

A course designed to give students the opportunity to study and work on special problems in communication.

**595 Directed Graduate Study.** Fall and spring terms. Credit three to six hours. Staff.

## Consumer Economics and Housing

### Faculty

Lewis L. Bower, Gwen J. Bymers, Simone Clemhout, Charles B. Daniels, Alice J. Davey, Marjorie S. Galenson, William H. Gauger, Alan J. Hahn, Earl W. Morris, Rose E. Steidl, Ethel L. Vatter, Kathryn E. Walker, Elizabeth Wiegand, Mary Winter

### Field Representative

Marjorie Galenson, Room 105, Martha Van Rensselaer Hall

### MAJOR AND MINOR SUBJECTS

Consumer Economics

Family and Community Decision Making

Housing

**ADMISSION REQUIREMENTS.** Applicants must meet the minimum standards of the Cornell Graduate School as set forth on page 7 of this *Announcement*. All candidates resident in the United States during the year preceding matriculation at Cornell must submit scores of the Graduate Record Examination Aptitude Test with their applications. Grades, class standing, test scores, and letters of recommendation should indicate promise of superior graduate scholastic achievement.

**LANGUAGE REQUIREMENT.** None for the Master's degree. Doctoral candidates must either demonstrate reading ability in a language other than that in which they received their Bachelor's degree, or achieve proficiency with a research technique, i.e., statistics and computer programming. Applicants should correspond with the Field Representative concerning currently approved means of satisfying this requirement.

**EXAMINATIONS AND OTHER FIELD REQUIREMENTS.** In addition to the examinations required by the Graduate School, doctoral candidates are required to take a qualifying examination during the first year in residence. Those who complete the requirements for the Master's degree before going on for the doctorate may combine the qualifying examination with the final examina-

tion for the Master's degree. All degree candidates must have at least one minor outside the Field. A single strong minor for the Ph.D. may be approved by a student's Special Committee.

**RESEARCH AND STUDY OPPORTUNITIES.** Master's and doctoral programs of graduate study are planned to fit the needs and objectives of the individual student; hence, no two programs are identical. Faculty members, including social scientists from several disciplines as well as economists, are interested in how private decisions and public policies affect consumer behavior and human welfare at various levels of society. Opportunities in the Field are described in the following majors.

**CONSUMER ECONOMICS** is concerned with the welfare of the consumer in the private, semi-public, and public sectors of the economy, particularly as these operate to affect the real level of living of families and individuals. The major is built, in part, on the former major of Household Economics and Management. It is based on course work in economic theory and statistics. Specific areas of investigation include: family financial management; consumer behavior in the market; consumer goods marketing; spending, saving, and investing practices of households; family and societal investment in human capital; alternative standards of income adequacy; theories of consumption; and welfare criteria for social expenditures.

**FAMILY AND COMMUNITY DECISION MAKING** is concerned with the managerial behavior of families as they decide on courses of action and the allocation of resources related to these actions. It also examines the broad relationships of individuals and family units to local government and other agents of community-wide, or public, decision making. This major builds, in part, on the former major of Household Management, which emphasized resource use, but places greater emphasis on the total decision event as a means to increase the well-being of families.

A new emphasis, the exploration of community decision making, focuses on the largely political means by which individual and family preferences are aggregated and converted into public decision and policies. Among specific topics studied are: political attitudes and participation; community decision-making processes; and the links between citizen-consumers and their representatives responsible for formulation of public policy.

HOUSING is a major designed for those interested in professional housing careers in government, education, or industry. A number of foci are possible, including: social aspects of housing, the economics of housing, housing production, and international housing. Instruction and research are based in the social sciences, the most important disciplines being economics and sociology. Since few housing problems fall within the purview of one discipline, an interdisciplinary approach is utilized.

Specific areas of investigation include: the spatial context and institutional setting of housing; the structure and performance of the housing market and the homebuilding industry; housing finance; the nature and impact of governmental housing programs on consumers, with particular reference to low- and moderate-income consumers; and contemporary housing problems and issues.

## Faculty Specializations

Lewis L. Bower: production of housing; housing finance.  
 Gwen J. Byrners: consumption economics; consumer problems; marketing.  
 Simone Clemhout: economic theory; welfare economics.  
 Charles B. Daniels: urban economics; economics of housing.  
 Alice J. Davey: family decision making.  
 Marjorie S. Galenson: consumption economics; consumer and the law.  
 William H. Gauger: leisure and time-use; public investment in recreation facilities.  
 Alan J. Hahn: community decision making; public policy.  
 Earl W. Morris: social aspects of housing.  
 Rose E. Steidl: family and community decision making.  
 Ethel L. Vatter: family economics; public policy.  
 Kathryn E. Walker: home management; time-use research.  
 Elizabeth Wiegand: consumer economics.  
 Mary Winter: housing; computer science.

## Courses

**500 Special Problems for Graduate Students.** Fall and spring terms. Credit and hours to be arranged. S-U grades optional. For graduate

students recommended by their chairman and approved by the head of the department and the instructor in charge for independent, advanced work. Department faculty.

**501 Research Design and Analysis in the Social Sciences.** Spring term. Credit three hours. Prerequisite: introductory statistics course and permission of the instructor. Mr. Morris.

The course is a general introduction to the design and analysis of research. The emphasis will be on survey research methods for social and economic studies. A two-hour weekly laboratory session will be held in which data from a research project in progress will be analyzed to provide experience in applying the concepts and techniques developed in lecture sessions.

**511 Time as a Family Resource.** Fall term. Credit three hours. S-U grades optional. Miss Walker.

Meanings of time and time measurement. Critical review of research in use of time for work and leisure in the United States and other countries. Implications of this research in light of contemporary views of time problems as seen by social scientists.

**519 Seminar in Family Decision Making.** Fall term. Credit three hours. S-U grades optional. Consult the instructor before registering. Miss Davey.

The decision event in the family is studied in depth; that is, the behavior of the decision maker, the decision processes of goal formation and implementation, and the situational constraints.

**530 Family Financial Management.** Spring term. Credit three hours. Prerequisite: 330 or equivalent. Miss Byrners and Miss Wiegand.

A study of developments in the family financial management field with emphasis on the role of the consultant. An effort will be made to establish criteria for achieving and evaluating successful family financial management, and to develop skills in working with families on money management problems.

**540 Fundamentals of Housing.** Fall term. Credit two hours. Consult the instructor before registering. Mr. Bower.

An introductory survey of housing as a field of graduate study. Consideration of the spatial context and institutional setting of housing: the structure, operations, and performance of the housing market and the house-building industry; housing finance; the nature, operations, impact, and policy of government housing programs; contemporary housing problems and issues.

**542 Housing Market Analysis.** Fall term. Credit three hours. S-U grades optional. Per-

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mission of the instructor required. Mr. Daniels.

Designed to give the student a basic understanding of local housing market operations and mechanisms, including demand determinants, such as demographic, economic, and institutional characteristics; supply determinants, such as the quality, nature, and expected changes of the inventory; and market indicators, such as price, vacancies, and real estate transactions. The first part of the course describes the traditional approach to housing market analysis. The second part is devoted to the description and evaluation of mathematical models in spatially locating required residential activities. Land use and transportation models are used as examples. A field problem is included in the course.

**545 Social Aspect of Housing in Developing Countries.** Fall term. Credit three hours. S-U grades optional. Permission of the instructor required.

Graduate section of 345.

**546 Social Aspects of Housing in Developing Countries.** Spring term. Credit three hours. S-U grades optional. Prerequisite: 545 and permission of the instructor.

The course will follow a case method approach to study the social, political, economic, and technological problems of housing and urban development in selected countries.

**548 Social Problems in Housing.** Fall term. Credit three hours. Prerequisite: 540 or permission of the instructor. Mr. Morris.

A sociological analysis of the distribution of housing in society through an examination of cultural and social determinants of the location, types, and quality of the housing occupied by key social groups and subgroups. Specific topics include the roles played by social and personal disorganization and sub-cultural differences in blocking the equitable application of past and present housing programs.

**549 Production of Housing.** Spring term. Credit two hours. Prerequisite: 540 or permission of the instructor. Mr. Bower.

An examination of the system of producing shelter in the United States, its structure and major processes. Focus will be on decision making within existing institutional constraints. Description and evaluation of major subsystems including contractual and speculative home building, the prefabrication industry, mobile home manufacturing, and production of rental housing. Some attention will be devoted to building of "new towns" and production of housing in conjunction with a number of special-purpose governmental programs.

**571 Community Change and Development in the United States.** Fall term. Credit three hours. S-U grades optional. Mr. Hahn.

Seminar addressed to the question of strategies for community change and development in a highly complex, rapidly changing, post-industrial society. Among the topics will be the meaning of community in a postindustrial society, the determination of appropriate goals, and a comparison and evaluation of various strategies and approaches (including politics, planning, community development, community organization, and public service education).

**597 Seminar.** Fall and spring terms. S-U grades exclusively. Department faculty.

Planned to orient students to graduate work in the field, to keep students and faculty abreast of new developments and research findings, to acquaint them with subject matter in related areas, and to provide opportunity to examine and discuss problems in the field.

**599 Master's Thesis and Research.** Fall and spring terms. S-U grades optional. Registration with permission of the instructor and chairman of graduate committee. Department graduate faculty.

**620 Readings in the Economics of Consumption.** Fall term. Credit three hours. S-U grades optional. Prerequisite: 320 or equivalent. Consult instructor before registering. Mrs. Galenson.

Critical review of Friedman, Modigliani, and other theoretical and empirical works in the current literature dealing with the economics of consumption.

**640 Seminar in Current Housing Issues.** Spring term. Credit three hours. Prerequisite: 540 or permission of the instructor. Department faculty.

Focuses on a selected group of national issues related to housing. The issues evaluated vary from year to year based on current importance and student interest. When possible, these are studied in the context of present or recent research, with emphasis on both subject content and methodology.

**643 Readings in Housing.** Spring term. Credit two hours. Prerequisite: 540 and permission of the instructor. Department faculty.

**658 Seminar in Consumer Economics.** Spring term. Credit two hours. S-U grades optional. Department faculty.

Review of critical issues and thought in consumer economics and public policy questions.

**699 Doctoral Thesis and Research.** Fall and spring terms. S-U grades optional. Registration with permission of the instructor and chairman of graduate committee. Department graduate faculty.

## Design and Environmental Analysis\*

### Faculty

Allen R. Bushnell, Helen J. Cady, Joseph A. Carreiro, Joseph A. Koncelik, Bertha A. Lewis, Elsie F. McMurry, G. Cory Millican, Edward R. Ostrander, Mary E. Purchase, Rose E. Steidl, Evelyn E. Stout, Clara J. Straight, M. Jayne Van Alstyne, Kathryn E. Walker, M. Vivian White

### Field Representative

Mary E. Purchase, Martha Van Rensselaer Hall

### MAJOR AND MINOR SUBJECTS

#### Design

#### Environmental Analysis

The Design and Environmental Analysis Field offers graduate study leading to the M.A. or M.S. degree. Candidates for the Ph.D. degree in other fields may minor in either area within this field.

**ADMISSION REQUIREMENTS.** Admission to graduate work is based primarily on evidence of the student's capability for advanced study. Candidates desiring a design major are required to submit a portfolio directly to the Field Representative. Candidates wishing to major in environmental analysis should submit the scores from either the Graduate Record Examination Aptitude Test or the Miller Analogies Test. (International students, except Canadians, are exempt.) To be considered for certain scholarships and fellowships, design majors should also submit scores from one of these tests.

Prospective majors in design should have completed a baccalaureate degree with a specialization in design, apparel design, industrial design, interior design, consumer product design, architecture, or art history.

Students wishing to specialize in the physical science aspects of environmental analysis should have preparation in one or more of the following: textiles and clothing, household equipment, chemistry, or basic mathematics and physics.

Prospective students in the social science aspects of environmental analysis should have background in home management, social psychology, or industrial psychology, or in engineering fields such as engineering psychology or industrial engineering.

**LANGUAGE REQUIREMENT.** The Field does not require proficiency in a foreign language. Occasionally a student's Special Committee may specify a language requirement.

**FINANCIAL AID.** Financial aid is provided by teaching and research assistantships for about two-thirds of the graduate students in the Field. Several fellowships are available to students with specialized teaching and/or research interests in textiles and clothing, managerial problems of families, and related subjects. Students may also compete for other fellowships awarded by the College of Human Ecology and the University.

### RESEARCH AND STUDY OPPORTUNITIES.

The Field has well-equipped studios and workrooms, a laboratory for studying human and social factors, household equipment laboratories, an extensive costume collection, an art and environmental design gallery, and textile laboratories including a temperature- and humidity-controlled room and modern instruments for chemical and physical analysis.

Programs of graduate work are individually planned to fit the needs and objectives of the students. No prescribed course of study is required. Each subject area is defined in broad rather than specific terms to emphasize the interrelatedness of the subject matter and to permit change in emphasis as knowledge grows. Those majoring in this Field are expected to be concerned with the human and social needs of individuals and families. Within this framework, study may be directed toward problem solving or the theoretical study of a particular facet of a problem.

*Specialization in Design.* The fundamental concern of this area centers on problems related to the aesthetic, functional, and physical aspects of the near environment of the family and the home. A wide spectrum of study for the designer ranges from apparel design—the most immediate environment of man—to aspects of housing design and other spaces and the personal territory man occupies as he moves about in his work and leisure activities. Within these boundaries, various design problems are encompassed within product design, interior design, and space planning. The roots of these design areas, including their historical aspects, also provide study opportunities. Special interests of faculty concerned with this major follow.

Allen R. Bushnell: space planning, product design.

Helen J. Cady: interior design, interior lighting, architectural and design history.

Joseph A. Carreiro: housing design; product design.

Joseph A. Koncelik: equipment design; design method.

Elsie F. McMurry: apparel design; history of apparel.

\*Textiles and clothing, home management, and household equipment are included in the Field of Design and Environmental Analysis.

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G. Cory Millican: architectural design and history; interior design.

Clara J. Straight: visual design.

M. Jayne Van Alstyne: product design, appliance design, design basics.

### *Specialization in Environmental Analysis.*

The fundamental concern in this area is the analysis and evaluation of those physical and human aspects of the near environment that affect the individual's and family's control of their immediate surroundings.

The physical sciences aspect of this subject focuses on the study of the physical, chemical, and structural properties of textiles and other materials; analysis and prevention of household soils; selection, care, and maintenance of materials in the near environment; and the functioning of household equipment. Special interests of faculty concerned primarily with the physical sciences are:

Bertha A. Lewis: textile chemistry, environmental analysis.

Mary E. Purchase: household equipment, furnishings and materials in the near environment; prevention, analysis, and removal of soil.

Evelyn E. Stout: physical aspects of textile fibers and fabrics.

M. Vivian White: science and technology of textiles.

Another aspect of environmental analysis, based on the social sciences, encompasses the impact of space, furnishings, and facilities in the near environment on human and social behavior and performance. Special emphasis is placed on space design and social interaction (social geography); personality factors; optimal level of effort (ergonomics or human factors engineering) and management of the near environment. Special interests of faculty concerned primarily with the social sciences are:

Edward R. Ostrander: social geography, personality and cognitive styles related to space and products.

Rose E. Steidl: functional design criteria; management of the near environment; man/activity/environment relationships.

Kathryn E. Walker: management of the near environment, functional design.

## Courses

330 Household Equipment Principles.

335 Textile Materials: Fiber Structure and Properties.

340 Apparel Design: Draping.

342 Design: Weaving.

343 Design: Textile Printing.

345 Apparel Design III: Experimental Processes.

350 Environmental Analysis: Person, Activity, Space.

353 Contemporary Design.

361 Residential Design.

365 Interior Design.

366 Apparel Design IV: Design Approaches.

436 Textile Chemistry.

438 Textiles in Fashions and Function.

440 Form Study: Materials.

449 Visual Communication Techniques.

451-452 History of Costume.

455 Psychology of the Near Environment.

460 Environmental Design.

462 Introduction to Product Design.

463 Intermediate Product Design.

464 Product Development.

465 Apparel Design V: Product Development and Presentation.

466 Interior Design.

467 Interior Design: Contract Interiors.

489 Design Seminar.

500 Special Problems for Graduate Students.

520 Instrumental Analysis.

530 Physical Science in the Home.

535 Textile Materials: Characterization and Evaluation.

536 Advanced Textile Chemistry.

538 Textiles in the Near Environment.

550 Man-Activity-Environment Relationships.

555 Social Psychology of the Near Environment.

599 Master's Thesis and Research.

688 Seminar in Design and Environmental Analysis.

## Interdepartmental Course

413 Resource Management for Exceptional Families.

## Development Sociology

### Faculty

Ward W. Bauder, Harold R. Capener, Pierre Clavel, Gordon J. Cummings, Paul R. Eberts, Eugene C. Erickson, Allan G. Feldt, Joe D. Francis, Olaf F. Larson, Robert A. Poison, William W. Reeder, Jerry D. Stockdale, Philip Taletz, William F. Whyte, Lawrence K. Williams, Robin M. Williams, Jr., Frank W. Young

### Field Representative

Olaf F. Larson, Warren Hall

### MAJOR SUBJECTS

Development Sociology  
Organization Behavior and Social Action  
Rural Sociology

### MINOR SUBJECTS

Development Sociology  
Organization Behavior and Social Action  
Rural Sociology  
Methods of Social Research (Ph.D. only)

The Field offers training leading to the Master of Science and Doctor of Philosophy degrees, with emphasis on rural societies, on rural social systems, and on the community and regional development of nations. The program offers preparation for research, for the application of sociology in public service work, for rural development work in modernizing countries, and for college teaching.

**ADMISSION REQUIREMENTS.** Applicants must meet the minimum standards of the Cornell Graduate School described in this *Announcement*. Graduate Record Examination scores are requested of United States and Canadian applicants and are essential for fellowship applicants. An undergraduate major in sociology is not required. Completion of the Master's degree, at an institution of recognized standing, is prerequisite to acceptance in the Ph.D. program.

**LANGUAGE REQUIREMENT.** The Field does not require foreign languages for either the M.S. or the Ph.D. degree, but the student's Special Committee sets such language requirements as the members deem necessary. Typically, the Ph.D. candidate must demonstrate proficiency in at least one of the foreign languages used for scholarly purposes or in a language appropriate to his specialized area of interest, such as Latin America or South Asia.

**EXAMINATIONS AND OTHER FIELD REQUIREMENTS.** In addition to the examinations required by the Graduate School, as described in this *Announcement*, students entering the Ph.D. program must take a diagnostic qualifying examination. This examination may be

given in conjunction with the Master's final examination for those who complete the Master's degree at Cornell; otherwise, it is normally taken during the first term after entry into the Ph.D. program.

Ph.D. candidates are generally expected to have directed teaching experience.

One major and one minor subject are required for the M.S. degree; a thesis is also required. A Ph.D. candidate selects one major and two minor subjects. Students are encouraged to choose minors in other Fields, and Ph.D. candidates are required to choose one external minor.

**FINANCIAL ASSISTANCE.** Assistantships in the Department of Rural Sociology or cooperating departments provide part-time employment in teaching, research, or public service. In addition to a limited number of nominations for the fellowships awarded in open competition by the Graduate School, the Field may recommend candidates for the Liberty Hyde Bailey research assistantships in the agricultural sciences awarded to students in a Ph.D. program. Thesis research is often conducted as a part of assistantship duties in connection with research supervised by the faculty. A candidate for the M.S. degree may be recommended by the Field for a maximum of four terms of University-administered fellowship or assistantship support; a doctoral candidate may be recommended for a maximum of eight terms of such support in his combined M.S.-Ph.D. program; an exception may be granted if the dissertation requires data collection in another country. Admission to the Graduate School for students from outside the United States is contingent upon evidence of adequate financial support; first-year foreign students are not usually awarded a fellowship or assistantship.

**RESEARCH AND STUDY OPPORTUNITIES.** Students may pursue research in any of the areas suggested by the major and minor subjects and may participate in investigations conducted by members of the Field. For some research areas, graduate assistants who have a background in basic agricultural and biological disciplines or who are willing to acquire special competence by minoring in a non-social science discipline are sought. Field members based in the Department of Rural Sociology draw upon the resources of the Cornell University Agricultural Experiment Station for their research. Recent and current activities under this sponsorship include studies of the community and its organization, comparative modernization and international studies in rural development, decision making in farm families, development of American rural society, multicounty and regional devel-

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opment, occupations and farm labor, rural resource development, community structure and the aged, technological change in agriculture, poverty, nonfarm rural land, and agricultural and other voluntary associations. Some Field members are based in the Department of City and Regional Planning, the Department of Sociology, and the School of Industrial and Labor Relations. Investigations by Field members conducted in cultural settings outside the United States, in addition to comparative studies using nations as units of analysis, include work in India, Italy, Mexico, the Netherlands, Pakistan, Peru, the Philippines, and Scandinavian countries. Members of the Field participate in the cooperative extension service and the International Agricultural Development programs of the New York State College of Agriculture, in the Center for International Studies, and in the area programs for Latin America, South Asia, and Southeast Asia. Several of these programs have supported dissertation research overseas.

A data bank initiated in the Department of Rural Sociology provides data on domestic (United States and New York State) and international units. Graduate students are encouraged to use these data in research papers and theses. A Comparative Modernization Research Methods Project is sponsored jointly by the Center for International Studies and the Department of Rural Sociology. The Regional History Collection of Olin Library is acquiring an extensive set of material especially useful for the study of rural social movements and farm organizations in the United States.

A bibliography of publications by Department of Rural Sociology staff, which also lists recent doctoral and master's theses by majors in Development Sociology, is available from the Field Representative.

### Requirements for Major and Minor Subjects

**DEVELOPMENT SOCIOLOGY.** The focus of the major in Development Sociology is on rural societies and on the community and regional development of nations. When Development Sociology is offered as a major for the Ph.D., the student is expected to demonstrate: (1) a thorough knowledge of theories of social organization and change and an understanding of the application of these theories to planned change; (2) a knowledge of research in social organization and change, with emphasis on comparative studies of societies and their subsystems in different phases of modernization; and (3) a working knowledge of research methods.

When offered for the M.S. degree or as a minor for the Ph.D. a student is expected to demonstrate a general knowledge of part (1) and of (2) or (3) of the above requirements.

**ORGANIZATION BEHAVIOR AND SOCIAL ACTION.** When offered as a major for the Ph.D. a student is expected to demonstrate (1) a thorough knowledge of theories of organization behavior, of decision making and social action, of leadership strategies, and of techniques of planned change at the organizational, community, and regional levels, with special emphasis on the rural sector of society; (2) a working knowledge of evaluation and research methods; and (3) a working knowledge of theories of social organization and social change.

When offered for the M.S. degree or as a minor for the Ph.D. a student is expected to demonstrate a general knowledge of part (1) of the above requirements and a general knowledge of part (2) with emphasis on evaluation methods and the study of planned change.

**RURAL SOCIOLOGY.** When offered as a major for the Ph.D. a student is expected to demonstrate (1) a thorough knowledge of the sociology of rural social systems and of the research in this area; (2) a working knowledge of research methods; and (3) a working knowledge of theories of social organization and social change.

When offered for the M.S. degree or as a minor for the Ph.D. a student is expected to demonstrate a general knowledge of part (1) and of (2) or (3) of the above requirements.

**METHODS OF SOCIAL RESEARCH** (Ph.D. minor only). A working knowledge of the logic of science, research design, observational and data collection techniques, and methods of analysis for hypothesis testing is required. For students with a sociologically oriented major, a thorough knowledge of these areas will be required.

### Courses

The following list of graduate-level courses is for the general information of the applicant and is subject to change. Courses listed are offered by the Department of Rural Sociology; further details are given in the *Announcement of the College of Agriculture*. See also the course offerings in Sociology and other related Fields.

**405 Organization Dynamics.** Spring term. Credit three hours. Mr. Reeder.

A study of the organization theory and the methods and techniques by which organization consultants, officers, group members, and administrators may increase the effectiveness of organizations. Five categories of organization problems are considered: (1) program problems, (2) leadership problems, (3) membership problems, (4) problems related to meetings, and (5) organizational and public



relations problems. Primary emphasis is given to organizations and service agencies which are found in rural society.

**411 Community and Regional Development and Planned Change.** Spring term. Credit three hours. Mr. Capener and others.

Various strategies of development and planned change will be explored. Reviewed also will be programs, organizations, agencies, and institutions operating in communities and regions that address themselves to various development strategies. Two major emphases are: (1) the structural-functional roles and processes of organizations, agencies, and institutions as they implement programs of change and development in communities and regions, (2) roles of professionals and change agents working in development units.

**412 Rural Society.** Fall term. Credit three hours. Mr. Larson.

Intended as a basic course in the sociology of rural life, using the social system concept as a theoretical framework. The development of rural society in the United States is used as a case to illustrate the structure and function of major rural social systems in modernized societies and the changing relationships between the urban and rural sectors. Some consideration is given to the implications of social structure and function for action programs serving rural people.

**420 Comparative Rural Societies.** Fall term. Credit three hours. Mr. Young.

The development of nations, regions, and communities is analyzed from a macrostructural perspective, emphasizing the pervasive nature of social communication and symbolic transformations. Results of recent and ongoing comparative studies are reported, and previous theoretical work relevant to structural change—Marx, Durkheim, Parsons, etc.—is reviewed.

**421 Community Structure and Change.** Fall term. Credit three hours. Mr. Erickson.

An overview of various models in approaching communities as objects of study. Analysis will focus on the methodologies by which power structures are examined; the relation of local community units to extracommunity systems; the forms of community cohesion and autonomy; the relation of local power structures to decision making; and the relation of changes in division of labor, urbanization, suburbanization, and values to patterns of community life.

**424 Occupational Structure in Industrial and Developing Countries.** Fall term. Credit three hours. Mr. Taietz.

Cross-national comparisons of occupational differentiation and related issues. Particular

attention will be given to the relation of the occupational structure to social stratification, mobility within the structure, and occupational prestige ranking.

**432 Community Leadership.** Spring term. Credit three hours. Mr. Cummings.

A study of leadership theories and decision-making strategies as applied to problems of community and regional development. The nature of leadership requirements in a political democracy is examined along with implications for leadership education in public affairs.

**436 Social Movements and the Sociology of Confrontation.** Spring term in alternate years. Credit three hours. Mr. Bauder.

Since the course is designed to provide opportunity for maximum student participation, it will be planned and organized by the students under faculty supervision and will follow a seminar format. The course examines available theories of collective behavior and selected comprehensive case studies. The principal theorists to be covered are Sorokin, Heberle, Blumer, Lipset, Smelser, Landsberger, and Toch. The case studies will be selected to reflect a wide range of social movements. Some suggested case studies are the Black Power movement, Southern Tenants Union, National Farmers Organization, Civil Rights movement, and the Populist movement.

**437 The Sociology of Aging.** Spring term. Credit three hours. Mr. Taietz.

The theory and research in this growing field will be examined. A major focus will be a critical examination of the disengagement and activity theories of the aging process. A current research project directed by the instructor will be utilized to investigate the effect of differential structural contexts on disengagement, morale, and community integration of the aged. Methodological problems in research on aging will be explored.

**443 Politics, Social Control, and Pluralism.** Fall term. Credit three hours. Mr. Eberts.

Comparative analyses of substantive and methodological issues in social control processes within the political economies of primarily Western democracies, but with illustrative attention to Communist and developing societies. Pluralism and control will be viewed relative to productive, allocative, and staffing processes of society, as they affect various occupational categories, communities of different size, and institutions primarily responsible for maintaining social order.

**500 Seminar: Comparison of Community Development Perspectives in the United States.** Fall term. Credit three hours. Mr. Cummings.

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**510 Seminar in Decision Making and Social Action.** Fall term. Credit three hours. Mr. Reeder.

**511 The Metropolitan Community.** Fall term. Credit three hours. Mr. Eberts.

An interdisciplinary course focused upon social, political, and economic aspects of metropolitan America. Viewed from the perspectives of demography, ecology, social organization, and planning, the emergence of a new society form and its implications for contemporary America will be considered.

**515 Research Design.** Spring term. Credit three hours. Mr. Francis.

An introduction to the methods of social research. Course topics follow the major steps in the design and execution of sociological research from the definition of the problem and formulation of hypotheses to the interpretation of results and preparation of a final report. Practice exercises are assigned each week utilizing data from departmental projects.

**516 Cross-Cultural Research Methods.** Spring term. Credit three hours. Mr. Young.

The comparative study of large social systems is presented as a new research style that is especially appropriate to research in and on developing countries. The field technique of macrosurveys and the uses of available data such as national social accounting, documents, ethnographic reports, and aerial photographs are emphasized. Special attention is given to trend studies, the assumptions of macrostructural analysis, rapid, low-cost research procedures, and the mechanics of data archives.

**522 Social Power and Community Decision Making.** Spring term. Credit three hours. Mr. Stockdale.

A sociological approach in which power as an aspect of community life is examined. The methodology and the theoretical approaches of recent community power studies are analyzed. The importance of social power in community decision making and action programs is considered, and the influence of community power structures in instigating and retarding change is analyzed.

**528 Applications of Sociology to Development Programs.** Spring term. Credit four hours. Mr. Polson.

Application of sociological theory and methods to the problems of institutions and agencies concerned with rural development. Special emphasis is placed on programs for agricultural extension education and community development in low-income countries.

**540 Introduction to Computer Use.** Fall and spring terms. Credit two hours. Mr. Eberts.

Designed for the student who wishes to use the computer system at Cornell in his research, but who does not necessarily want to become a programmer. The course is divided into two parts. The first part is designed to give the student a working knowledge of the elementary aspects of FORTRAN IV so that he will be able to do preliminary transformations of his data and simple FORTRAN programs. The second part deals with the various "canned" programs which are most often used by social scientists. The student is introduced to program packages such as Michigan, Bimed, and SSP.

**550 Informal Study in Rural Sociology.** Throughout the year. Credit to be arranged. Members of the staff.

**551 Research in Rural Sociology.** Throughout the year. Credit to be arranged. Members of the staff.

**624 Seminar: Theory Construction in Macro-systems.** Spring term. Credit three hours. Mr. Eberts.

**630 Seminar: Contemporary Theories of Planned Social Change.** Fall term. Credit three hours. Mr. Reeder.

**636 Seminar: Social Change and Development.** Spring term. Credit three hours. Mr. Erickson.

**642 Field Problem in Planning: Urban/Rural Poverty.** Spring term. Credit four hours. Messrs. Clavel and Eberts.

**651 Seminar: Occupational Structure.** Spring term. Credit three hours. Mr. Bauder.

## Economics

### Faculty

George P. Adams, Jr., Gary W. Bickel, Erwin A. Blackstone, Edwin T. Burton, Wynn Van Bussmann, Nai-Ruenn Chen, M. Gardner Clark, Tom E. Davis, Douglas F. Dowd, W. Duane Evans, Louis M. Falkson, Heywood Fleisig, Walter Galenson, Frank H. Golay, George M.

Hildebrand, Paul Hohenberg, John G. B. Hutchins, Alfred E. Kahn, Robert W. Kilpatrick, Jay H. Levin, Ta-Chung Liu, William F. Long, John W. Mellor, Peter Miovic, Leonard J. Mirman, Chandler Morse, Lynn Muchmore, Dennis C. Mueller, George J. Staller, S. C. Tsiang, Jaroslav Vanek, Henry Y. Wan

## Field Representative

George J. Staller, Goldwin Smith Hall

## Advisers to entering graduate students

Robert W. Kilpatrick, Rockefeller Hall and  
Dennis Mueller, Goldwin Smith Hall

## MAJOR AND MINOR SUBJECTS

Econometrics and Economic Statistics

Economic Development and Planning

Economic History

Economics of Participation and

Labor-Managed Systems

Economic Theory

History of Economic Thought

Industrial Organization and Control

International Economics

Labor Economics

Monetary and Financial Economics

Public Finance and Fiscal Policy

All candidates resident in the United States during the year preceding matriculation at Cornell must take the Graduate Record Examination Aptitude Test; it is also recommended that they take the GRE Advanced Test in Economics. There are no fixed admission requirements. However, grades, class standing, GRE scores, and letters of recommendation, considered collectively, must indicate superior scholastic ability and motivation.

Students majoring in this Field should consult the descriptions in this *Announcement* of the Fields of Agricultural Economics, Business and Public Administration, City and Regional Planning, and Industrial and Labor Relations for other subjects related to the work in economics. Attention is also directed to the various international studies programs, including the Program on Comparative Economic Development, described on p. 33 of this *Announcement*.

In addition to their major and two minors, doctoral candidates will be required to demonstrate competence in economic theory, its history, and its methodology, the latter including economic statistics, and (except when the chairman of the Special Committee explicitly approves an exemption) mathematical economics. A student who elects as a major or minor any of these required subjects must broaden his program by taking work in additional subjects approved by his Special Committee.

Candidates for the Ph.D. degree with a major in Economics are encouraged to elect one minor subject in another Field.

All candidates for advanced degrees who elect a minor in Economics will be held responsible for work in economic theory and its history.

**FINANCIAL AID.** Applications for fellowships and scholarships in Economics should be filed with the Dean of the Graduate School

prior to the deadline date (see the Graduate School Calendar on p. 146 of this *Announcement*). Applications for teaching fellowships, however, should be made directly to the chairman of the Department of Economics.

**LANGUAGE.** The Field of Economics has no general language requirements. The chairman of the Special Committee will determine what languages, if any, the student is expected to master.

**EXAMINATIONS.** Within his first year of residence each Ph.D. candidate in the Field of Economics must pass an oral qualifying examination administered by his Special Committee. The purpose of this examination is to determine the student's qualification to pursue all aspects of a Ph.D. program. A member of the Special Committee who is satisfied with the student's qualifications in the subject which the member represents may pass him in that subject without formal testing. On the basis of the qualifying examination, the Special Committee, with the student, will work out his graduate program. Other examinations required by the Graduate School are described on pp. 11-12 of this *Announcement*.

The Field requires that each graduate student (unless specifically exempted by the Field Representative) be available to serve at least one term as a teaching assistant during his period of residence.

## Faculty Specializations

Econometrics and economic statistics: Bussmann, Evans, Liu, Long, Miovic, Mirman.

Economic development and planning: Bickel, Burton, Chen, Clark, Davis, Golay, Hohenberg, Mellor, Morse, Staller, Vanek, Wan.

Economic history: Chen, Davis, Dowd, Fleisig, Hohenberg, Hutchins, Muchmore.

Economics of participation and labor-managed systems: Davis, Miovic, Mueller, Staller, Vanek.

Economic theory: Adams, Bickel, Burton, Bussmann, Hildebrand, Kilpatrick, Levin, Liu, Miovic, Mirman, Mueller, Tsiang, Vanek, Wan.

History of economic thought: Adams, Hildebrand, Muchmore.

Industrial organization and control: Blackstone, Kahn, Long, Mueller.

International economics: Bickel, Davis, Fleisig, Golay, Hohenberg, Levin, Staller, Tsiang, Vanek, Wan.

Labor economics: Galenson, Hildebrand.

Monetary and financial economics: Davis, Levin, Muchmore, Tsiang.

Public finance and fiscal policy: Blackstone, Kilpatrick.

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### Graduate Courses and Seminars

The following course listings are tentative, intended for the student's information. The Department office should be contacted for definite course offerings, times, places, etc.

**509 The Theory of Household and the Firm.** Fall term.

**510 The Theory of Markets and General Equilibrium.** Spring term.

**511 Microeconomic Theory.** Fall term.

**512 Macroeconomic Theory.** Spring term.

**513 Macroeconomic Theory: Static Income Determination.** Fall term.

**514 Macroeconomic Theory: Dynamic Models, Growth, and Inflation.** Spring term.

**517-518 Intermediate Mathematical Economics I and II.** Throughout the year.

**519-520 Quantitative Methods.** Throughout the year.

**521-522 European Economic History.** Throughout the year.

**523-524 American Economic History.** Throughout the year.

**525 Economic History of Latin America.** Fall term.

**527 The Environment of Economic Activity in Postwar Europe.** Fall term.

**529 Economic History of Early Modern Europe.** Fall term.

**561-562 International Economic Theory and Policy.** Throughout the year.

**565 Economic Problems of Latin America.** Spring term.

**567 Comparative Economic Systems: Soviet Union and Europe.** Fall term.

**571 Economic Development and Sociopolitical Modernization.** Fall term.

**572 Processes of Economic Growth and Development.** Spring term.

**575 Economics of Poverty.** Spring term.

**582 Economics of Workers' Management in Yugoslavia.** Spring term.

**611 Advanced Microeconomic Theory.** Fall term.

**612 Advanced Macroeconomic Theory.** Fall term.

**613-614 History of Economic Thought.** Throughout the year.

**617-618 Mathematical Economics.** Throughout the year.

**619-620 Econometrics.** Throughout the year.

**621-622 Seminar in Economic History.** Throughout the year.

**623-624 American Economic History.** Throughout the year.

**631-632 Monetary Theory and Policy.** Throughout the year.

**635-636 Public Finance: Resource Allocation and Fiscal Policy.** Throughout the year.

**641-642 Labor Economics.** Throughout the year.

**651-652 Industrial Organization and Regulation.** Throughout the year.

**661-662 International Economics: Pure Theory and Policy.** Offered in alternate years.

**663-664 International Economics: Balance of Payments and International Finance.** Offered in alternate years.

**666 Special Topics in International Finance.** Spring term.

**671-672 Economics of Development.** Throughout the year.

**674 Economic Growth in Soviet Union and Eastern Europe.** Spring term.

**675 Economic Growth Models.** Fall term.

**676 The Economy of China.** Spring term.

**677 Topics in Economic Growth and Development.** Fall term.

**678 Economic Growth in Southeast Asia.** Spring term.

**679 Theory of Economic Development.** Spring term. Prerequisite: 675.

**681-682 Economics of Participation and Labor-Managed Systems: Theory, Policy, and Planning.** Throughout the year.

**685 Seminar in Mathematical Economics (Mathematics 679).** Spring term.

**ILR 610 Economic and Social Statistics.** Fall term.

## Education

### Faculty

Barry B. Adams, Howard G. Andrus, Joe P. Bail, Alfred L. Baldwin, Arthur L. Berkey, Sara E. Blackwell, Walter F. Brautigan, W. Lambert Brittain, Robert L. Bruce, Ralph N. Campbell, Harold R. Cushman, Richard B. Darlington, Robert Davis, Robert E. Doherty, William E. Drake, Arthur E. Durfee, Joan R. Egner, Jean Failing, Richard B. Fischer, Felician F. Foltman, Harrison A. Geiselmann, Marvin D. Glock, D. Bob Gowin, Emil J. Haller, John S. Harding, Dalva E. Hedlund, Peter J. Hilton, Lawrence B. Hixon, Irene I. Imbler, Anne LaBastille, J. Paul Leagans, Harry Levin, George W. McConkie, Jason Millman, Marion E. Minot, A. Gordon Nelson, Helen Y. Nelson, Benjamin Nichols, Lucinda A. Noble, Joseph D. Novak, Walter J. Pauk, Isabel J. Peard, Kathleen Rhodes, Richard E. Ripple, Verne N. Rockcastle, Frederick H. Stutz, Frederick K. T. Tom, Helen L. Wardeberg

### Field Representative

Frederick K. T. Tom, 202 Stone Hall

### MAJOR AND MINOR SUBJECTS

Agricultural Education  
Curriculum and Instruction  
Education (minor subject only)  
Educational Administration  
Educational Psychology and Measurement  
Educational Research Methodology  
Extension and Continuing Education  
Guidance and Student Personnel  
Administration  
History, Philosophy, and Sociology  
of Education  
Home Economics Education  
Science and Environmental Education

The Field of Education is concerned with the scholarly study of a wide range of educational topics. Students may emphasize the improvement of teaching a particular subject, the theory and practice of a functional educational specialization, or the application of a relevant discipline to problems of education.

Graduate work at Cornell is highly individualized and each student plans his own program with the advice of a Special Committee selected by him. He is encouraged to avail himself of the many curricular and scholarly resources of the entire University. In doing so, he will find opportunities to work closely with faculty members in individualized programs featuring courses, seminars, independent study, and practical experience.

For further information regarding any major subject, inquiries may be sent to the chairman of the division offering work in that major subject. See listing on following pages.

Initial correspondence with any faculty member of the Field of Education may be

addressed to him in care of Secretary, Field of Education, 100 Stone Hall.

**ADMISSION REQUIREMENTS.** All applicants for admission with majors in Education—M.A., M.S., M.A.T., Ed.D., Ph.D.—who are residents of the United States or Canada and whose native language is English, are required to submit with their application either a score from the Graduate Record Examination Aptitude Test or the scores of both the Miller Analogies Test and the Doppelt Mathematical Reasoning Test. The GRE score is necessary for University fellowship applications. Location of test centers can be obtained by writing the Guidance and Testing Center, Olin Hall.

**FINANCIAL AID.** Information on scholarships, research assistantships, and teaching assistantships and fellowships, and application forms, may be obtained from: Secretary, Field of Education, 100 Stone Hall, or from the chairman of the division offering work in the major subject the student has selected. Applications for general University fellowships must be received no later than February 1. Applications for assistantships, ESEA (USOE) Title IV Traineeships, and other restricted awards of the Field of Education must be received no later than March 15. Notification of all awards can be expected by April 1.

**GRADUATE DEGREES.** Students majoring in the Field of Education may be admitted for either of two types of advanced degrees: the *general degrees* of M.A., M.S., and Ph.D., administered by the Graduate School, and the *professional degrees* administered by the Field of Education of the Graduate School. It is the responsibility of the candidate to become familiar with the various regulations which apply to his degree candidacy and to satisfy them in the proper manner. The general regulations are contained in the *Code of Legislation of the Graduate Faculty*; specific requirements and/or exceptions to the general regulations are to be found below or in the *Education Announcement*.

## General Degrees

The differences between the general degree programs and those of the professional degrees relate to the manner of meeting residence requirements, the emphasis on research, the specification of hours of credit required, the selection of major and minor subjects, and the program of studies.

**LANGUAGE REQUIREMENT.** The language requirement for the degree of Ph.D. is left to

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the discretion of the candidate's Special Committee; none is required for the M.A. or M.S.

Residence requirements are described on p. 9 of this catalog.

### Professional Degrees

Advanced professional degrees in education are designed as preparation for the professions in education. Two professional degrees, Master of Arts in Teaching and Doctor of Education, are awarded.

#### Master of Arts in Teaching (M.A.T.)

The degree of Master of Arts in Teaching (M.A.T.) is designed for those with a baccalaureate degree planning to undertake professional preparation in the fifth year. Teaching areas for this degree include agriculture, biology, chemistry, earth science, English, French, home economics, physics, and social studies. Graduates of a teacher-training program ordinarily are not eligible for this degree.

**ADMISSION.** Applicants must have adequate preparation in their intended teaching field, ability to pursue graduate study, and must give evidence of a serious career interest in teaching.

**RESIDENCE.** A minimum of two regular semesters and one summer of full-time study or two and two-fifths residence units is required. Residence units may be earned in: (1) academic-year registration, (2) summer registration, and (3) extramural registration. Full-time study will be required in all but exceptional cases.

**SPECIAL COMMITTEE.** A candidate will select a Special Committee of two or more members of the Graduate Faculty, one of whom will represent the Field of Education and serve as chairman. The chairman normally will belong to one of the teacher preparation specializations. Other members of the Committee are to be selected with the advice of the chairman to give adequate representation of the candidate's program. For a candidate preparing for secondary school teaching, the teaching field will be represented.

**PROGRAM OF STUDIES.** The program determined by the candidate and his Special Committee will include those courses, seminars, and other experiences in the professional area and in the teaching field or fields which are deemed most appropriate. Each candidate will be required to demonstrate teaching skill in a supervised field experience.

**EXAMINATION.** The final examination is conducted by the Special Committee and may be written or oral or both. It shall be comprehensive and designed to evaluate the candidate's

knowledge in the teaching field as well as in the theory and practice of teaching.

#### Doctor of Education (Ed.D.)

Programs for this degree are designed to prepare the candidate for positions of leadership in the educational profession, including administrator, coordinator, curriculum specialist, extension specialist, student services specialist, supervisor, and teacher.

**ADMISSION.** Applicants must have completed a minimum of three years of successful experience appropriate to their proposed field of professional service and must show evidence of scholastic ability and other qualifications necessary for successful progress in graduate study, field experience, and professional work.

**RESIDENCE.** A minimum of five units of residence is required beyond the Bachelor's degree, of which at least three units must be earned in residence at Cornell. Two units of residence beyond the Master's degree or its equivalent must be earned at Cornell in regular terms, consecutive except on petition. No more than two units may be earned through extramural registration or in summer sessions at Cornell or elsewhere.

In addition to meeting residence requirements, a candidate must complete successfully one year of participation in directed field experience (see below).

**PROGRAM OF STUDIES.** The program of studies must include a minimum of sixty-five credit hours in courses and seminars beyond the Bachelor's degree, of which thirty-five hours shall be completed beyond the Master's degree or its equivalent. It includes advanced work in each of these subjects: educational psychology, history and philosophy of education, educational measurement and statistics, and research in education. At least fifteen hours of credit must be earned in courses other than those in professional education.

The transfer of credit earned in institutions other than Cornell University must be recommended by the Special Committee and approved by the Dean of the Graduate School.

**DIRECTED FIELD EXPERIENCE.** In keeping with the primary emphasis in the program for the Ed.D. degree, a minimum of two consecutive academic terms of full-time experience appropriate to the candidate's field of professional service is required. This directed field experience will follow completion of two units or more of residence at Cornell beyond the Master's degree or its equivalent.

The opportunity for the field experience is to be sought by the candidate with the advice and assistance of the Special Committee. The proposed plan must be approved by the Com-

mittee as affording those practical experiences needed in acquiring competence in his intended field of professional service.

**THESIS.** The candidate is required to present a thesis which will give evidence of his ability to apply knowledge to a professional problem. The thesis must satisfy the Special Committee in respect to both professional proficiency and literary quality.

**EXAMINATIONS.** Two examinations are required: (1) an admission to candidacy examination and (2) a two-part final examination. Although other members of the faculty may be invited to participate in these examinations, the Special Committee alone decides whether the candidate has passed or failed. The admission to candidacy examination is both written and oral and is given before or during the third unit of residence. It has the double purpose of determining the ability of the candidate to pursue further studies and of allowing the Special Committee and the candidate to plan a satisfactory program. The final examination is given by the Special Committee and other members of the faculty who may be invited to attend. The examination must be given in two parts—one part on the field of professional service and core studies in education (examination A), which may be taken at the end of the fourth unit of residence; and a second part on the thesis (examination B), taken after the thesis is approved by the Special Committee. Examination A may be written or oral or both. Examinations A and B may precede or follow the period of directed field experience.

## Major Subjects in Education

The professional opportunities, areas of study and research, and courses for each of the major subjects in Education are listed below.

### Agricultural Education

Joe P. Bail, chairman; Arthur L. Berkey, Harold R. Cushman, William E. Drake, Frederick K. T. Tom.

The graduate program in agricultural education prepares the student for positions in teaching, research, supervision, and administration in public schools, technical schools, and colleges and universities, as well as for specialized positions as teacher-educators in agricultural education and as administrators in vocational education. Graduates may also follow careers in state and federal education agencies or in overseas educational programs.

Students may concentrate on aspects of agricultural education such as administration, curriculum, research, supervision, or teacher education. At the Master's level, prior experience as a teacher of agriculture is desirable

but not required. For doctoral candidates, a minimum of three years prior experience in teaching, administration, or supervision is recommended.

Opportunities for programs tailored to individualized needs and interests characterize the graduate program in agricultural education. Candidates are encouraged to take a significant part of their course work in related fields of study which will contribute to their professional goals.

Research training and experience will be gained through participation in studies on a local, state, or national basis. Current research interests are in the areas of effectiveness/cost evaluation, manpower requirements, curriculum development, task analysis, agricultural images, and administration of vocational education programs.

Recent country-wide expansion in programs of vocational education afford many good career opportunities for specialists in agricultural education. Cornell graduates of this program hold positions in all the career fields previously described.

#### 432 Methods, Materials, and Directed Practice in Teaching Agriculture in the Secondary School. Fall term. Credit nine hours. Staff.

Direct participation in off-campus centers in the specific and related problems of teaching agriculture on the junior and senior high school levels, which include adjustment in the school and community; evaluation of area resources, materials of instruction, and school facilities; organization and development of local courses of study; launching and directing work experience programs; planning for and teaching all-day classes; advising youth organizations; and other problems relating to development of a balanced program for vocational education in agriculture in a local area.

#### 433 Special Problems in Agricultural Education. Fall or spring term. Credit one or two hours. Mr. Bail and staff.

The purpose is to provide students an opportunity to study, individually or as a group, selected problems in agricultural education to meet the particular needs of the students.

#### 434 Organization and Direction of Young Farmer Programs. Fall term. Credit three hours. Mr. Cushman.

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

#### 531 Supervision in Agricultural Education. Fall term. Credit two hours. Given in alternate

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years. Open to students with experience in teaching agriculture, or by permission. Mr. Bail.

The function of supervision, program planning, and supervisory techniques as applied to state programs in agricultural education.

**532 Advanced Methods and Materials of Teaching Agriculture.** Fall term. Credit two or three hours. Mr. Berkey.

Consideration is given to selected teaching techniques and to the selection, preparation, and use of instructional materials in agriculture.

**533 Planning Courses of Study and Agricultural Experience Programs.** Spring term. Credit three hours. Mr. Drake.

Guiding principles, objectives, and sources of information will be developed for planning the courses of study and teaching calendar. Consideration will be given to principles, meanings, and functions of agricultural experience programs and how they are planned, developed, and used.

**534 Education for Leadership of Youth and Adult Groups.** Fall term. Credit two hours. Mr. Cushman.

A consideration of the principles involved in organizing and conducting out-of-school programs for youth and adults.

**535 Planning and Conducting Programs of Teacher Preparation in Agriculture.** Fall term. Credit two hours. Offered in alternate years. Open to persons with teaching experience in agriculture who are preparing for or engaged in the preparation of teachers or in related educational service. Mr. Tom.

**[536 Organization and Administration of Agricultural Education.** Spring term. Credit two hours. Given in alternate years. Mr. Cushman. Not given in 1971-72.

Designed for teachers, high school principals, teacher trainers, supervisors, and others who are or wish to become administrators of agricultural programs. Emphasis will be placed on interpreting vocational acts and on problems of administration at the local and state level.]

**539 Evaluating Programs of Agricultural Education.** Spring term. Credit two hours. Given in alternate years. Open to students with experience in teaching agriculture or by permission. Mr. Drake.

Students will study objectives, evaluate, and develop criteria and procedures for evaluation of programs of agricultural education in the secondary schools.

**630 Seminar in Agricultural Education.** Spring term. Credit one hour. Staff.

Recommended for Master's degree candidates who have had teaching experience and doctoral candidates with majors and minors in agricultural education. The seminar will be primarily centered in current problems and research in the field not included in other course work.

## Curriculum and Instruction

Miss H. L. Wardeberg, chairman; Barry B. Adams, Joe P. Bail, W. Lambert Brittain, Robert L. Bruce, Robert Davis, William E. Drake, Harrison A. Geiselmann, D. Bob Gowin, Peter Hilton, Benjamin Nichols, Joseph D. Novak, Walter J. Pauk, Miss Isabel J. Peard, Richard E. Ripple, Verne N. Rockcastle.

The graduate program in curriculum and instruction is devoted to study of the total curriculum and its relation to instruction at any level. Research includes analysis of teaching behavior, investigation of cognitive processes in instruction, theories of curriculum organization, and development of instructional materials.

Programs of study prepare students for faculty positions in colleges and universities, or as instructional administrators in public schools. Certification as Instructional Administrator: Curriculum (e.g., department head, curriculum coordinator, academic subject supervisor, director of elementary, secondary, or occupational education) may be obtained.

Candidates for the Doctor of Philosophy or Doctor of Education degree may elect appropriate minors in an academic teaching field, in supporting disciplines, and in Education.

The Master of Arts and Master of Science degree programs in Curriculum and Instruction are available only to persons with appropriate experience, offering them the opportunity to study curriculum and instruction generally, plus advanced subject matter in a teaching field. The Master of Arts in Teaching degree is available to baccalaureate degree holders with strong preparation in selected subject matter fields. See page 25 for further details. Students who have had experience in general elementary or academic secondary fields will find this the most suitable major subject for advanced study.

**407 The Teaching of Elementary School Science.** (See p. 95 for description.)

**408 Methods of Teaching Science in Secondary Schools.** (See p. 95 for description.)

**409 Practice in Teaching Science in Secondary Schools.** (See p. 95 for description.)

**432 Methods, Materials, and Directed Practice in Teaching Agriculture in the Secondary Schools.** (See p. 85 for description.)



**444 Seminar in the Teaching of Secondary Mathematics.** Spring term. Credit three hours. Mr. Geiselmann.

Useful materials and practical methods for effective teaching of mathematics in the junior and senior high school. Attention will be given to research in mathematics education, and recent proposals for curriculum revision. Special interests of the students will serve as a guide for the further selection of topics.

**445 Teaching Reading and Study Skills in Secondary Schools.** Spring term. Credit two or three hours. Mr. Pauk.

For teachers, administrators, guidance counselors, and supervisors. Pertinent research as well as the psychology and philosophy of developmental reading and study skills will be examined. Teaching methods and sample materials for classroom use will be demonstrated and discussed.

**473 Contemporary Philosophy of Education.** (See p. 92 for description.)

**509 Development of Curriculum in Science.** (See p. 95 for description.)

**532 Advanced Methods and Materials of Teaching Agriculture.** (See p. 86 for description.)

**533 Planning Courses of Study and Agricultural Experience.** (See p. 86 for description.)

**540 The Art of Teaching.** Fall and spring terms. Credit and hours arranged. Register only with consent of the instructor. Miss Wardeberg.

**[542 Seminar in Secondary Education.** Fall term. Credit three hours. Members of the staff. Not given in 1971-72.]

**545 The Curriculum of American Schools.** Fall term. Credit three hours.

A survey of the basic elements involved in making curriculum decisions, and an examination of contemporary curriculum developments in elementary and secondary schools.

**546 Teaching Reading and Language Skills.** Fall term. Credit three hours. Miss Wardeberg.

Materials and techniques in teaching the language arts in the elementary schools; special emphasis on the teaching of reading.

**547 Seminar in Elementary Education.** Spring term. Credit and hours arranged. Miss Wardeberg.

A study of current problems and research in this field.

**549 Seminar in the Teaching of Elementary Mathematics.** Fall term. Credit three hours.

Registration by permission of the instructor. Mr. Davis.

This seminar will focus on observing one-to-one teaching in elementary school mathematics.

**555 Supervision of Instruction.** (See p. 88 for description.)

**645 Seminar in Curriculum Theory and Research.** Spring term. Credit three hours. Registration by permission of the instructor. Members of the staff.

## Educational Administration

Mrs. Joan R. Egner, chairman; Emil J. Haller, Lawrence B. Hixon, Miss Helen L. Wardeberg.

For a major in this subject, the candidate must demonstrate proficiency in the following areas of knowledge: (a) theoretical concepts of administration, (b) the basic disciplines which deal with the relationships between individuals and groups within an organization and between organizations, (c) research in educational administration, and (d) environmental factors which influence the educational enterprise.

**561 Theory and Practice of Administration.** Fall term. Credit three hours. Mrs. Egner.

The goal is to give understanding and practice in the use of behavioral science concepts for analyzing human behavior in formal organizations.

**562 The Principalship.** Spring term. Credit three hours. Mr. Hixon and staff.

Analysis will include the elementary and secondary school as institutions, innovation in organization and curriculum, personnel administration, and community relationships. Each student will specialize at the elementary or secondary school level for an individually planned program of intensive study.

**563 Social Context of Educational Administration.** Spring term. Credit three hours. Mr. Haller.

A course on environmental factors which influence administrative behavior in formal organizations from three perspectives: A structural approach, centering on the links between the status divisions of society and organizations; a political approach, examining power relations between organizations and their environment; and a cultural perspective, examining the role of norms, values, and ideologies in organizational behavior. Students will conduct and report on a small-scale, empirical research project.

**564 Economic Issues in Education.** Spring term. Credit three hours. Staff.

Introduction to problems of resource procurement and allocation, with focus on exist-

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ing and alternative strategies of fiscal support for schools and new management techniques for allocating such resources.

**565 Supervision of Instruction.** Spring term. Credit three hours. Open to those already in supervisory positions and experienced persons aspiring to become supervisors. Miss Wardeberg.

A basic course in supervision; fundamental principles and various procedures will be considered.

**567 Education Law.** Fall term. Credit three hours. Mr. Hixon.

Review and analysis of federal and state legislation, court decisions, opinions, and regulations which affect educational institutions.

**569 Personnel Administration.** Fall term. Credit three hours. Mrs. Egner.

An introduction to modern psychological and sociological perspectives of personnel administration. The purposes are to acquaint the student with a variety of ways of conceiving the problems of personnel administration and with relevant research, and to develop some facility in the analysis of conceptual schemes and research projects.

**668 Seminar in Educational Administration.** Spring term. Credit three hours. Prerequisite: 561 or 569 or consent of the instructor. Mrs. Egner and staff.

### Educational Psychology and Measurement

George W. McConkie, chairman; Howard G. Andrus, Marvin D. Glock, Harry Levin, Jason Millman, A. Gordon Nelson, Richard E. Ripple.

Educational psychology is a behavioral science. Its concepts and principles comprise the body of knowledge relevant to the improvement of classroom learning. Many disciplines—including anthropology, child development, psychology, and sociology—contribute to educational psychology through their research findings on the nature of growth and development, cognition, motivation, social interaction, and personality. Students who major in this subject may specialize in any of the traditional aspects of psychology as they apply to human behavior or statistics. Research in progress is in the field of human learning and literacy. Previous preparation in professional education or in psychology is not a prerequisite. Any deficiencies must be satisfied during candidacy for a particular degree.

**411 Educational Psychology.** Fall or spring term. Credit three hours. Prerequisite: an introductory course in psychology. Designed for students in teaching program and/or those interested in the educational process.

Fall term, Mr. Ripple; spring term, Mr. Glock. Special section for agricultural education majors with time to be arranged. Mr. Glock.

Consideration of the outstanding facts and principles of psychology bearing upon classroom problems. A project in tutoring may be required in the spring term. (Equivalent to Psychology 103.)

**417 Psychology of Adolescence.** Spring term. Credit three hours. Prerequisite: a course in general psychology. Mr. Ripple.

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

**452 Interpretation of Statistics Used in Education.** (See p. 89 for description.)

**453 Introduction to Educational Statistics.** (See p. 89 for description.)

**511 Educational Psychology.** Fall term. Credit three hours. Permission of the instructor required. Mr. Ripple.

A basic course in educational psychology for graduate students.

**551 Educational Measurement.** Spring term. Credit three hours. Permission of the instructor required. Mr. Glock.

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

**555 Use and Interpretation of Tests in Guidance and Personnel Administration.** Fall term. Credit three hours. Open to students in guidance or personnel administration and to classroom teachers who expect to work with standardized group tests. Mr. Andrus.

Deals with the historical development, use, and interpretation of aptitude tests as a basis for guidance and selection in public schools, colleges, and/or industry. Designed to meet the New York State certification requirements for guidance counselors.

**599 Methods of Educational Inquiry.** (See p. 89 for description.)

**613 Seminar in Educational Psychology.** Fall term. Credit three hours. Permission of the instructor required. Primarily for doctoral students. Mr. Glock.

**617 Seminar in Learning and Memory.** Spring term. Credit three hours. Prerequisite: Psychology 306 or equivalent. Mr. McConkie.

Current issues in the learning, retention, and transfer of verbal materials.

**618 Seminar in Educational Psychology.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Mr. Ripple.

Emphasis on theoretical considerations of various areas in educational psychology.

### Educational Research Methodology

Jason Millman, chairman; Robert L. Bruce, Richard B. Darlington, D. Bob Gowin.

The task of educational research methodology is to appraise scientifically generative ideas, methods, products, and values by describing and explaining them, by identifying their limitations and advantages, by clarifying underlying presuppositions, and by projecting judgements about the likely consequences of their use in the context of educational research. Programs for students who major in this subject are aimed at those who enjoy mathematics or the philosophy of science and who are interested in applying analytical methods to problems of education.

Programs in educational research methodology are varied but almost always include the study of techniques of measurement, applied statistics, methods of program evaluation, and conceptual problems in educational inquiry. Students may minor in a large number of appropriate subjects and are encouraged to make use of the total course and research resources of the University.

There are an increasing number of employment opportunities for educational research methodologists. In addition to the usual university teaching positions, research methodologists are employed by state and local agencies, national research and development laboratories, and private and nonprofit industries developing educational materials. Many are involved in evaluating the effectiveness of new educational programs which are being instituted at all levels of education.

**452 Interpretation of Statistics Used in Education.** Fall term; offered in spring term only to those students concurrently enrolled in 453. Credit one hour. Mr. Millman.

A brief introduction to the vocabulary and symbolism used in reporting empirical research in education. Both univariate and multivariate statistical procedures will be covered from an intuitive point of view.

**453 Introduction to Educational Statistics.** Spring term. Credit three hours. Prerequisite: 452 (may be elected concurrently), or permission of the instructor. Mr. Millman.

A study of common statistical procedures encountered in educational literature and research. The course includes the mathematical bases, computation, and interpretation of univariate and multivariate descriptive and inferential statistics.

**527 Evaluation for Program Management.** (See p. 90 for description.)

**551 Educational Measurement.** (See p. 88 for description.)

**599 Methods of Educational Inquiry.** Fall and spring terms. Credit three hours. For graduate students in their first year of residence. Prerequisite: one course in statistics or 452 elected concurrently. Mr. Millman and staff.

An introduction to the methods that underlie the conduct of significant empirical research in education. Emphasis will be placed upon describing and analyzing such procedures as forming concepts, developing educational products, making observations and measurements, performing experiments, building models and theories, providing explanations, and making predictions.

**616 Seminar in Educational Psychology.** Fall term. Credit three hours. Prerequisite: 453 and 599 or permission of the instructor. Mr. Millman.

The topic for 1971-72 to be announced.

**[CSE 690 Seminar in Evaluation.** (See p. 94 for description.)]

**698 Practicum in Educational Research.** Fall and spring terms. Credit three to six hours per term. Staff.

Participation in a research project under the direction of the principal investigator of the project. Level of responsibility will increase with the experience and capability of the candidate, the eventual goal being his assumption of responsibility for a portion of the research.

**699 Conceptual Problems in Educational Inquiry.** Fall term. Credit three hours. Primarily for doctoral candidates in their second year of residence. Prerequisite: 599 or equivalent, or permission of the instructor. Mr. Gowin.

An examination of such concepts as causation, operationism, validity, reliability, hypothetical constructs, generalization, explanation, probability, and hypothetico-deductive method.

### Extension and Continuing Education

J. Paul Leagans, chairman; Robert L. Bruce, Arthur E. Durfee, Miss Irene I. Imbler.

The curriculum is designed to prepare administrators, supervisors, training specialists, and research scholars for leadership positions in community and junior colleges, four-year colleges and universities, cooperative and university extension systems, public schools, and other continuing education agencies, both in the United States and abroad. The central objective is to develop creative professional leaders who can initiate, organize, and effectively execute such programs in

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differing economic, cultural, physical, and institutional environments.

The curriculum is highly interdisciplinary. Individual study plans are developed through personal counseling. The theory, technology, principles, and methodology central to the adult education process are covered in divisional graduate courses and seminars. Concepts gained from these studies form a nucleus around which students integrate studies in a number of supporting disciplines.

Among faculty and student research interests are the structure of extension and other continuing education organizations for adults, the design of programs, communication processes, leadership of adult education agencies, staffing, professional training and evaluation of programs.

**CSE. 411 Introduction to Adult Education.** (See p. 93 for description.)

**522 Educating for Community Action.** Spring term. Credit three hours. Mr. Bruce.

Emphasis is on the design and execution of the educational aspects of community action programs. The course deals with the identification and statement of educational goals, selection of teaching strategies and evaluation of outcomes.

**523 Administration of Continuing Education Programs.** Spring term. Credit three hours. Mr. Durfee.

Application of the principles of administration and supervision to the problems of organizing and operating continuing education programs.

**524 Designing Continuing Education Programs.** Fall term. Credit three hours. Mr. Leagans.

Analysis of current theories, concepts, principles, and procedures central in the process of developing programs for the continuing education of adults.

**525 Educational Communication With Adult Audiences.** Spring term. Credit three hours. Mr. Leagans.

Emphasizes the centrality of useful technology and its effective communication in continuing education programs. Emerging models of the communication process are reviewed as a framework for analyzing the major elements of the communication process with adult audiences, including communicator credibility, program content, messages, transmission channels, message treatment, audience identification, feedback, and the design of operational communication programs.

**526 Practicum in Extension and Continuing Education.** Continuous fall and spring terms. Credit one to three hours. Open only to grad-

uate majors and minors in extension and continuing education. Staff.

Provides opportunity for students to supplement the formal aspects of their curriculum through systematic participation in an ongoing continuing education program.

**527 Evaluation for Program Management.** Fall term. Credit three hours. Mr. Bruce.

Program evaluation is treated as a part of the overall task of making program management decisions. Primary attention is given to educational and other community change programs, but references to other program management tasks are possible.

**626 Seminar in Extension and Continuing Education.** Continuous fall and spring terms. Credit one hour each term. Required of all majors in extension and continuing education and open to minors. Staff.

Provides opportunity for divisional students and staff jointly to analyze and reflect on current professional issues.

**627 Seminar: Comparative Systems of Extension and Adult Education.** Fall term. Credit two hours. Mr. Leagans.

Programs for major consideration, operating in the U.S. and in other cultures, are selected in line with the interest of seminar members. Comparative analyses are made of such subjects as objectives, organizations, procedures, support, achievements and needed innovations in the light of problems in circumstances of different cultural, economic, political, and resource environments.

**628 Seminar: Current Problems and Issues in Extension Education.** Spring term. Credit two hours. Open by permission of the instructor to graduate students in extension education and other fields with special relevance to the seminar topic. Staff.

A major area of concern to extension education will be selected for intensive study by participating students and faculty.

## Guidance and Student Personnel Administration

A. Gordon Nelson, chairman; Howard G. Andrus, Dalva E. Hedlund.

A major in this subject area is appropriate for students who wish to prepare for positions in counseling, student personnel administration in higher education, and counselor education. A candidate who intends to become a public school counselor must include in his program the courses specified for certification in the state where he expects to work. A doctoral candidate is required to complete one minor in some branch of psychology, and a second minor chosen in consultation with the chairman of his Special Committee.

In most states, two years of teaching experience is a prerequisite for certification in guidance. Students who wish to obtain certificates to serve as counselors in public schools must have met at least part of the experience requirement before they will be admitted.

**580 Student Culture in the American College.** Spring term. Credit three hours. Prerequisite: consent of the instructor. Mr. Hedlund.

A study of the student culture with emphasis on current research.

**581 Student Personnel Administration.** Fall term. Credit three hours. Prerequisite: consent of the instructor. Mr. Hedlund.

Analysis of objectives, function, and organization of student personnel services in higher education. Emphasis on behavioral science theories supporting student personnel administration.

**582 Educational and Vocational Guidance.** Fall term. Credit two hours. For graduate students only. Mr. Nelson.

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

**583 Counseling.** Spring term. Credit two hours. Prerequisite: 555 and 582 or equivalent. Mr. Nelson.

Principles and techniques of counseling with individuals concerning various types of educational, vocational, and social adjustment problems. Case studies.

**584 Group Techniques in Guidance.** Spring term. Credit two hours. Prerequisite: permission of the instructor. Mr. Nelson.

Methods and materials for presenting educational and occupational information to students. Theory and practice of group guidance, and counseling in a group setting.

**585 Occupational and Educational Information.** Fall term. Credit four hours. Prerequisite: permission of the instructor. Mr. Nelson.

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

**602 Field Laboratory in Student Personnel Administration.** Either term. Credit and hours to be arranged. Prerequisite: consent of the instructor. Members of the staff.

**681 Seminar in Student Personnel Administration.** Either term. Credit arranged. Registration by permission. S-U option. Mr. Hedlund.

The following courses are not ordinarily offered on campus during the academic year, but they are offered in alternate summer sessions, along with most of the courses listed above.

**586 Organization and Administration of Guidance Programs.** Credit two hours.

**587 Practicum in Measurement and Appraisal for Counselors.** Credit two hours.

**588 Case Studies in Counseling.** Credit two hours.

## History, Philosophy, and Sociology of Education

D. Bob Gowin, chairman; Miss Isabel J. Peard, Frederick H. Stutz.

All doctoral students will be expected to select one or more of the following four branches of this subject for an area of specialization: history of education, philosophy of education, educational sociology, and comparative education. A candidate who chooses comparative education will also be expected to become a specialist in one of the other three branches.

Ordinarily about half of a candidate's program will include study in one or more of the following disciplines: history, philosophy, sociology, government, and economics. At least one minor for the doctorate will be outside the Field of Education.

Areas of faculty and student study and research interests include structure of subject matter, analysis of educational concepts, fundamental assumptions in educational research, critical thinking, relation of philosophy and education, curriculum, logic in teaching, nature of theory in education, role of philosophy in teacher education, school-community relations, social roles of teachers, student climate, educational leadership, and educational aims.

**470 Social and Philosophical Foundations of Education.** Either term. Credit three hours. Registration in morning sections limited to fifty students; afternoon sections, twenty-five students. Fall term, Miss Peard. Spring term, Messrs. Gowin and Stutz.

A critical examination of theories, policies, and practices.

**[471 Logic in Teaching.** Spring term. Credit three hours. Not given in 1971-72.

A consideration of definition, explanation, proof, problem solving, and the structure of subject matter as they bear upon classroom teaching.]

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**472 Philosophers on Education.** Fall term. Credit three hours. Admission by consent only. Miss Peard.

Selected writings by such philosophers as Plato, Descartes, Rousseau, and Dewey, as well as some contemporary writers, will be examined in their own right and for the light they throw on persistent problems in education.

**473 Contemporary Philosophy of Education.** Spring term. Credit three hours. Mr. Gowin.

Topic for 1971-72: Structure of knowledge.

**563 Social Context of Educational Administration.** (See p. 87 for description.)

**574 History of American Education.** Fall term. Credit three hours. Mr. Stutz.

An examination of the role of education in shaping American society. Chief emphasis will be on the period from 1820 to 1900.

**578 Comparative Education.** Spring term. Credit three hours.

A comparative treatment of several national systems of education from a historical perspective.

**598 Education as a Field for Inquiry.** Fall term. Credit three hours. Mr. Stutz.

Designed primarily for students without previous training or experience in the field of education, this course is intended to provide insight into the nature and content of the field to which their research efforts will be directed. The course will cover the structure of the educational enterprise, its history, its objectives and the ways it seeks to achieve them, its main concerns, emphases, and sources of strain.

**671 Seminar: Analysis of Educational Concepts.** Spring term. Credit three hours. Admission by consent.

**672 Seminar in Educational Classics.** Spring term. Credit three hours. Admission by consent. Miss Peard.

**673 Seminar in John Dewey's Philosophy of Education.** Fall term. Credit three hours. Prerequisite: prior course in philosophy or philosophy of education and consent of the instructor. Mr. Gowin.

Primary aim is a critical understanding and appraisal of Dewey's philosophy, especially as it centers upon education.

**674 Seminar in History of Education.** Spring term. Credit three hours. Admission by consent. Mr. Stutz.

**699 Conceptual Problems in Educational Inquiry.** (See p. 89 for description.)

## Home Economics Education

Miss Sara E. Blackwell, chairman; Miss Irene I. Imbler, Miss Marion E. Minot, Mrs. Helen Y. Nelson, Miss Lucinda A. Noble, Miss Kathleen Rhodes.

The major focuses on the analysis of education as an instrument for effective change, with special emphasis on improving the quality of everyday life. The objective is to prepare innovative scientists capable of designing appropriate programs of educational and social action and of systematically analyzing the impact of such programs on the individual and on his reciprocal relationships with others and with the near environment.

Central to the program is study of the nature of change: describing, predicting, effecting, and measuring it. Of interest are both behavioral change in individuals and groups, and changes in the near environment that enhance human welfare. Students' programs emphasize concepts and methods of inquiry of those social sciences that are useful in dealing with problems of program planning, implementation, and evaluation.

Research currently under way includes: development, field testing, and assessment of a course designed to help disadvantaged youth prepare for the dual role of homemaker-wage earner; evaluation of training programs for paraprofessionals in the human services; and cross-cultural studies relating educational and sociological factors to individual behavior and family development. In progress is a feasibility study of working cooperatively with community colleges and agencies for career development in human services. Faculty and students are also participants in interdepartmental research designed to identify factors associated with movement out of poverty.

**\*CSE 410 The Human Ecologist as a Teacher.** Spring term. Credit three hours. Mrs. Miller.

Designed for students who plan to be extension agents, dietitians, social workers, home service representatives, or youth or adult group leaders, or who plan to undertake other work which will involve teaching in informal situations. Consideration will be given to social-psychological factors affecting the teaching-learning process, approach to different age and ability levels, use of appropriate media for different purposes, and various instructional techniques applicable to different groups of learners. Opportunity will be provided for observation and participation in teaching.

\*Courses are taught in the Department of Community Service Education, New York State College of Human Ecology.

**CSE 411 Introduction to Adult Education.** Fall term. Credit three hours. Miss Imbler.

Focuses on the broad aspects of adult education, types and scope of adult education programs, philosophy and principles of adult education, and community and organizational factors affecting development of adult programs.

**CSE 416 The Facilitative Processes and the Helping Relationship.** Spring term. Credit three hours. Miss Imbler.

Designed for those entering the "helping" professions of education, social services, and health. Concentration will be on theory, research, and training in the facilitative processes in the "helping" relationships.

† **CSE 440 The Art of Teaching: Curriculum Development.** Fall and spring terms. Credit two hours.

Emphasis is on the development of instructional plans that reflect understanding of principles of curriculum development, of adolescents and how they differ, of factors influencing the efficiency of learning, and of current trends in society and human ecology subject matter.

† **CSE 441 The Art of Teaching: Workshop.** Fall and spring terms. Credit two hours.

Consideration is given to major concerns related to teaching at the secondary level; implementation of plans, evaluation, department management, space and equipment, action research, and philosophy of teaching home economics and related subjects.

† **CSE 442 The Art of Teaching: Student Teaching.** Fall and spring terms. Credit six hours. Student teaching full-time for six weeks.

MAT candidates usually have a semester internship.

**CSE 443 Critical Issues in Education.** Fall and spring terms. Credit two hours.

An examination of current issues in education. Analysis of the historical, philosophical, social, and political factors that affect the issues.

**CSE 500 Special Problems for Graduate Students.** Fall and spring terms. Credit to be arranged. Department faculty.

**CSE 510 Seminar in Adult Education.** Fall term. Credit three hours. May be repeated with permission of the instructor. Miss Imbler.

Designed to deal with significant problem areas in adult education, such as philosophy of adult education, the teaching-learning pro-

cess for adults, special problems of the disadvantaged adult learner. Implications of theory and research in the problem area will be considered each time the seminar is offered, the particular area to be announced at preregistration time.

**CSE 550 Comparative Aspects of Education and Social Development.** Fall term. Credit three hours. Permission of the instructor required. Miss Rhodes.

Factors related to the development of educational programs for family and community improvement in differing cultures. Analysis of needs and evaluation of methods of approach in countries at varying levels of development.

**CSE 570 Seminar in Higher Education.** Fall term. Credit three hours. Miss Rhodes.

Analysis of significant current topics in higher education with particular emphasis on problems of professional preparation in the "helping" professions of education, social services, and health.

**CSE 571 The Teacher Educator in Home Economics.** Fall term. Credit three hours. For graduate students preparing for teacher education positions involving supervision of student teachers. Permission of the instructor is required. Mrs. Nelson.

Opportunity is provided for students to develop understanding of teacher education practices by observing and participating in the undergraduate program. Participation involves teaching and individual work with students. Additional experiences include observation of student teachers and of supervisory conferences in student teaching centers.

**CSE 572 The Teacher Educator in Home Economics.** Spring term. Credit four hours. For graduate students preparing for teacher education positions involving supervision of student teachers. Permission of the instructor is required. Previous experience in teaching home economics at the secondary level is required. Miss Minot.

A seminar concerned with basic principles of supervision and their application to the preservice education of home economics teachers. Opportunity is provided for observation and participation in CSE 340, 441 and 442, including some teaching in the courses and the supervision of a student teacher.

**CSE 579 The Teaching of Home Management in College.** Spring term. Credit one to three hours. Permission of the instructor required. Miss Davey.

† MAT candidates schedule CSE 440 the semester preceding the guided field experience. CSE 441 is scheduled concurrently with CSE 442 and is structured as independent study and a tutorial.

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An examination of the ways home management concepts are currently being taught and the exploration of new approaches.

**CSE 580 Seminar in Community Service Education.** Fall and spring terms. Credit one hour. May be repeated for credit with permission of the instructor. Department faculty.

An informal seminar for graduate students and faculty. One or two major topics to be considered each term.

**CSE 584 Curriculum Development.** Spring term. Credit three hours. For students with professional experience in some aspect of teaching or by permission of the instructor. Miss Rhodes.

An examination of the social, psychological, and philosophical bases of curriculum theory, with special attention to techniques now used in curriculum development.

**CSE 590 Evaluation.** Fall term. Credit three hours. For high school and college teachers, administrators, extension agents, educational program directors, and research workers, or others by permission of the instructor. Mrs. Nelson.

Basic principles of evaluation studied in relation to specific methods of appraising educational programs or individual achievement. Opportunity will be given for constructing and using evaluation instruments.

**CSE 599 Master's Thesis and Research.** Fall and spring terms. Credit to be arranged. Registration with permission of the chairman of the graduate committee and the instructor. Department graduate faculty.

**CSE 673 Internship and Field Work in Teacher Education.** Fall term. Credit two hours. Prerequisite: CSE 571 and 572. Miss Minot and Mrs. Nelson.

Involves supervision of student teachers and conferences as needed with college supervisor and cooperating teachers in the schools. Provision made for a follow-up visit to a first-year teacher.

**[CSE 675 Administration and Supervision Practicum.** Spring term. Credit two hours. Permission of the instructor required. Miss Rhodes. Not given in 1971-72. Will be given in 1972-73.

Analysis of principles of supervision and administration in educational institutions through directed observation of the organization of state, city, and college programs concerned with aspects of community service education. (Approximate cost of field trips, \$35).]

**[CSE 690 Seminar in Evaluation.** Spring term. Credit two hours. Prerequisite: CSE 590 and Education 453 or equivalent. Miss Black-

well. Not given in 1971-72. Will be given in 1972-73.

Opportunity for intensive study of literature concerning selected topics in evaluation, for refinement of appraisal techniques, and for carrying out an evaluative study related to current departmental research.]

**CSE 699 Doctoral Thesis and Research.** Fall and spring terms. Credit to be arranged. Registration with permission of the chairman of the graduate committee and the instructor. Department graduate faculty.

## Science and Environmental Education

Joseph D. Novak, chairman; Walter F. Brautigan, Richard B. Fischer, Verne N. Rockcastle.

Persons with an interest in science and environmental education will find programs arranged to meet requirements for Master's or doctoral degrees in either of two areas:

(1) Science teaching, science supervision, science curriculum development, teacher preparation and research at elementary, secondary, and college levels. Programs may meet requirements for permanent certificates or broaden and deepen preparation in the sciences. The science departments offer the subject matter preparation, while the Department of Education offers many helpful professional courses and seminars.

(2) Environmental education programs leading to professional positions as interpretive naturalists, directors of interpretive nature centers, or conservation education specialists with school systems, state departments, and private or governmental agencies dedicated to the development of public understanding and enjoyment of natural resources. The purpose is to prepare persons strong in science subject matter and capable of teaching people at various age levels. The program is developed around basic courses in biology, ecology, and conservation supported by communications skills such as natural history writing, freehand and scientific illustrating, exhibit designing, and public speaking.

**401 Our Physical Environment.** Spring term. Credit three hours. Open by permission only to students primarily interested in public school teaching. Limited to 15 students. Mr. Rockcastle.

A study of the commonplace phenomena and substances in our physical environment, and their use in demonstrating basic scientific principles. Frequent field trips and first-hand examination will be used in studying air, water, soil, light, and sound, as well as some elementary mechanical and electrical devices. Emphasis will be placed on the physical environment as an aid to teaching the natural sciences in the public schools and on indi-



vidual research as a means of learning the processes of science.

**402 Natural History Literature.** Spring term. Credit two hours. Mr. Fischer.

An examination of books, periodicals, and reports dealing with historical and present aspects of environmental quality and education. Students are involved in planning and offering the lectures, discussions and literature reports.

**403 Environmental and Natural History Writing.** Fall term. Credit two hours. Mr. Fischer.

For persons who wish to improve their ability to reach and influence others by publishing in magazines and newspapers. The class produces a weekly column for a local newspaper, in addition to other types of articles. Subject matter, outlets for articles, news releases, posters, newsletters, and brochures are dealt with. A working knowledge of biology and ecology is assumed.

**404-405 Field Natural History.** Fall or spring term. Credit three hours. May be taken either term or both terms. Limited to 18 students. Mr. Fischer.

Devoted to studies of Northeastern plants and animals, their biology, ecology, and their use in the environmental education programs of interpretive centers, schools, and field biology courses. Man's impact on plant and animal communities is stressed. A methods and materials course.

**407 The Teaching of Elementary School Science.** Fall term. Credit three hours. Registration by permission. Limited to 18 students. Mr. Rockcastle.

The content and methods of elementary school science and nature study, with field work and laboratory emphasis on modern and experimental curricula. Includes class observation and experimentation.

**408 Methods of Teaching Science in Secondary Schools.** Fall or spring term. Credit three hours. Prerequisite: 411 or equivalent, or concurrent registration. Open to students in science education intending to register for 409; permission of instructor required for all others. Limited to 20 students per section. Mr. Brautigan.

Consideration of current methodology, new curricula, and materials for teaching science in secondary schools. Attention is given to the aims and goals of science instruction in relation to classroom techniques. Systematic observations in local schools. Use of video tapes.

**409 Practice in Teaching Science in Secondary Schools.** Fall or spring term. Credit six or twelve hours. Prerequisite: 408 and permission of the instructor. Mr. Brautigan and staff.

Supervised teaching practice with frequent conferences and special seminars. Multimedia forms of feedback information concerning the classroom performance will be provided to the practice teacher.

**505 Nature Center Operation and Programming.** Fall term. Credit three hours.

Designed for interpretive naturalists and others who will be responsible for showing persons their place in the environment they share with other organisms, explaining how man's actions affect the living things around him, and teaching what can and must be done to preserve the quality of the environment. Course content emphasizes methods of interpreting nature such as live museum, bulletin board displays, interest corners, nature walks, slide talks, lectures with visual aids, photographic exhibits, and use of schoolyard and neighboring teaching resources; construction of teaching aids and cataloging and storage of teaching materials will also be covered.

**507 The Teaching of Science.** Fall term. Credit three hours. Limited to 20 students. Mr. Novak.

A consideration of learning theory as applied to problems of selection and organization of subject matter, methods of teaching, and instructional innovations. Study of published research relevant to the improvement of science teaching. Course is conducted in a seminar style.

**508 Nature Center Development and Direction.** Spring term. Credit three hours.

Providing directors with the managerial skills needed for successful operation of a nature center, the course is organized around techniques such as recruiting, fund raising, publicity, personnel management, brochure production, public relations, allocating funds and budgeting, enlisting local support, liaison with schools, program development, natural area surveys, planning new buildings, adding to existing facilities, and determining staff needs; also, nature center directors as local conservation catalysts.

**509 Development of Curriculum in Science.** Spring term. Credit three hours. Limited to 20 students. Mr. Novak.

Study of new science curriculum programs, including philosophy and rationale of the programs. Observation of classes using new materials. Concentrated study of science curriculum development in the area of the individual student's interest. The course is conducted in a seminar style.

**606 Science Education Seminar.** Fall or spring term. Credit one hour. Required of graduate students who major or minor in this division. Messrs. Brautigan, Fischer, Novak, and Rockcastle.

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### General

**499 Informal Study in Education.** Maximum credit, three hours each term. Members of the staff.

For qualified students approved by an adviser on the Education staff who is personally responsible for the study, for one of two purposes: (1) to study a problem or topic not covered in a regular course; or (2) to undertake independent tutorial or honors study in the area of the student's research interests. The program is not designed for study supplementary to a regular course for the purpose of increasing the content and credit allocation of the course.

**500 Special Studies.** Credit as arranged. Limited to students working on theses or other research projects; registration must be approved by a staff member who will assume responsibility for the work. Members of the staff.

**CSE 500 Special Problems for Graduate Students.** Fall and spring terms. Credit to be arranged. Department faculty.

**594 College Teaching.** Spring term. Without credit. Members of the University staff.

Designed for those who plan to teach in colleges and universities. Concepts and methods of teaching, organization of subject matter, motivation, learning, testing, grading, and similar problems are treated.

**598 Education as a Field for Inquiry.** (See p. 92 for description.)

**CSE 599 Master's Thesis and Research.** (See p. 94 for description.)

**600 Internship in Education.** Fall and spring term. Credit two to six hours as arranged. Members of the faculty.

Opportunity for apprentice or similar practical experience on the graduate level in administration, agricultural education, guidance, personnel administration, supervision, and other types of professional service in education.

**CSE 699 Doctoral Thesis and Research.** (See p. 94 for description.)

## Government

### Faculty

Benedict R. O'G. Anderson, Douglas E. Ashford, Philip H. Auerbach, Michael J. Brenner, David J. Danelski, Werner J. Dannhauser, Arch T. Dotson, Locksley G. E. Edmondson, Mario Einaudi, Eldon Eisenach, Milton J. Esman, Andrew Hacker, Barbara Hinckley, George McT. Kahin, David Karns, Eldon Kenworthy, Andrew Milnor, David P. Mazingo, Steven Muller, Mark Nadel, George H. Quester, David S. Resnick, Richard N. Rosecrance, Arthur Rovine, Myron Rush, Peter Sharfman, Frederick C. Teiwes, Norman T. Uphoff, Douglas E. Van Houweling, Robert Weissberg

### Visiting Professor

Allan D. Bloom

### Field Representative

Douglas Ashford, 209 W. Sibley Hall

**ADMISSION.** In all but exceptional cases, applications are screened in February for admission the following September. In addition to the general requirements of the Graduate School (see pp. 8-12), the Field of Government asks its applicants to submit scores of the Graduate Record Examination Aptitude and Advanced Tests. Applicants should take these tests no later than December; this requires that the testing agency be contacted by early November.

### MAJOR AND MINOR SUBJECTS

American Government

Comparative Government

Political Theory

International Law and Relations

In contemporary political science, no scheme for dividing the discipline is fully satisfactory. In organizing its curriculum, the Field of Government utilizes four majors: American Government, Comparative Government, Political Theory, and International Law and Relations. Each major subject, or any significant portion of it, may be offered as a minor subject. There is, then, no set list of minors in Government. Permitting the student to delineate suitable minors, with the advice of the Special Committee and in accordance with departmental guidelines (see below), increases the likelihood of students obtaining individualized and coherent educations.

Doctoral candidates must take one major and two minors. One minor may fall within the general purview of the student's major (e.g., U.S. urban politics as a minor when American Government is the major) and one minor may lie outside the Field, representing either a significant portion of some other Field (e.g., Modern European History) or one of the several foreign area programs offered at Cornell (e.g., Southeast Asia). Candidates for the Master's degree need have but one minor,

with that minor lying outside the scope of the major subject, although they may choose to have two.

**FIELD REQUIREMENTS.** In addition to the specialized knowledge represented by the major and minors, the Field of Government asks its students to demonstrate competence on three dimensions: broad knowledge of the discipline; ability to use a foreign language in research; and some promise as a teacher. The faculty is more interested in seeing that each student meets these goals than in imposing standardized tests on all. For this reason, justifiable exemptions and substitutions may be worked out by the student in consultation with his or her Special Committee. (Prior to the formation of this Committee, the student receives individual consideration at the Field Review.) For most students, however, these Field requirements are satisfied in the following ways.

Reading seminars, in contrast to research seminars, introduce students to the issues, substantive and methodological, which pre-occupy a major division of the Field. They emphasize extensive reading rather than original research. By the end of their second year of study, students who have not taken equivalent courses elsewhere are expected to have successfully completed one reading seminar in each of the four major subjects listed above. In addition, Government 501, Reading Seminar in Contemporary Political Inquiry, is highly recommended to incoming students.

Candidates for the Ph.D. degree also are expected to demonstrate high proficiency in one foreign language, chosen from French, German, Russian or a substitute approved by the student's Special Committee. This Committee may require a second foreign language. High proficiency is demonstrated by standardized test scores which meet Field norms, or by other arrangements approved by the Special Committee. At the discretion of the Special Committee, a candidate for the M.A. degree may be required to demonstrate reading ability in one foreign language.

To gain teaching experience, the Field requires its students to serve as teaching assistants for one year, usually during their second or third year at Cornell. An effort is made to integrate this teaching experience into the student's program of study and to help him evaluate his teaching skills.

Beyond these requirements, students must successfully complete the program of studies outlined below.

**Ph.D. PROGRAM.** Shortly after the semester begins, each new graduate student meets with two or three faculty members to discuss his first-year program. This Field Review is arranged by the Field Representative, who

usually is a participant. Its purpose is to counsel the student and, in particular, to decide which courses he should take in the first year.

At the end of the first year, the departmental faculty discusses the performance of all new students. While a student later may be dropped for unsatisfactory performance, it is at this time that the faculty determines whether or not he appears to have the capacity for successfully completing the Ph.D. program. When the student does not clearly pass or fail this review, or when other reasons exist for examining the student orally, the faculty will require an oral qualifying examination, administered by three faculty members selected by the Field Representative after consulting the student, or conducted by the student's Special Committee if one has already been formed.

Before beginning full-time work on his doctoral dissertation, each student must pass the admission to candidacy examination. The Special Committee sets the timing and format of this examination and administers it. Normally, it is taken between the middle of the second and the end of the third year of study and includes both written and oral components.

When the Special Committee finds the student's dissertation presentable, a final examination is administered; this is oral and restricted to the general subject of the dissertation.

**M.A. PROGRAM.** The Master's degree is awarded to students who successfully complete one year of full-time study and write an acceptable Master's thesis. Alternatively, a student who successfully completes two years of study and attempts the admission to candidacy examination may receive a Master's degree without writing a thesis. A final examination is required of M.A. candidates, although in some instances the admission to candidacy examination may be substituted. Most of the graduate students admitted to the Field of Government are doctoral candidates and the majority of them do not seek the M.A. en route to the Ph.D.

**SPECIAL COMMITTEES.** From the time the student selects a Special Committee, his education is largely a matter between him and the faculty members comprising this Committee. While this is characteristic of the Graduate School as a whole, certain facets of the committee formation process are unique to the Field of Government.

A student may form a Special Committee as early as his fourth month at Cornell and as late as the beginning of his third semester. For doctoral candidates, this Committee consists of three members of the Graduate Faculty, of whom two must be members of the Field of Government. The chairman of the

Committee must be a member of the Government faculty whose primary research interests correspond to the major subject chosen by the student. The other two Committee members stand in a similar relationship to the student's two minors.

Before formally organizing a Special Committee, each student is expected to draft a statement of intellectual goals, showing how they relate to the proposed major and minors. In addition, this statement should do some or all of the following; identify key courses the student hopes to take over the next two years; describe techniques of analysis and bodies of information which, independent of courses, the student feels are important to his objectives; and isolate potential areas for dissertation research. This prospectus is subject to later change, of course. Its purpose is to give Committee members a clear idea of the student's current perspectives and plans regarding his graduate education. The first meeting of the Special Committee normally is devoted to a discussion of this document and may include suggestions for revising it.

Other occasions requiring the assembled Special Committee to meet are: important changes in the student's program of studies; a change of chairmen, except when one faculty member temporarily fills in for another on leave; and the examinations described above. In any case, the full Committee should meet at least once a year to review the student's progress. A Committee chairman who plans to be away from Ithaca for more than one semester should, in consultation with the student, designate another faculty member to act in his stead.

The same procedures apply to Master's candidates, except that an M.A. candidate need only have two members on his Special Committee.

**FACULTY SPECIALIZATION.** Within the four major subjects listed earlier, the specializations of faculty members offer students a wide range of choice in seeking advice and instruction. Within the general area of American Government, the following specializations exist: *Danelski*, public law and judicial behavior; *Dotson*, public administration; *Eisenach*, theories of Liberalism; *Hacker*, political sociology; *Hinckley*, legislative behavior, parties and elections; *Karns*, public opinion and foreign policy; *Milnor*, Congress and interest groups; *Nadel*, corporate interests and public administration; *Qvester*, defense policy; *Rosecrance*, national security policies; *Sharfman*, foreign policy; *Van Houweling*, urban politics; *Weissberg*, political socialization and public opinion.

Within the purview of Comparative Government: *Anderson*, Southeast Asia, military elites in the Third World; *Ashford*, compara-

tive local government, nationalism, political development; *Auerbach*, France, comparative socialization, national planning; *Brenner*, Western Europe, technocracy; *Dotson*, development administration; *Edmondson*, Africa, comparative race relations, Black ideologies; *Einaudi*, France and Italy, public corporations and planning agencies; *Esman*, comparative public administration and political development; *Kahin*, Southeast Asia; *Kenworthy*, Latin America, political development; *Milnor*, comparative legislative processes; *Mozingo*, China, comparative revolutions; *Muller*, Great Britain and Germany; *Qvester*, comparative foreign policies; *Rush*, Soviet Union, comparative communism, political succession; *Teiwes*, China; *Uphoff*, political economy of Third World nations, West Africa, development theory.

Within the general subject of Political Theory: *Dannhauser*, Hegel, Marx, and Nietzsche; *Einaudi*, modern European ideologies; *Eisenach*, Hobbes, Locke and the Liberal tradition, legal theories; *Hacker*, sociological theories; *Karns*, mathematical models of politics; *Qvester*, economic models of politics; *Resnick*, modern political theory; *Uphoff*, economic models of politics.

Within the scope of International Law and Relations: *Edmondson*, international organizations; *Esman*, foreign aid in international development, international flows of technology; *Kahin*, foreign relations of Southeast Asia; *Karns*, contemporary trends in international politics, quantitative analysis of international exchanges; *Mozingo*, foreign relations of China; *Qvester*, foreign policy processes, arms control and disarmament; *Rosecrance*, international relations theory, defense strategies; *Rovine*, foreign relations of the Soviet Union; *Sharfman*, international relations theory.

Students interested in complex methods of empirical analysis may obtain guidance from Professors Ashford, Karns, Van Houweling and Weissberg, among others.

**SPECIAL OPPORTUNITIES FOR RESEARCH AND STUDY.** Beyond opportunities to work with Government faculty in the above subjects, graduate students may work with Cornell faculty in many other fields. Courses and seminars in other schools and departments of the University are readily available.

Cornell is well endowed with interdisciplinary programs in the social sciences in which Government faculty actively participate. Among these are the Program on Science, Technology and Society, which examines the impact of modern technology on societal decisions, and the Comparative Political Behavior Project, concerned with cross-national comparison of subnational political units. There are also foreign area programs focusing on several regions of Asia,

Latin America and the Soviet Union; many of these are supported by the Center for International Studies. (See the General Index of this catalogue for more information.) In addition, various departments are engaged in research relevant to Government students. A partial listing includes departments or programs concentrating on population, urban and regional planning, agricultural development, ecology, law, labor relations, Black studies, and statistics.

**FELLOWSHIPS.** A strong application to the Field will receive consideration for a University fellowship, if the application is complete by February 1. Since these awards are limited, however, all applicants should apply to non-Cornell sources for financial support. They are especially urged not to overlook the Herbert H. Lehman Fellowships (described on page 15).

In addition to University-wide and non-Cornell fellowships, three fellowships are conferred by the Field of Government:

*Walter S. Carpenter Jr. Fellowship* (stipend plus tuition and General Fee). Graduate students majoring in International Relations or Comparative Government under the direction of the Walter S. Carpenter Jr. Professor of International and Comparative Politics are eligible.

*Newton C. Farr Fellowship* and the *John L. Senior Fellowship* (stipend plus tuition and General Fee). Graduate students majoring in American Government under the direction of the John L. Senior Professor of American Institutions are eligible.

## Courses

At the present time the Field offers the following graduate seminars, some in alternate years. Since the focus of many seminars shifts from year to year, descriptions accompanying this list are subject to change. At the start of each semester students receive an up-to-date description of the Field's offerings, including the time and place of meeting.

## Reading Seminars

Each reading seminar, open to graduate students only, presents an overview of a significant portion of the Field, with special attention to the persistent substantive concerns and analytic methods characteristic of that area.

**501 Reading Seminar in Contemporary Political Inquiry.** Fall term. Mr. Ashford.

A survey of the major theoretical and conceptual issues in the discipline. An attempt will be made to assess the relevance of other

disciplines to the analysis of political behavior. Other members of the department will be invited to participate.

**502 Reading Seminar in Political Research Design.** Spring term. Mr. Karns.

Major problems in the design of political research in a nonexperimental context will be examined, including sampling, questionnaire construction, coding, machine storage of data and elementary data analysis. Both primary and secondary research will be discussed, with illustrative examples drawn from elite, public opinion and international politics research.

**503 Reading Seminar in American Government.** Spring term. Mrs. Hinckley.

Introduction to major topics and approaches in American national government, with emphasis on electoral and representational patterns of action. Reading in theoretical orientations; public opinion; voting; parties and nominating politics; the presidency; Congress; key points of interaction. Reading for each topic illustrates a variety of analytical approaches and techniques.

**505 Reading Seminar in Comparative Government.** Fall term. Mr. Brenner.

Comparative politics is probably the broadest field in political science, encompassing general social theory, contemporary political theory, specific comparative studies of institutional arrangements and political practices, and the study of foreign governments. The primary concern of this seminar is an overview of major intellectual developments in the first two areas.

**507 Reading Seminar in Political Theory.** Fall term. Mr. Dannhauser.

An introduction to political theory through a reading of selected classics in political philosophy. Seminar sessions will be synchronized with the lectures of Government 203, which students are expected to attend. However, students will also be expected to read additional texts, and the discussions will be of an intensity suitable for graduate work.

**509 Reading Seminar in International Relations.** Fall term. Mr. Sharfman.

An exploration of the major theoretical controversies over the study of international relations, and thus a survey of the subfield of international relations theory. The focus will be on analysis and synthesis, rather than on bibliography or original research.

## American Government

**511 Seminar in American Political Parties and Elections.**

## 100 Government

**512 Seminar in Urban Political Participation and Public Policy.** Spring term. Mr. Van Houweling.

The first part of the term will be spent reading, analyzing, and discussing approaches to studying the political activity of urban citizens. After relevant techniques of data analysis and research design have been discussed, each student will undertake a research paper on some aspect of this subject. The research paper will be based on the student's analysis of both verbal and quantitative data collected from urban residents.

**513 Seminar in Legislative Behavior.** Fall term. Mrs. Hinckley.

An analysis of critical patterns of congressional action, with special attention to interrelationships producing stability or change over time. Topics include elections, roles, distribution of influence, leadership patterns, and decision making. By way of conclusion, some theoretical and comparative derivations will be attempted.

**514 Seminar in American Urban Politics.** Fall term. Mr. Van Houweling.

An attempt will be made to familiarize the student with important perspectives and literature on the problems of governing American urban areas. Extensive reading, discussion of the main theoretical approaches, and short synthetic papers will characterize this seminar.

**517 Seminar in Judicial Behavior.** Spring term. Mr. Danelski.

An analysis of the theory and methods underlying the study of judicial behavior. Prior work in social psychology and statistics helpful but not necessary. A research-oriented seminar that considers all the major work done in the field.

**521 Seminar in Problems of Public Administration.**

**523 Seminar in American Bureaucracy and Public Policy.** Fall term. Mr. Nadel.

The seminar will first briefly review the political aspects of American bureaucracy including constituency relations, decision making, the budgetary process, and the use of expertise and information. With that background, the seminar will examine how these political factors influence public policy. Both domestic and foreign policy areas will be covered.

**525 Seminar in American Political Behavior: A Conspectus.** Fall term. Mr. Weissberg.

An examination of current research in such areas of American politics as political socialization, ideology, political participation, elite recruitment, and political behavior in small

groups. Both substantive and methodological issues will be discussed with particular attention to the gaps in existing studies and the goals of future research.

**526 Seminar in American Political Behavior: Research Projects.** Spring term. Mr. Weissberg.

Emphasis will be on the problems of designing and executing research. Students may collect their own data or reanalyze existing data on questions of interest to them. A previous course on research methods is recommended but not required.

**527 Seminar in American Political Institutions.** Fall term.

Selected topics in the evolution and current status of such major institutions as the presidency, Congress, the Supreme Court, and the party system.

**528 Seminar in American Political Thought.**

**532 Seminar in American State and Local Politics.**

## Comparative Government

**534 Seminar in the Politics of the Soviet Union.** Fall term. Mr. Rush.

The seminar will treat foreign policy after Stalin, particularly during the past decade. It will discuss such topics as the ideological basis of Soviet foreign policy, foreign policy objectives and internal constraints, the relation of defense and arms control policy to foreign policy, the relation of Soviet national interests to the world Communist movement, domestic controversy over foreign policy, etc. Books and articles dealing with these topics will be read and discussed in the first part of the course; in the second part students will present papers. The seminar will be adapted to the special interests of its members.

**535 Seminar in Problems of Political Succession.** Mr. Rush.

**537 Seminar in Political Development and Social Change.** Fall term. Mr. Ashford.

An introduction to the problems of political and administrative organization in less-developed countries. Analytical problems of identifying trends and critical changes will be considered and an assessment will be made of the major theories about rapid change in new nations. Attention will also be given to problems of cross-national research and the validation of cross-national comparisons.

**538 Seminar in Administration and Development (Business and Public Administration 632).** Mr. Ashford.

**540 Seminar in Latin American Politics.** Mr. Kenworthy.

**541 Seminar in Comparative Political Parties.** Fall term. Credit four hours. Mr. Milnor.

Consideration of functionalist and nonfunctionalist theories followed by readings from Ostragorskii, Michels, and some of the contemporary Norwegian writers. The seminar also treats works on developing states, new legislative studies, and organizational theory, concluding with discussion of the relevance of party to comparative politics.

**542 Seminar in Political and Economic Change in Contemporary Europe.** Spring term. Mr. Einaudi.

Emphasis will be placed on key manifestations of change since the war. The crisis of parties and of social and political institutions. New instruments of public policy. The varieties of public corporations and of planning agencies. The social and technological revolutions and private enterprise. The search for new dimensions of government: regionalism and the supranational communities.

**543 Seminar in the Politics of Development.** Spring term. Mr. Esman.

Exploration of the major concepts which attempt to explain, predict and guide the contemporary phenomena of nation building, economic growth, and institutional change, especially in the less industrialized countries. The principal methodology will be comparative study, the attempt to derive and test general propositions about political change with data from individual countries. The main focus of this year's seminar will be the dynamics of racial and ethnic pluralism in the development of modern political communities.

**544 Seminar in Comparative Local Government.** Spring term. Mr. Ashford.

**545 Seminar in Ideology and Political Change.** Mr. Ashford.

**547 Seminar in the Politics of China.** Fall term. Mr. Teiwes.

Seminar on the post-1949 Chinese political system, with particular attention to the problems and tensions confronting the regime. Each student will be required to prepare a substantial research paper on some aspect of contemporary Chinese politics.

**548 Seminar in Comparative Communism.** Spring term. Messrs. Mozingo and Rush.

An investigation into the similarities and differences between communist regimes, with particular emphasis on the Soviet Union and Communist China.

**550 Seminar in Political Anthropology: Culture and Politics (Anthropology 528).** Spring term. Messrs. Anderson and Siegel.

Discussion of the cultural matrices of traditional and posttraditional societies in Southeast Asia. Emphasis will be placed on forms of consciousness: their impact on the functioning of political institutions and styles of leadership, and their relationship to the goals and structures of social movements.

**560 The Political Economy of Change.** Fall term. Mr. Uphoff.

This seminar will be devoted to the development of an "existential" social science serving human needs and capable of informing public and private choice. The approach is called political economy because it combines political and economic considerations within the same analytic framework. The substantive focus of the seminar will be on the Third World and on the problems facing regimes and oppositions there in attaining desired political, social and economic change through political processes.

**644 Seminar in Political Problems of Southeast Asia.** Fall term. Credit four hours. Mr. Anderson.

Study of the national and provincial elite of Southeast Asia and their relationship to rural and urban populations since World War II. Considerable attention will be paid to the impact of the great powers on these elites.

## Political Theory

**555 Seminar in Political Theory.** Fall term. Mr. Bloom.

Thucydides: a study of the classic text on the relation of foreign and domestic policy in a democracy.

**556 Seminar in Political Theory: Origins of English Liberalism.** Spring term. Mr. Eisenach.

Analysis of the Puritan attack on English religion and politics in the first half of the 17th century. Political thought of the Puritan Revolution; its relationship to the rise of Whig supremacy.

**558 Seminar in Nineteenth-Century Political Theory.** Fall term. Mr. Resnick.

The seminar will examine some problems of democratic theory and political analysis through reading and discussion of selections from the works of Tocqueville, Marx, Bentham, J. S. Mill and others.

**559 Seminar in Modern Political Theory.** Spring term. Credit four hours. Mr. Dannhauser.

Rigorous textual study of a major nineteenth- or twentieth-century thinker.

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**562 Seminar in Contemporary Theory.** Spring term. Credit four hours. Mr. Resnick.

The seminar will center on the works of Freud, Weber, and Durkheim and will examine some of the major methodological problems that these theorists raise for contemporary social and political thought.

### International Relations

**515 Interdisciplinary Seminar in the Impact of Technology on Foreign, Defense, and Disarmament Policies.** Fall term. Consent of the instructor required. Messrs. Long, Brenner, Sharfman and others.

An examination of aspects of foreign, defense, and disarmament policies especially sensitive to the impact of new technology, and of basic trends in the most relevant technologies. Subject matter will vary from year to year. Included are such topics as nuclear weapons, limitations on wars, tacit and formal limitations of armaments, and the effects of technological change on the decision-making process. Membership in the seminar will include both natural scientists and social scientists.

**561 International Flows of Science and Technology.** Fall term. Mr. Esman.

An examination of scientific and technological transfers between the industrialized and the less-developed countries. The seminar will deal with choices of technologies, the instruments of transfer, technological adaptation problems, the recipient country's institutionalization of biological, physical and social technologies and the implications of technology transfer for economic growth, social change, political integration, and international cooperation.

**570 Graduate Seminar in International Relations Theory.** Fall term. Mr. Rosecrance.

A careful investigation of present scholarship dealing with the theory of international relations. Criteria for evaluation of theory will be developed and applied. Students will be expected to present their own theoretical notions as well as to criticize those of others.

**571 Quantitative International Politics.** Spring term. Mr. Karns.

Recent quantitative approaches to the analysis of international politics will be briefly surveyed. Individual research projects will focus on a specific problem in international politics such as the relation between public opinion and foreign policy or the definition of power.

**572 Seminar in Aspects of International Organization: Politics of Development in the U.N. System.** Fall term. Mr. Edmondson.

A study of U.N. involvement in political

and economic change and order-building at the national level. While dealing primarily with political development, the seminar will also treat important aspects of U.N. activities concerning economic development. The seminar will focus both on the U.N. role in development and on the impact of such activities on U.N. institutions and policies.

**574 Analysis of Foreign Policy.** Spring term. Mr. Quester.

An analytical survey of some of the principal ways in which foreign policy may be studied, including both efforts at generalization and case studies.

**575 Seminar in International Organization and World Politics.** Spring term. Mr. Rovine.

The structure, processes and functions of international organizations, their role in world politics, and their potential for generating regional and global system change. The materials will be presented within the framework of functional theory (Merton) and integration theory (Jacob and Toscano, Deutsch, Haas). Basic functions covered will be conflict management and interventionary functions, executive functions and recruitment, diplomatic interests and claims, redistribution of wealth and power, and integration.

**576 Seminar in International Law and International Organization.**

**577 Seminar in the International Relations of Asia.** Fall term. Mr. Kahin.

**583 Seminar in Communist China in International Politics.** Fall term. Mr. Mozingo.

An analysis of major problem areas in the C.P.R.'s external relations, with special emphasis on Chinese foreign policy strategy and doctrine.

**498-499 Supervised Reading.** Credit two hours and four hours. Staff.

**UNDERGRADUATE COURSES.** In addition to the seminars just listed, the Field offers several undergraduate courses of interest to graduate students, depending on their interests and previous study. For further information on these courses see the current *Announcement of the College of Arts and Sciences*.

### American Government and Institutions

**312 Urban Politics.** Mr. Van Houweling.

**314 Politics and Society.** Mr. Hacker.

**315 Interest Groups and Informal Representation in American Politics.** Mr. Milnor.



- 316 **The American Presidency.** Mr. Nadel.
- 317 **American Political Parties.** Mrs. Hinckley.
- 318 **The American Congress.** Mr. Milnor.
- 319 **American Political Behavior.** Mr. Weissberg.
- 321 **Politics and Public Policy.** Mr. Nadel.
- 323 **Public Administration: The Fourth Branch.** Mr. Dotson.
- 325 **Public Policy and American State Politics.**
- 326 **Politics and Policy Making in the American Community.**
- 327 **The Supreme Court as a Democratic Institution.** Mr. Danelski.
- 328 **The Supreme Court as a Political Institution.** Mr. Danelski.

### Comparative Government

- 333 **Government and Politics of the Soviet Union.** Mr. Rush.
- 336 **Political Attitudes and Participation.** Mr. Ashford.
- 338 **Politics and Modernization.** Mr. Dotson.
- 340 **Government and Politics of Latin America.** Mr. Kenworthy.
- 341 **Constitutional Government in Europe.**
- 342 **Government and Politics of France and Britain.** Mr. Brenner.
- 343 **Government and Politics in the Commonwealth.** Mr. Anderson.
- 344 **Government and Politics of Southeast Asia.** Mr. Anderson.
- 347 **Chinese Government and Politics.** Mr. Telwes.
- 349 **Political Role of the Military.** Mr. Anderson.
- 350 **Comparative Revolutions.** Mr. Mozingo.
- 410 **The Political Economy of Development.** Mr. Uphoff.

- 441 **Society and Politics in Contemporary France.** Mr. Auerbach.
- 442 **Political and Economic Change in Contemporary Europe.** Mr. Einaudi.

### Political Theory

- 353 **Theoretical Roots of Modern Politics.** Mr. Dannhauser.
- 354 **Political Authority in Mass Society.** Mr. Eisenach.
- 355 **American Political Thought.**
- 358 **American Political Thought: A Conflict of Styles.** Mr. Eisenach.
- 462 **Origins of Western Political Thought.** Mr. Bloom.
- 464 **Basic Problems in Political Theory.** Mr. Resnick.
- 480 **Mathematics and Political Analysis.** Mr. Karns.
- 481 **Economic Models of Politics.** Mr. Qvester.

### International Relations

- 334 **Foreign Policy of the U.S.S.R.** Mr. Rush.
- 337 **Imperialism.** Mr. Kenworthy.
- 360 **Racial and Ethnic Factors in the International System.** Mr. Edmondson.
- 370 **Theories of International Relations.** Mr. Rosecrance.
- 371 **Defense Policy and Arms Control.** Mr. Qvester.
- 375 **Contemporary American Foreign Policy.** Mr. Sharfman.
- 377 **The United States and Asia.** Mr. Kahin.
- 381 **International Organization.** Mr. Rovine.
- 471 **International Law and World Politics: Peaceful Functions.** Mr. Rovine.
- 472 **International Law and World Politics: War and Armed Conflict.** Mr. Rovine.
- 478 **The Foreign Policy of China.** Mr. Mozingo.

## Hotel Administration

### Faculty

Robert A. Beck, Paul R. Broten, Vance Christian, Charles E. Cladel, David C. Dunn, Myrtle H. Ericson, William P. Fisher, Gerald W. Lattin, Helen J. Recknagel, Laura L. Smith, Jeremiah J. Wanderstock

### Field Representative

J. J. Wanderstock, B-11N Statler Hall

### MAJOR AND MINOR SUBJECTS

Hotel Administration

Hotel Accounting

Graduate work in the Field of Hotel Administration is open only to those who have completed in full the requirements for the undergraduate degree in the School of Hotel Administration at Cornell.

Students holding Bachelor's degrees in the liberal arts or in general business administration who wish a program in hotel administration normally enroll in the undergraduate division. They may become candidates for an additional Bachelor's degree or at their choice simply enroll for a specialized program of hotel administration courses suited to their particular needs.

Candidates for the Master's degree may select either Hotel Administration or Hotel Accounting as their major subject and the other as their minor subject. For the Ph.D., the major subject must be Hotel Administration and two minors must be selected outside the Field. Both Hotel Administration and Hotel Accounting are available as minor subjects for students majoring in another Field.

There is no foreign language requirement for the M.S. degree. Candidates for the Ph.D. degree must demonstrate reading ability in one language other than their native language.

There is a final examination combining subject matter and the thesis for the Masters' degree. All Ph.D. candidates must take the admission to candidacy examination (a comprehensive examination of subject matter taken upon completion of course work) and the final thesis examination.

## Courses

For a description of the following courses, see the *Announcement of the School of Hotel Administration*.

**H.Acc. 241 Investment Management.** Credit two hours. Mr. W. R. Farnsworth.

**H.Acc. 242 Tax Basis for Managerial Decisions.** Credit one hour. Messrs. J. D. Lesure and W. P. Fisher.

**H.Acc. 285 Seminar in Financial Management.** Credit two hours. Mr. J. D. Lesure.

**H.Acc. 286 Internal Control in Hotels.** Credit two hours. Prerequisite: H.Acc. 181. Mr. J. H. Barrett.

**H.Adm. 155 Lectures on Hotel Management.** Credit one hour. To be taken for credit each semester. Under the direction of Mr. R. A. Beck.

**H.Adm. 172 Law as Related to Innkeeping.** Credit two hours. Best taken after H.Acc. 182 and Econ. 104. Mr. J. H. Sherry.

**H.Adm. 193 Franchising in the Hospitality Industry.** Credit two hours.

**H.Adm. 219 Seminar in Organizational Behavior and Administration.** Credit two hours. Prerequisite: H.Adm. 119. Mr. D. A. Dermody.

**H.Adm. 250 Principles of Management.** Credit two hours. Prerequisite: H.Adm. 119 or equivalent. Mr. P. L. Gaurnier.

**H.Adm. 251 Restaurant Management.** Credit three hours. Mr. M. Bernatsky.

**H.Adm. 253 Special Studies in Research.** Credit to be arranged. Open to graduate students in Hotel Administration only. Members of the Graduate Faculty.

**H.Adm. 272 Law of Business: Contracts, Bailments, and Agency.** Credit two hours. Best taken after H.Acc. 182 and Econ. 104. Mr. J. H. Sherry.

**H.Adm. 274 Law of Business: Business Organization—Partnerships and Corporations.** Credit two hours. Best taken after H.Acc. 192 and Econ. 104. Mr. J. H. Sherry.

**H.Adm. 353 Special Problems in Food.** Credit one hour. Permission of instructors required. Prerequisite: H.Adm. 120, 201, 206, 214, 215 and 220. Miss Myrtle H. Ericson and Mr. J. J. Wanderstock.

**H.Eng. 265 Hotel Planning.** Credit three hours. Prerequisite: twelve hours of hotel engineering or permission of the instructor.

**BPA 128 Finance.** Credit three hours. Messrs. Bierman and Hass.

**BPA 202 Business Enterprise and Public Policy.** Credit three hours. Prerequisite: Econ. 104 and permission of the instructor. Mr. Hutchins.

**Planning 510 Principles of City and Regional Planning.** Credit three hours. Mr. C. E. Cladel.

## Human Development and Family Studies

### Faculty

Alfred L. Baldwin, Clara P. Baldwin, Helen T. M. Bayer, W. Lambert Brittain, Urie Bronfenbrenner, John C. Condry, Robert H. Dalton, Edward C. Devereux, Jr., John Doris, Harold Feldman, Eleanor J. Gibson, Herbert Ginsburg, John S. Harding, Laurel Hodgden, William W. Lambert, Lee C. Lee, Eric Lenneberg, Harry Levin, Anne McIntyre, Joy Osofsky, Margaret Parkman-Ray, Marian Potts, Henry N. Ricciuti, Robert R. Rodgers, Bernard Rosen, Gordon Streib, George J. Suci, Philip Taletz, Nicholas Tavuchis

### Field Representative

John Doris, Martha Van Rensselaer Hall

### MAJOR SUBJECTS

Child Development  
Child and Family Psychopathology  
Cognitive Development  
Early Childhood Education (Master's degree only)  
Family Relationships  
Social and Personality Development

### MINOR SUBJECTS

Child Development  
Child and Family Psychopathology  
Cognitive Development  
Early Childhood Education  
Family Relationships  
Social and Personality Development

Of the minor subjects listed above, Cognitive Development, Family Relationships, and Social and Personality Development are available as minor subjects for Ph.D. and Master's degree candidates both within and outside the Field; Child and Family Psychopathology, only to Ph.D. candidates in the Field or in closely related fields such as Psychology; Early Childhood Education, only to Ph.D. and Master's degree candidates in this Field. Child Development as a subject is interpreted as consisting of approximately equal proportions of Cognitive Development and Social and Personality Development; it is available as a minor subject only to students whose major is *outside* the Field.

**ADMISSION.** The Field does not have prescribed admission requirements in terms of undergraduate courses. Admission is based on evidence of ability to do advanced work. The majority of successful applicants have undergraduate majors in psychology, sociology, child development or family relationships; however, students of high ability may be admitted regardless of undergraduate background. All applicants are required to submit their scores on the Aptitude Test of the Graduate Record Examination. Students

whose native language is not English are required to take the test, but allowances for the language handicap are made in interpreting their scores.

**FINANCIAL AID.** The Field attempts to provide full financial support during the academic year for each graduate student who requests it, provided the student's work is satisfactory. About two-thirds of the graduate students in each academic year hold research assistantships or teaching fellowships which are nearly all of the standard type found in the statutory colleges at Cornell—fifteen hours of work required per week, stipend \$2,700 for nine months, plus tuition and the General Fee. Research assistantships and teaching fellowships are regarded as an integral part of graduate training, and a typical program for a Ph.D. candidate would include two years on a research assistantship, one year on a teaching fellowship, and one year on some other type of fellowship or traineeship.

**AIMS AND OPERATIONS OF THE FIELD.** The principal aim of the graduate program is to train students as research workers and college teachers. Professional experience is available in nursery school teaching and extension work (adult education). The program does *not* prepare students to be clinical psychologists, school psychologists, or family life counselors.

All students are expected to acquire a basic background in the behavioral sciences, and to master a broad base of knowledge of human development and of the family as a social system. The five subjects represent the principal areas of specialization in the Field. A graduate student ordinarily decides on an area of specialization at the beginning of his program and chooses as chairman of his Special Committee a faculty member representing this particular area.

In addition to the major, candidates for the Master's degree choose one minor subject either within or outside this Field. Doctoral candidates choose two minor subjects in addition to the major; at least one must be taken outside the Field.

Master's degree programs ordinarily require one and one-half to two years for completion; doctoral programs, about four years. Students with relatively little preparation in psychology or sociology should plan on additional time to complete degree requirements. The only degrees offered in the Field are the three general degrees—M.A., M.S., and Ph.D. The M.A. and the M.S. are considered as equivalent. A research thesis forms an important part of the requirements for each degree. One semester of graduate-level training in statistics is required of all Master's degree

## 106 Human Development and Family Studies

candidates, and two semesters are required of all Ph.D. candidates. Some teaching experience will be required for degree candidates.

**RESEARCH AND STUDY OPPORTUNITIES.** Approximately half of the research in Human Development and Family Studies is done in the departmental laboratories and nursery school in Martha Van Rensselaer Hall; the other half is done in other parts of the campus and in various community settings.

The departmental nursery school maintains a half-day program for three groups of children. An art laboratory is available for the investigation of creative activities in children from two to fifteen. Several experimental rooms are equipped with one-way vision screens and modern sound-recording equipment. Two rooms are equipped for recording on TV video tape.

Several members of the Field are affiliated with the Cornell Center for Research in Education (see p. 43), and there are opportunities for some graduate students to participate in research projects and other activities organized by the Center. The Field cooperates with the Field of Psychology in sponsoring a joint program in developmental studies. The program, emphasizing cognitive development, may be entered via either Field. Training in research skills in both Fields is recommended.

A major activity of the Field is the research and development program in early childhood education, one of seven such programs at different universities financed by the United States Office of Education. The Cornell program is directed by Professor Henry Ricciuti and involves several other members of the Field faculty.

Students who elect Child and Family Psychopathology as a subject have opportunities to spend one year doing field work in several clinical centers in metropolitan areas. In addition, students in this subject area may choose to concentrate in Pediatric Psychology, in which case they will spend their field year at the Pediatrics Department of the Cornell Medical School in New York City.

Present research projects of the Field are in the following areas: cross-cultural studies in socialization, the family in poverty, social interaction of preschool children, family interaction and the adolescent personality, children's concepts of personal attributes, adult-child interaction in the home, social behavior of children in small groups, drawing and painting in children and adolescents, early school learning, the development of structure in language, instructional strategies in early language training, nursery school curriculum research and development, effects of story reading on two-year-olds, analysis of home environment and parent intervention procedures, visual development in early infancy,

emotional and social adjustment of the child to preschool programs, cognitive and affective behavior in infancy, observational studies of mother-child interaction.

### Courses

**323 Cognitive Processes.** Fall term. Credit three hours. Prerequisite: 115 or equivalent. Mr. Suci.

**324 Piaget's Theory of Cognitive Development.** Spring term. Credit three hours. S-U grades optional. Prerequisite: 115 or equivalent. Mr. Ginsberg.

**334 Advanced Participation in Community Groups.** Fall and spring terms. Credit to be arranged. Prerequisite: 230 or equivalent and permission of the instructor. Participation staff.

**335 Practicum with the Special Child.** Spring term. Credit three hours. Prerequisite: 115 and 225. Two mornings or afternoons for practicum and one class period per week. Number of students limited.

**342 The Development of Creative Thinking.** Fall term. Credit three hours. Prerequisite: 115 or equivalent. Not to be taken concurrently with 141. Mr. Brittain.

**343 Creative Expression and Child Growth.** Spring term. Credit four hours. Saturday morning should be free of commitments, so as to provide fifteen clock hours of participation with children. Limited to 25 students. Not to be taken concurrently with 141. Mr. Brittain.

**358 Theories of the Marital Dyad.** Spring term. Credit three hours. S-U grades optional. Mr. Feldman.

**360 Personality Development in Childhood.** Spring term. Credit three hours. Prerequisite: 115 or equivalent. Miss Lee.

**362 The Family and Society.** Fall term. Credit three hours. S-U grades optional. Prerequisite: 115 and either Soc 101 or Rural Soc 100, or equivalents. Mr. Devereux.

**363 The Study of Family Interaction.** Spring term. Credit three hours. Prerequisite: 162 or Soc 343 or equivalent. Mrs. Parkman-Ray.

**364 Psychopathology.** Fall term. Credit three hours. Prerequisite: 360 or equivalent. Limited to 25 students. Mr. Dalton.

**365 The Study of Parent-Child Relations.** Fall term. Credit three hours. Mrs. Osofsky.

**372 Perspectives on Poverty.** Fall term. Credit four hours. S-U grades optional. Mr. Feldman.

**374 Behavior and Development in Infancy.** Fall term. Credit three hours. Prerequisite: 115 or equivalent. Mr. Ricciuti.

**376 Research Practicum on the Family in Poverty.** Spring term. Credit three hours. Prerequisite: 372. S-U grades optional. Mr. Feldman.

**390 The Evolution of Female Personality: History and Prospects.** Spring term. Credit three or four hours. S-U grades optional. Mrs. Osofsky and Mr. Feldman.

**397 Experimental Child Psychology.** Fall term. Credit four hours. Admission by permission of the instructor. Miss Lee.

**401 Theories of Child Development.** Spring term. Credit three hours. Mr. Harding.

**425 Applied Cognitive Psychology.** Fall term. Credit three hours. S-U grades optional. Permission of the instructor required. Limited to 20 students. Mr. Ginsburg.

**426 Seminar on Early Education.** Fall and spring terms. Credit three hours. Miss Potts.

**463 Interaction in Emotionally Disturbed Families.** Spring term. Credit three hours. Mrs. Parkman-Ray.

**465 Innovative Programs of Parent Intervention and Community Action.** Spring term. Credit three hours. Permission of the instructor required. Mrs. Bayer.

**500 Special Problems for Graduate Students.** Fall and spring terms. Credit to be arranged. For students recommended by their chairmen and approved by the head of the department and the instructor in charge for independent, advanced work. Department faculty.

**504 Research Problems and Methods in the Study of Development.** Fall term. Credit three hours. Prerequisite: one course in statistics, which may be taken concurrently. Mr. Rodgers.

**511 Adult-Child Interactions in Naturalistic Situations.** Spring term. Credit three hours. Admission only by permission of the instructor. Limited to 10 students. Mrs. Baldwin.

**514 Clinical Deviations in Intellectual and Sensory Motor Development.** Spring term. Credit three hours. Mr. Doris.

**515 Introduction to Developmental Psychology from a Theoretical Viewpoint.** Spring term. Credit three hours. Mr. Baldwin.

**517 Practicum in Early Childhood Education.** Fall and spring terms. Credit three hours. Mrs. Hodgden.

**520 Issues in Developmental Psychology.** Fall term. Credit three hours. Admission by permission of the instructor. Miss Lee.

**522 Seminar in Cognitive Development.** Spring term. Credit three hours. S-U grades optional. Mr. Ginsburg.

**523 Seminar in Cognitive Processes.** Fall term. Credit four hours. Admission by permission of the instructor. Mr. Suci.

Students in seminar will attend lectures in 323.

**524 Seminar in Freud and Erikson.** Spring term. Credit three hours. Mr. Harding.

**535 Seminar in Socialization and the Parent-Child Relationship.** Fall term. Credit three hours. S-U grades optional. Admission by permission of the instructor. Mrs. Osofsky.

**540 Human Development and Formal Organizations.** Spring term. Credit three hours. Prerequisite: two courses in psychology, in sociology, or in ethics; or consent of the instructor. Mr. Rodgers.

**560A Seminar in Psychopathology.** Fall term. Credit three hours. Mr. Dalton.

**560B Seminar in Psychopathology.** Spring term. Credit three hours. S-U grades optional. Miss McIntyre.

**562 The Family, Society, and the Individual.** Spring term. Credit three hours. S-U grades optional. Mr. Devereux.

**568 Sociological Factors in Psychopathology.** Fall term. Credit three hours. S-U grades exclusively. Admission by permission of the instructor. Mr. Devereux.

**574 Seminar in Infant Behavior and Development.** Spring term. Credit three hours. Admission by permission of the instructor. Mr. Ricciuti.

**599 Master's Thesis and Research.** Fall and spring terms. Credit hours to be arranged. S-U grades exclusively. Registration with permission of the instructor. Mrs. Hodgden, Miss Lee, Mrs. Osofsky, Miss McIntyre, Mrs. Parkman-Ray, Miss Potts; Messrs. Brittain, Bronfenbrenner, Condry, Dalton, Devereux, Doris, Feldman, Ginsburg, Harding, Levin, Ricciuti, Suci.

**609 Seminar in Projective Techniques.** Fall term. Credit four hours. S-U grades optional. Admission by permission of the instructor. Miss McIntyre.

**611 Evaluation Practicum: Study of the Individual Personality, Deviant and Normal.**

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Spring term. Credit three hours. Admission by permission of the instructors. Prerequisite: 613, 560A and 560B or equivalent. Mr. Doris and Miss McIntyre.

**613 Individual Intelligence Test Procedures.** Fall term. Credit four hours. Admission by permission of the instructor. Mr. Doris.

**615 The Development of Human Behavior.** Fall term. Credit four hours. Mr. Bronfenbrenner.

**621 Seminar in the Development Study of Social Behavior.** Spring term. Credit four hours. Mr. Condry.

**622 The Nature of Subjective Reality.** Fall term. Credit three hours. Prerequisite: 321 or 621 or Psych 102 or permission of instructor. Mr. Condry.

**623 Seminar in the Development of Language.** Spring term. Credit three hours. Ad-

mission by permission of the instructor. Enrollment limited to 15. Mr. Suci.

**660 Personality Development in Childhood.** Spring term. Credit three hours. S-U grades optional. Mrs. Osofsky.

**663 Seminar in Observational Methods.** Spring term. Credit three hours. Admission by permission of the instructor. Mrs. Parkman-Ray.

**665 Small Groups.** Spring term. Credit three hours. Prerequisite: 562. Mrs. Parkman-Ray.

**699 Doctor's Thesis and Research.** Fall and spring terms. Credit hours to be arranged. S-U grades exclusively. Registration with permission of the instructor. Mrs. Baldwin, Mrs. Hodgden, Mrs. Parkman-Ray, Mrs. Osofsky, Miss Potts, Miss McIntyre, Miss Lee; Messrs. Baldwin, Brittain, Bronfenbrenner, Condry, Dalton, Devereux, Doris, Feldman, Ginsburg, Harding, Levin, Ricciuti, and Suci.

## Industrial and Labor Relations

### Faculty

Howard E. Aldrich, Robert L. Aronson, Isador Blumen, George W. Brooks, Bert R. Brown, Ralph N. Campbell, M. Gardner Clark, Alice H. Cook, Donald E. Cullen, Robert E. Doherty, W. Duane Evans, Robert H. Ferguson, Felician F. Foltman, Ivor Francis, William W. Frank, Frederick Freilicher, Walter Galenson, Gerald Gordon, James A. Gross, Leopold W. Gruenfeld, Kurt L. Hanslowe, George H. Hildebrand, Wayne L. Hodges, Vernon H. Jensen, Milton R. Konvitz, A. Gerd Korman, David B. Lipsky, Duncan M. MacIntyre, Philip J. McCarthy, Jean T. McKelvey, Marshall W. Meyer, Frank B. Miller, David G. Moore, James O. Morris, Maurice F. Neufeld, John R. Niland, Robert L. Raimon, Robert F. Risley, Ned A. Rosen, Fred Slavick, Vladimir L. Stoikov, Harrison M. Trice, William J. Wasmuth, William F. Whyte, Lawrence K. Williams, John P. Windmuller, William B. Wolf, Byron Yaffe

### Field Representative

Lawrence K. Williams, 101 Ives Hall

### MAJOR OR MINOR SUBJECTS

Collective Bargaining, Labor Law, and Labor Movements

Economic and Social Statistics

International and Comparative Labor Relations

Labor Economics and Income Security

Manpower Studies

Organizational Behavior

### MINOR SUBJECT ONLY

Industrial and Labor Relations Problems  
(available only for students majoring in other Fields)

**ADMISSION REQUIREMENTS.** All applicants whose native language is English are required to take the aptitude portion of the Graduate Record Examination. All applicants whose native language is not English are required to take the TOEFL language test. For admission to the Ph.D. program, a Master's degree or its equivalent is usually required; direct admission is possible in cases of exceptional promise.

**LANGUAGE REQUIREMENTS.** For the special professional degree, Master of Industrial and Labor Relations (M.I.L.R.), proficiency in a foreign language is not required. For the Master of Science and Ph.D. degrees, foreign language requirements are determined by each individual's Special Committee.

**M.I.L.R. PROGRAM.** This program is designed to provide broad coverage within the Field and some opportunity for advanced specialized work. It requires four semesters, not to include summer sessions, and a total of fourteen courses, nine of which are required. The requirements for this degree are fulfilled by satisfactory performance in these courses or seminars.

**M.S. EXAMINATION.** The final examination for the Master of Science degree includes both a test of subject matter competence in the major and minor fields and a defense of the Master's thesis. The examination is both written and oral. The completed thesis must be submitted to the Committee sufficiently in advance to ensure that the final examination can be scheduled and announced with at least fifteen days notice.

**PH.D. EXAMINATION.** In addition to the comprehensive admission to candidacy examination, the Field may administer a preliminary examination prior to admitting students to the doctoral program. A defense of the doctoral dissertation is, of course, required. Under rules of the Field, this final examination must be announced to the faculty of the Field by the chairman of the Special Committee at least fifteen days before the scheduled date. When appropriate, the chairman invites scholars from outside the Field.

The Field requires the acquisition of teaching experience during study for the doctorate.

### **Collective Bargaining, Labor Law, and Labor Movements**

Mr. Jensen, chairman; Mrs. Cook, Mrs. McKelvey, Messrs. Brooks, Cullen, Doherty, Freilicher, Gross, Hanslowe, Konvitz, Korman, Lipsky, Morris, Neufeld, Windmuller, and Yaffe.

This subject matter area is staffed by lawyers, institutional economists, and economic and social historians. Departmental faculty members specialize in the following three areas: (a) the study of the legal framework within which labor-management relations systems in the United States have developed; (b) the study of the history and structure of various components of the American trade union movement at the local, national, and confederation levels; and (c) the study of institutions, practices, and principles relevant to understanding how interested parties resolve conflicts over the conditions of the labor contract.

### **Economic and Social Statistics**

Mr. McCarthy, chairman; Messrs. Blumen, Evans, and Francis.

Staff members of the Department are mathematical statisticians interested in the application of their area of expertise to the social studies. They offer students an opportunity to study how the tools of mathematical statistics help in describing and analyzing socioeconomic phenomena and how various hypotheses can be tested quantitatively.

### **International and Comparative Labor Relations**

Mr. Galenson, chairman; Mrs. Cook, Messrs. Clark, Hildebrand, Morris, Neufeld, Niland, Whyte, and Windmuller.

Members of this Department are also attached to one of the other teaching departments. In this area of study students have an opportunity to examine two major problems. The first is a comparative analysis of the ways in which industrial societies other than the United States handle labor market problems, i.e., labor movements, patterns of industrial dispute settlement, the nature of governmental intervention both in regulating labor-management conflict and in protecting workers from the risks of industrial life. The second is the study of social institutions and economic conditions that facilitate or impede development in developing countries.

### **Labor Economics and Income Security**

Mr. Aronson, chairman; Messrs. Clark, Ferguson, Galenson, Hildebrand, MacIntyre, Raimon, Slavick, and Stoikov.

This Department is staffed primarily by economists representing different specialized areas within economics such as micro- and macroinstitutional and micro- and macrotheoretical, welfare, developmental, and comparative economics. In the area of the social insurances, scholarly competence and recognition do not require extensive formal training in economics, although there are also opportunities to apply economics to this subject.

Scholarly interests of students in labor economics and income security lie primarily in two directions. Some seek to generalize about the ways in which movements of prices, wages, and workers are related and to study the mechanisms of various labor markets. Others examine private and/or public programs designed to insure the working population against those risks of living in an industrial society which can be expressed in money terms.

### **Manpower Studies**

Mr. Miller, chairman; Messrs. Campbell, Foltman, Frank, Hodges, Niland, Risley, Stoikov, Wasmuth, and Wolf.

This Department is staffed by students of management and organizational problems as well as by economists with manpower interests. Manpower management has two main facets. First, the conventional study of the personnel function is directed at understanding how the single employing organization deals with its human resources: e.g., How does a firm go about staffing (recruitment, selection, placement); training and develop-

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ment activities; or managing reward and punishment systems. Second, the study of manpower supply and training problems at the community and national levels is increasingly a matter of critical public policy. This "macrolevel" aspect of manpower studies and the interplay of public and organizational manpower processes are foci of Departmental teaching and research.

### Organizational Behavior

Mr. Ned A. Rosen, chairman; Messrs. Aldrich, Brown, Gordon, Gruenfeld, Meyer, Trice, Whyte, and Williams.

This Department is staffed by behavioral scientists, including psychologists, social psychologists, sociologists, and cultural anthropologists, all of whom are concerned with individuals in work organizations and in industrial society. The major opportunity offered by the Department is for study of the nature of industrial society as a context for complex work organizations, or the study of such organizations *per se*, or the study of the behavior of small groups and individuals which are components of such organizations.

### Courses

#### Collective Bargaining, Labor Law, and Labor Movements

**500 Collective Bargaining I.** Fall and spring terms. Credit three hours. Preferably taken after or concurrently with 502. Messrs. Cullen, Gross, Jensen, or Lipsky.

A comprehensive study of collective bargaining with special emphasis on philosophy, structures, process of negotiations, and administration of agreements. Attention is also given to problems of handling and settling industrial controversy, the various substantive issues, and important developments and trends in collective bargaining.

**501 Collective Bargaining II.** Spring term. Credit three hours. Prerequisite: 500 or equivalent. Messrs. Cullen, Gross, Jensen, or Lipsky.

A detailed study of contract making and administration with particular reference to recent trends and problems in collective bargaining. Attention will be given to several representative industries, and prevailing agreements and case problems will be studied.

**502 Labor Relations Law and Legislation.** Fall or spring term. Credit three hours. Messrs. Freilicher, Hanslowe, or Konvitz.

A survey and analysis of the labor relations law with an examination of the extent to which the law protects and regulates concerted action by employees in the labor

market. The legal framework within which the collective bargaining takes place is analyzed. Problems of the administration and enforcement of the collective agreement are considered, as are problems of protecting the individual member-employee rights within the union.

**503 Arbitration.** Spring term. Credit three hours. Prerequisite: 500. Mrs. McKelvey, Messrs. Gross, Jensen, or Lipsky.

A study of the place and function of arbitration in the field of labor-management relations, including an analysis of principles and practices, the law of arbitration, preparation of briefs or oral presentation, and the work of the arbitrator, umpire, or impartial chairman.

**504 Labor Dispute Settlement.** Fall or spring term. Credit three hours. Prerequisite: 500. Mrs. McKelvey, Messrs. Gross, Jensen, or Yaffe.

A historical and contemporary study of the role of government in the adjustment of labor disputes, including such topics as the Railway Labor Act, Taft-Hartley Act, and state and federal laws governing emergency and public employment disputes. The course will also cover the leading administrative agencies in this field, including the Federal Mediation and Conciliation Service; state mediation agencies, with special emphasis on the New York State Board of Mediation; and municipal mediation services. Various governmental techniques for dealing with labor disputes, including injunctions, seizure, fact finding, and compulsory arbitration, will be analyzed. Labor dispute settlement procedures in the private and public sectors will be compared.

**505 Labor Union History and Administration.** Fall term. Credit three hours. Mrs. Cook, Messrs. Brooks, Korman, or Neufeld.

A presentation of the history of labor in America, with some reference to colonial and early nineteenth-century labor, but with emphasis upon post-Civil War trade union development. An analysis of the structure and functions of the various units of labor organization, ranging from the national federation to the local union. Some consideration will be given to special problems and activities, such as democracy in trade unions and health and welfare plans, as well as to various types of unions.

**506 Readings in the History of Industrial Relations in the United States.** Fall term. Credit three hours. Prerequisite: 505 or equivalent. Mrs. Cook, Messrs. Korman, Morris, or Neufeld.

A seminar covering, intensively and in historical sequence, key documents, studies, legislative investigations, and memoirs con-



cerning American industrial relations systems. Primarily designed to aid students in orienting themselves systematically and thoroughly in the field. Among the authors and reports covered are E. P. Thompson, J. R. Commons, N. Ware, L. Ulman, the A. Hewitt hearings, the H. W. Blair hearings, the U.S. Industrial Commission, P. Taft, P. F. Brissenden, the U.S. Commission on Industrial Relations, T. W. Glocker, G. E. Barnett, F. W. Taylor, H. Gantt, M. P. Follett, I. Bernstein, and W. Galenson.

**507 Theories of Industrial Relations Systems.** Spring term. Credit three hours. Prerequisite: 505 or equivalent. Mrs. Cook, Messrs. Korman, or Neufeld.

An examination of the leading theories concerning the origins, forms, organization, administration, aims, functions, and methods of industrial relations systems. Among the theories studied are those formulated by Marx, M. Bakunin, G. Sorel, Lenin, L. Brentano, the Webbs, H. Croly, A. Gramsci, S. Perlman, F. Tannenbaum, the Guild Socialists, K. Polanyi, C. Kerr, F. Harbison, J. Dunlop, and C. A. Myers.

**508 Poverty and Social Policy.** Fall or spring term. Credit three hours. Mr. Konvitz.

A study of public policy with respect to poverty from colonial times to the current "war on poverty" in the United States. The Report and the Supplemental Studies by the (Kerner) National Advisory Commission on Civil Disorders, the Report by the President's Commission on Law Enforcement and Administration of Justice, and the Report of the Citizens' Board of Inquiry in Hunger and Malnutrition will be among the materials studied.

**509 Readings in the Literature of American Radicalism and Dissent.** Fall and spring terms. Credit three hours. Mr. Neufeld.

Each term this course will concentrate on a different historical aspect of American radicalism and dissent. Examples of the possible range of topics and writers include: *agrarian reform*, Skidmore, Evans, and Donnelly; *anarchism*, Warren, Haywood, Goldman, and Goodman; *communism*, Reed, Lovestone, and Foster; *economic dissent*, George, Veblen, and Townsend; *equal rights for Negroes and black nationalism*, DuBois and Garvey; *fascism*, Father Coughlin and Smith; *peace movements*, Addams, Balch, and Muste; *religious radicalism*, Williams, Paine, and Ingersoll; *social planning*, Noyes and Sanger; *socialism*, Byllesby, Heighton, De Leon, Hillquit, and Walling; *utopianism and communism*, Bellamy, Brisbane, and Wright; and *women's rights*, Fuller, Stanton, and Anthony.

**550 Manpower and Collective Bargaining Problems in the Construction Industry.** Spring term. Credit three hours. Permission of the

instructor required for non-ILR students. Messrs. Cullen and Foltman.

The seminar will examine selected problems such as: supply and demand of construction manpower; the Negro and the building trades; skilled manpower forecasting and planning; skill requirements; education and training; personnel management policies and practices; the wage-price issue; the closed shop; featherbedding; jurisdictional disputes; and problems of bargaining structure. Individual research is required.

**580 Administrative Tribunals.** Spring term. Credit three hours. Mr. Hanslowe.

An examination of the law controlling administrative agencies, including executive departments, in their complex tasks of carrying out various governmental programs. One important focus is on procedural safeguards and on the allocation and control of power in decision making. Another central inquiry is how to accommodate procedural fairness to the efficient accomplishment of legislative purposes. The general quest is for understanding principles of exertion of governmental authority and principles of justice that cut across functions of federal, state, and local tribunals and their relation with reviewing courts and with legislative and executive bodies.

**581 Black Labor: Directed Research in the History of the Black Worker.** Spring term. Credit three hours. Open to non-ILR graduate students by permission of the instructor. Enrollment limited to 15 students. Mr. Gross.

Students will have access to the complete records of the President's Committee on Fair Employment Practice 1941-1946. These documents, which will be on microfilm, include correspondence, instructions, press releases, internal memoranda, reports from the field, case records, letters from black workers and their organizations describing their situations and conditions, minutes of meetings, and other reports and studies. Emphasis will be placed on a survey and analysis of the existing literature concerning the history of the black worker, a survey and analysis of the literature dealing with the President's Committee on Fair Employment Practice, and student research in the original documents of the Committee.

**600 Seminar in Labor Relations Law and Legislation.** Fall or spring term. Credit three hours. Permission of the instructor required. Messrs. Freilicher, Hanslowe, Konvitz, or Yaffee.

An intensive study of controversial aspects of labor relations law and legislation in the United States, with concentration on questions of special interest because of their impact on public opinion as well as on labor-management relations. Some of the problems

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that may be analyzed are national emergency disputes; legal aspects of labor relations in the public sector; remedies for violations of section 8(a)(3) and (5) of the NLRA; common situs picketing; enforcement of arbitration clauses and awards; the duty to bargain about subcontracting and plant removal; problems arising from multiemployer bargaining; regulation of labor relations in agriculture; a union's duty of fair representation; discrimination on the basis of sex and race under Title VII of the Civil Rights Act of 1964.

**601 Collective Bargaining.** Fall and spring terms. Credit three hours. Mrs. McKelvey, Messrs. Cullen, Gross, Jensen, or Lipsky.

An analysis with particular emphasis upon the negotiation process, contract issues of current and future significance, and student research papers.

**602 Problems in Labor Law.** Fall or spring term. Credit three hours. Mrs. McKelvey, Messrs. Freilicher, Hanslowe, or Yaffe.

Intensive analysis of selected groups of legal problems arising out of labor relations and arbitrations, based on documentary materials including briefs, minutes, and court and agency proceedings. Weekly or biweekly written reports.

**603 Governmental Adjustment of Labor Disputes.** Spring term. Credit three hours. Mrs. McKelvey, Messrs. Gross, Jensen, or Yaffe.

A study of particular problems of the role of the government in the adjustment of labor disputes in the public and the private sector. Opportunity is afforded to investigate and analyze the various common dispute-settlement techniques and to investigate particular governmental agencies and their operations.

**605 Research Seminar in the History, Administration, and Theories of Industrial Relations in the United States.** Fall or spring term. Credit three hours. Prerequisite: 506 and 507, or permission of the instructor. Mrs. Cook, Messrs. Brooks, Korman, Morris, or Neufeld.

Intensive studies in theories of industrial relations, the social and political history of workers in urbanizing and industrializing communities, the history of ideas which impelled the labor movement, the history and government of individual unions and confederations of unions, the development of ideas in the management of personnel, and comparative studies of American, European, and non-European industrial relations systems. The areas of study will be determined by the instructor offering the seminar.

**606 Labor and Government from the 1920s to Taft-Hartley.** Fall term. Credit three hours. Prerequisite: 505 and consent of the instructor. Mrs. Cook.

An historical survey of the pre-New Deal, the New Deal, World War II, and the immediate postwar periods, culminating in the passage of the Taft-Hartley Act. The course will trace the development and explore the nature and effect of government policy on labor welfare and labor relations legislation. Students will each select a specific event or problem for intensive research on which they will report to the class and prepare a paper.

**607 Collective Bargaining in Public Education.** Spring term. Credit three hours. Permission of the instructor required. Mrs. Egner and Mr. Doherty.

The seminar will study the legal, financial, administrative, and educational problems raised by collective bargaining in the public schools. Major attention will be directed at existing statutes covering the employment arrangement in public schools, the subject matter and administration of collective agreements, the ideological postures of teacher organizations, and the resolution of negotiating impasses. Individual and group research projects will be required.

**608 Problems of Labor Relations in Public Employment (Law 523).** Spring term. Credit three hours. Permission of instructor required. Mr. Oberer.

A study of the legal problems inherent in the superimposition of collective bargaining relationships on existing patterns of public employment, including the problems of sovereignty, unit determination, representation procedures, unfair practices, scope of bargaining, impasse procedures, and the strike against government. The course also includes an examination of civil service systems, government budgeting, restrictions on political activities of public employees (e.g., Hatch Act), loyalty oaths and security programs, and other problems peculiar to public employment.

**609 Professionals, White-Collar Workers, and Their Organizations.** Spring term. Credit three hours. Offered in even-numbered years only. Prerequisite: permission of the instructor. Mrs. Cook.

Attention will be directed to characteristics of professional and clerical workers in the white-collar section of the work force. The problems of professionals, both self-employed and salaried, will be considered. A variety of professional organizations and of trade unions will be studied as responses to the collective needs of both groups. The distinctions arising from the conditions of public and private employment will also be considered.

**680 Research Seminar in the History of Labor in the Nineteenth Century.** Fall term.

Credit three hours. Offered in odd-numbered years only. Mr. Korman.

A seminar in the social history of the nineteenth century devoted to the study of workers in urbanizing and industrializing communities. Research ventures will extend across the various fields of history, combining traditional labor history with aspects of urban and business history.

**699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

**Law 409 Labor Law.** Fall term. Credit three hours. Messrs. Hanslowe or Oberer.

**Law 523 Problems of Labor Relations in Public Employment.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Mr. Oberer.

## Economic and Social Statistics

**510 Economic and Social Statistics.** Fall and spring terms. Credit three hours. Mr. McCarthy.

A nonmathematical course for students in the social studies without previous training in statistical method. Emphasis is placed on discussion of technical aspects of statistical analysis and on initiative in selecting and applying statistical methods to research problems. The subjects ordinarily covered include analysis of frequency distributions, regression and correlation analysis, and topics from the area of statistical inference.

**610 Economic and Social Statistics.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Mr. Evans.

Primarily a study of the basic concepts underlying quantification in economics and an examination of how these requirements are realized in practice. This course is intended to familiarize students with the tools used to analyze the labor force, employment, unemployment, production, productivity, labor costs, prices, capital stocks, etc.; determine what they mean; their proper areas of application; and their limitations. Topics in the methodology of economic statistics, including time series analysis and index number problems, will be reviewed.

**614 Theory of Sampling.** Fall term. Credit three hours. Prerequisite: calculus and at least one semester of mathematical statistics. Mr. McCarthy.

A companion course to 310, stressing the development of the fundamentals of sampling theory. Attention will be paid to recent progress in the field. Occasional illustrations of the application of the theory will be given.

**699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

## International and Comparative Labor Relations

**530 Comparative Industrial Relations Systems I.** Fall term. Credit three hours. Prerequisite: for non-ILR graduate students, 250 or consent of the instructor. Mr. Windmuller.

An introductory course concerned with the history, structure, institutional arrangements, and philosophy of the labor relations systems of several countries in advanced stages of industrialization. Countries to be examined include Great Britain, France, Germany, Sweden, the Soviet Union, and others.

**531 Comparative Industrial Relations Systems II.** Spring term. Credit three hours. Mr. Windmuller.

A comparative review of the labor market in countries in early and intermediate stages of economic development. The course surveys the development of the industrial labor force, the evolution of functions of labor organizations, the role of government in industrial relations, the emergence of different patterns of labor-management relations, and problems of employment and wages in relation to economic growth.

**536 Asian Industrial Relations Systems.** Fall term. Credit three hours. Mr. Niland.

An examination of the labor movements and systems of industrial relations in Asia, set within a comparative framework that emphasizes the impact of economic development on labor and industrial relationships. Substantial attention is given to the emergence of industrial labor markets and their institutions, manpower regulation and rationalization, and labor-management relations. The role of government and public intervention in shaping the systems within which labor and management function is also considered. Comparisons are drawn, where possible, with relevant aspects of American experience and with that of other countries at advanced stages of development such as Great Britain and Australia. Countries to be examined include India, Japan, the Philippines, and Malaysia.

**630 Seminar in International and Comparative Labor Problems.** Spring term. Credit three hours. Prerequisite: 530 or 531 or consent of the instructor. Mr. Windmuller.

Students will examine selected problems in labor relations in the light of international and comparative experience and will be expected to prepare, discuss, and defend individual research papers. Seminar topics will

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vary from year to year in line with student and faculty interests.

**699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

### Labor Economics and Income Security

**540 Labor Economics.** Fall and spring terms. Credit three hours. Required of graduate students majoring or minoring in labor economics and income security and M.I.L.R. candidates. Prerequisite: Economics 101-102 or equivalent. Enrollment limited to 20 students each term. Mr. Perl.

Economic issues in the employment and compensation of labor. Topics discussed include labor force growth and composition, structure and functioning of labor markets, unemployment, wage theories, wage levels and structures, the economic influence of unions, income distribution, the problem of poverty.

**544 Social Security and Protective Labor Legislation.** Fall term. Credit three hours. Normally required of graduate students majoring or minoring in labor economics and income security and required of M.I.L.R. candidates. Mr. Slavick.

The fundamental aspects of employee protection and income security. Emphasis will be placed upon state and federal minimum wage and hour laws, antidiscrimination legislation, laws affecting migratory agricultural labor, employee benefit programs, the social insurances, and public welfare programs. The underlying causes of the legislation, as well as the legislative history, the administrative problems and procedures, and the social and economic impact of the legislation, will be studied. Proposals for amending or modifying existing legislation, including proposals for guaranteed income programs, will be examined.

**546 Economics of Manpower.** Fall term. Credit three hours. Prerequisite: 540 or equivalent. Mr. Aronson.

Analysis and examination of various approaches to manpower planning in both industrialized and developing economies. Topics covered include labor force development and behavior, occupational choice and occupational mobility, human capital formation, determinants of occupational employment, and manpower planning and its relation to economic growth in the United States and abroad. Methodologies of projecting labor force and manpower requirements and of evaluating manpower programs are systematically covered and special topics are devel-

oped in accordance with student interests and preference.

**549 Economics of Poverty.** Fall term. Credit three hours. Mr. Perl.

The focus of the course is on the causes of and remedies for income inequalities in industrialized economies. It will concentrate first on alternative theories of inequality in the functional distribution of income—monopolies, rents and quasi-rents, ability, and the acquisition of human capital. The course will then turn to an examination of the relative efficiency of alternative means for remedying these inequalities—countervailing power, taxation, and redistribution of social service.

**645 Comparative Economic Systems: Soviet Russia.** Fall and spring terms. Credit three hours. Prerequisite: 445. Mr. Clark.

**647 Workshop in Labor Economics.** Fall and spring terms. Credit three hours. Mr. Galenson.

This course is designed for Ph.D. students writing their dissertations. It is concerned primarily with the formulation, design, and execution of dissertations. Preliminary plans and portions of completed work will be presented to the workshop for discussion.

**648, 649 Seminar in Labor Economics (Economics 641, 642).** Fall term, 648; spring term, 649. Credit three hours each term. Mr. Galenson and Mr. Hildebrand, jointly.

Reading and discussion of selected topics in current labor economics in the fields of theory, institutions, and policy.

**699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

### Manpower Studies

**560 Manpower and Organization Management.** Alternate terms. Credit three hours. Prerequisite: 520 or 521. Messrs. Foltman, Miller, or Wasmuth.

A basic graduate course covering the major areas of manpower and organizational policy as they relate to human behavior and work organizations. Intensive consideration will be given to such aspects of personnel work as selection and placement, compensation, training and development, employee-employer relations, health and safety, employee benefits and services, and personnel research. The course will examine how the conduct of the personnel function affects attainment of all organizational objectives. In addition, the personnel and industrial relations occupations will be examined in terms of their career patterns and organizational role.

**561 Occupational Aspects of Manpower Studies.** Spring term. Credit three hours. Mr. Miller.

First, this course examines the job analysis process and its conventional contributions to various personnel activities. Next it examines professional and organizational careers, especially with an eye to their accessibility and adaptability to poor, undereducated, and otherwise disadvantaged elements in the population. Finally, the course includes individual student projects which consist of preparing job descriptions of various career stages of one high-talent occupation, beginning with the least demanding and ending with the most demanding. These projects will be examined by outside manpower experts in the appropriate specialty.

**562 Administrative Theory and Practice.** Spring term. Credit three hours. Prerequisite: 520 or permission of the instructor. Messrs. Campbell or Wolf.

Analysis of the role of the decision-maker in carrying out his administrative functions. Consideration will be given to organizational structure and relationships, process of planning and decision-making, measurement and control, and the direction of work. Basic theories from scientific management, bureaucratic studies, and human relations research will be analyzed with regard to their usefulness to the practicing administrator. Current practices will be evaluated against research findings. Cases will be used frequently.

**563 Manpower Problems and Research.** Fall term. Credit three hours. Mr. Niland.

The course treats recent and ongoing research into problems of manpower rationalization in the United States. Selected projects, such as those sponsored under the Manpower Development and Training Act and by the National Science Foundation, are examined in detail. Issues to be covered from these sources include manpower mobility, development, utilization, and forecasting. The approach is primarily to issues at a macro level, using the economist's tools of analysis.

**564 Public Policy and Development of Human Resources.** Fall term. Credit three hours. Mr. Foltman.

Analysis of the need for 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. Examination of the rationale, organization, and administration of specific programs, such as apprenticeship; vocational and technical schools; technical institutes; university programs for development of technical, scientific, and managerial skills; and

the foreign technical assistance program. Implications and problems of public support.

**566 Administration of Compensation.** Fall term. Credit three hours. Prerequisite: 360 or 560 and 521 or their equivalents.

The development and administration of wage and salary programs with major emphasis on internal considerations. Subjects include program principles, objectives, and policies; organization of the function; and procedures to implement policies. Topics include job and position analysis; preparation of description-specifications; job evaluation; incentive applications; wage and salary structures; the use of wage surveys; supplemental payments, including premium pay, bonuses, commissions, and deferred compensation plans; and use of automatic increment provisions. Case studies and assigned projects will cover selected programs.

**567 Management and Leadership Development.** Fall term. Credit three hours. Messrs. Campbell or Foltman.

Study of the factors affecting the growth and development of managers and leaders in industrial and other organizations. Consideration is given to organizational environment, formal and informal developmental programs, leadership theory, and individual attitudes and beliefs. Special emphasis is given to analysis of specific case studies of actual practice.

**568 Case Studies in Personnel Administration.** Fall term. Credit three hours. Messrs. Wasmuth or Wolf.

A seminar devoted to analysis of personnel management activities and their impact on organizational objectives and administration. Cases, incidents, and field data from a variety of institutional settings will provide a framework for examining the various roles played by personnel managers. When appropriate, attention will be given to the evolution and formalization of personnel activities within growing small businesses. Field work and preparation of individual cases for class presentation are required.

**569 Design and Administration of Training Programs.** Spring term. Credit three hours. Mr. Foltman.

The development of education and training programs in government, business, labor, and voluntary organizations. Attention will be given to the role of line and staff and to problems and techniques in policy determination, the identification of training needs, and the design, implementation, and evaluation of programs. Case studies will focus on the philosophy and administration of selected training programs.

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### **570 Occupational Counseling and Career Guidance.** Spring term. Credit three hours.

The philosophy, theory, methods, and problems of counseling as related to employability, planning, employment, career guidance learning and training, and work discipline. The role of the counselor will also be considered, including psychological and ethical aspects, development of effective relationships with individuals and agencies important to the counseling function, and utilization of sources of job and career information. Topics will also include methods, such as structured and nondirective interviews; biographical data; tests and measurements; and problems such as developing rapport, avoiding overdependence, securing commitment, and encouraging growth, development, and emotional maturity.

### **660 Manpower and Organization Management.** Fall and spring terms. Credit three hours. Department faculty.

A seminar in which intensive study will center in one or two specific areas of manpower and organization management. Topics will be selected jointly by student and instructor; e.g., manpower planning and forecasting, compensation, justice processes, training and development, and other organizational manpower processes. Individual or group research may also focus on external influences or organizational manpower policies, practices, and strategies.

### **662 Simulation Workshops and Management Training.** Fall term. Credit three hours. Mr. Wasmuth.

The seminar will be conducted through the technique of simulation applied to a rehabilitation workshop. Although the substantive material relates to workshop management, simulation as an approach to training managers has wider and growing importance. The key factor in workshop simulation is the high degree of involvement of participants in setting goals and identifying problems and possible solutions. The seminar focuses on major problem areas in the organization and administration of sheltered workshops. Students are provided with realistic problem-solving situations. A variety of manpower aspects of the management process and the dynamic changes which occur in organizations will be considered. The content of the seminar will be research findings, selected readings, and lectures.

### **667 Current Issues and Research in Human Resources Development.** Fall and spring terms. Credit three hours.

A graduate seminar dealing with development of managerial and work-force skills (particular emphasis to be determined with the group). Papers and class discussions

might concentrate on such topics as management development, impact of technological change on training programs, development of scientific and professional personnel, or labor union education.

### **699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

## **Organizational Behavior**

Graduate students majoring or minoring in the area of organizational behavior will normally complete the core offering in this area, Organizational Behavior I and II (520, 521). Depending upon the nature of the program of the individual student, both courses may be taken in the same term, or they may be taken in different terms with either course preceding the other. In addition, graduate students majoring in organizational behavior will normally take Behavioral Research Theory, Strategy, and Methods I and II (524-525). Exemptions and exceptions are made on an individual basis.

### **520 Organizational Behavior I.** Fall and spring terms. Credit three hours. Required of graduate students majoring or minoring in the area of organization behavior and M.I.L.R. candidates; open to others with a major or minor in the Field. Department faculty.

Survey of concepts and studies from the fields of individual and social psychology, selected for their pertinence to the area of organizational behavior. The relationship between research findings and application to organizational problems will be stressed. Consideration of individual differences; attitude formation and its relation to social processes; factors affecting different kinds of learning; motivation and its relationship to productivity; perception and its relationship to evaluation of performance; leadership and the influence process; group formation and its effect on the individual and the organization.

### **521 Organizational Behavior II.** Fall and spring terms. Credit three hours. Required of graduate students majoring or minoring in the area of organizational behavior and M.I.L.R. candidates. Open to others with a major or minor in the Field.

Formal organizations studied from the perspectives of classical organization theory, human relations theory, and comparative and cross-cultural analysis. The course also considers in some detail the contemporary theories and quantitative approaches to organizational structure. This basic course is intended to be preliminary to more intensive work in organizational behavior.

**522 Theories of Organization.** Fall or spring term. Credit three hours. Prerequisite: 521. Mr. Gordon.

Intended for students interested in more intensive work in theories of organizations and organizational behavior. Writings to be examined may include works of the intellectual predecessors of the field, Marx, Weber, and Durkheim, and contemporary works such as those of Homans, Blau, Caplow, Barnard, March and Simon, Etzioni, Crozier, and Dahrendorf.

**523 Theories and Methods of Organizational Change.** Spring term. Credit three hours. Prerequisite: 520, 521 and/or consent of the instructor. Department faculty.

The primary concern will be an examination of certain change agents as they attempt to initiate, structure, and direct organizational change. Attention will be given to the strategies used by these change agents as they are related to selected theories of organizational behavior and organizational change. Among the change agents which will be considered are consultants, union organizers, applied social scientists, and staff and managerial personnel.

**524-525 Behavioral Research Theory, Strategy, and Methods I and II.** Fall term, 524; spring term, 525. Credit variable. Except by petition, 524 and 525 must be taken in sequence. Prerequisite: permission of the instructor.

Designed to meet the needs of M.S. and Ph.D. candidates majoring in organizational behavior, but other graduate students may enroll.

Units of material to be included are: theoretical, conceptual, and ethical questions; survey research and attitude scaling procedures; laboratory research methods; participant observation and interview methods; and the use of documents and qualitative data analysis. The course will provide the student with important philosophical background for doing research and will expose him to a well-balanced, interdisciplinary set of quantitative and qualitative research tools. Readings will be supplemented by projects and laboratory exercises.

**526 Management of Science.** Spring term. Credit three hours. Mr. Gordon.

The course treats the management of science on both the micro- and macro-levels. It will examine empirical findings as they bear on national policy and environmental settings. Emphasis will be placed on current problems such as freedom and control of science, scientific secrecy, bureaucracy and creativity, financial and political underpinnings of research, and the emerging social system of science.

**527 The Organization and Its Environment.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Enrollment limited to 20. Mr. Aldrich.

A survey of the literature on organization-environment and inter-organizational relationships. Emphasis will be on two tasks: developing typologies of inter-organizational relations, and exploring methods of measuring or quantifying such relations. Students will be expected to write a research paper applying an organization-environment or inter-organizational perspective to a particular set of organizations.

**528 Psychology of Industrial Conflict.** Fall term. Credit three hours. Prerequisite: permission of the instructor. Mr. Rosen.

An application of frustration theory to the analysis of conflict and stress in organizations and society. Comparisons are made among industrial relations, race relations, international relations, and other settings. Readings include behavioral research findings from a variety of studies in industry and contributions from experimental, social, and clinical psychology.

**620 Seminar on Personality and Organization.** Fall or spring term. Credit three hours. Prerequisite: 520 and 521, or permission of the instructor. Mr. Williams.

This seminar attempts to integrate available research and focuses on both personality and organizational variables. Investigations in the field of culture and personality will be examined for their utility in the understanding of organizational functioning. The relationship of personality to economic development will also be examined. Participants will be encouraged to write a term paper on the interrelationship of technology and values.

**622 Cross-cultural Studies of Work and Institutional Development.** Fall term. Credit three hours. Permission of instructor required. Messrs. Whyte and Williams.

A research seminar devoted to the analysis of survey and anthropological field reports from Peruvian villages, industrial plants, and schools, and from comparable United States organizations. Each student will select a problem area for analysis and will write a research paper.

**624 Leadership in Organizations.** Spring term. Credit three hours. Prerequisite: permission of the instructor. Mr. Gruenfeld.

A seminar designed to examine theories and research findings from the behavioral sciences that are relevant to leadership and the influence process in groups and organizations. Personality, situational factors, intra-group processes, interpersonal perception, as well as motivation to lead and to follow will

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be discussed. The implications for leadership training, organization development, and action research will be explored.

**629 Cross-cultural Studies of Organizational Behavior.** Fall or spring term. Credit three hours. Prerequisite: consent of the instructor. Enrollment limited to 20. Mr. Gruenfeld.

The seminar will deal with cross-cultural similarities and differences in organizational processes, e.g., recruitment, decision-making, authority, reward, and punishment. Organiza-

tions in all sectors of society will be considered, i.e., economic, political, educational, health, etc.

**699 Directed Studies.** Fall and spring terms. Credit to be arranged.

For individual research under the direction of a member of the faculty.

**Sociology 503 Sociology of Science.** Fall term. Mr. Gordon.

## International Agricultural Development

### Faculty

Douglas E. Ashford, Solon L. Barraclough, Frederick T. Bent, Carl W. Boothroyd, Paul A. Buck, Marlin G. Cline, Royal Colle, Howard E. Conklin, Robert H. Crawford, Loy V. Crowder, Tom E. Davis, Matthew Drosdoff, Eugene C. Erickson, Reeshon Feuer, R. H. Fox, Donald K. Freebairn, Frank H. Golay, Robert F. Holland, William K. Jordan, William C. Kelly, George C. Kent, Richard P. Korf, Frank V. Kosikowski, Douglas J. Lathwell, J. Paul Leagans, Gilbert Levine, John K. Loosli, Harry A. MacDonald, John G. Matthisse, Robert E. McDowell, John W. Mellor, Philip A. Minges, Henry M. Munger, Robert B. Musgrave, Thomas T. Poleman, Jr., Robert A. Poison, Kenneth L. Robinson, Milton L. Scott, Daniel G. Sisler, Robert M. Smock, Keith H. Steinkraus, Earl L. Stone, Jr., Robert D. Sweet, H. David Thurston, Frederick K. T. Tom, George W. Trimberger, Kenneth L. Turk, Donald H. Wallace, Frank W. Young

### Field Representative

Kenneth L. Turk, 102 Roberts Hall.

### MINOR SUBJECT

#### International Agricultural Development

This Field is intended primarily for students who are preparing for service in international agriculture. The student will seek depth of knowledge by majoring in a biological, physical, or social science. The minor subject draws from several disciplines with the objective of assisting the student in understanding the special conditions and problems of newly developing economies. While this minor is planned specifically for students majoring in one of the graduate fields of agriculture, other qualified students are welcome. It is intended for students from other countries as well as for those from the United States. Students will register for seminars, courses, and special problems offered by the several departments and colleges.

A student minoring in this Field is encouraged to gain speaking proficiency in a language likely to prove most useful in his area

of service in addition to meeting the language requirements in his major Field.

A student may not minor in this Field if he is minoring in Asian Studies or Latin American Studies, and he may not select a professor for this minor who also serves on the Graduate Faculty in the student's major Field.

## Courses

### International Agriculture

**600 Seminar: International Agricultural Development.** Fall and spring terms. No credit. Third and fourth Wednesdays. 4:30-5:30. Mr. Turk and staff.

Primarily for graduate students interested in an integrated view of problems related to international agricultural development. Undergraduates with a specialization in International Agriculture are encouraged to attend without registering. The seminar will focus on developing an understanding of the nature and interrelatedness to agricultural development of the social sciences, plant and animal sciences, foods and nutrition, and natural resources.

**601 Seminar on Agricultural Development in the Philippines.** Spring term. Credit two hours. Messrs. Golay and Levine.

Major aspects of Philippine agricultural development will be considered from economic, social, and technological points of view.

**Economics of Agricultural Development (Agricultural Economics 464).**

**World Food Economics (Agricultural Economics 560).**

**Seminar in Agricultural Policy (Agricultural Economics 651).**

**Seminar on the Agricultural Development of South Asia (Agricultural Economics 665).**

**Seminar on Latin American Agricultural Policy (Agricultural Economics 665).**



Seminar in the Economics of Agricultural Development (Agricultural Economics 668).

Geography and Appraisal of Soils of the Tropics (Agronomy 401).

Tropical Agriculture (Agronomy 422).

Special Studies in Soils of the Tropics (Agronomy 522).

Special Studies in Tropical Agriculture (Agronomy 522).

Livestock Production in the Tropics (Animal Science 400).

Special Studies in Livestock of the Tropics (Animal Science 401).

International Communication (Communication Arts 501).

Communication in Developing Nations (Communication Arts 524).

Comparative Mass Media (Communication Arts 526).

International Nature Conservancy (Conservation 511).

Rural Society (Development Sociology 412).

Comparative Rural Societies (Development Sociology 420).

Occupational Structure in Industrial and Developing Countries (Development Sociology 424).

Cross-Cultural Research Methods (Development Sociology 516).

Applications of Sociology to Development Programs (Development Sociology 528).

Seminar: Contemporary Theories of Planned Social Change (Development Sociology 630).

Seminar: Social Change and Development (Development Sociology 636).

Designing Continuing Education Programs (Education 524).

Educational Communication with Adult Audiences (Education 525).

Seminar in Extension and Continuing Education (Education 626).

Seminar: Comparative Systems of Extension and Continuing Education (Education 627).

Advanced Parasitology (Medical Entomology) (Entomology 552).

International Food Development (Food Science 403).

International Nutrition Problems, Policies, and Programs (Graduate School of Nutrition 580).

International Crop Breeding and Improvement (Plant Breeding 506).

Plant Diseases in Tropical Agricultural Development (Plant Pathology 655).

Special Topics in Plant Science Extension (Vegetable Crops 429).

Research Methods in Applied Plant Science (Vegetable Crops 501).

## Latin American Studies

### Faculty

Frederick B. Agard, Solon Barraclough, Jerome S. Bernstein, Dalai Brenes, Loy V. Crowder, David Davidson, Tom E. Davis, Martin Dominguez, Matthew Drosdoff, Charles L. Eastlack, Donald K. Freebairn, Rose K. Goldsen, Thomas Gregor, Joseph A. Kahl, Eldon Kenworthy, Anthony G. Lozano, Thomas F. Lynch, Robert E. McDowell, James O. Morris, John V. Murra, Thomas Poleman, Bernard Rosen, Donald F. Solá, J. Mayone Stycos, H. David Thurston, William F. Whyte, Lawrence K. Williams, Frank W. Young

### Field Representative

Thomas A. Gregor, 205 Rand Hall

### MINOR SUBJECT

Latin American Studies

The Latin American Studies minor is intended to help graduate students develop specialized competence in the history, culture, social organization and languages of Latin American countries. The interdisciplinary minor can complement basic disciplinary study in a number of major fields.

Over the past eight years, students who have minored in Latin American Studies have had unusual opportunities to conduct field research in Latin America on topics relevant to their major disciplines. All minors have had at least some research experience in Latin America; the great majority develop their dissertations from Latin American materials.

The research interests of faculty members are varied and include work on the majority of the Latin American countries. Among these,

## 120 Latin American Studies

three important foci of interest emerge. Some five faculty members pay particular attention to the Andean region and currently collaborate with each other and with faculty at other universities. Another group has principal or significant interests in Brazil; their research centers on Brazilian history, Portuguese linguistics, tribal peoples, achievement motivation, economic development and social structure. Faculty and students maintain a continuing interest in public policies related to Latin America. A current expression of this interest is the establishment of a series of studies which will explore the wide-ranging implications of the substantial United States presence in Latin America.

The requirements for the minor in Latin American Studies include (1) a knowledge of Latin American history, culture, political organization, and problems of economic development, and (2) proficiency in reading and speaking either Spanish or Portuguese. Courses are offered in elementary, intermediate, and advanced Spanish; in elementary and advanced Portuguese; as well as in the Cuzco dialect of Quechua. Consult the *Announcement of the College of Arts and Sciences* for full listings and course descriptions. Normally, a student is expected to conduct field research in Latin America as the basis for his doctoral thesis.

### Courses

**Seminar on Latin American Agricultural Policy** (Agricultural Economics 665).

**Seminar in the Economics of Agricultural Development** (Agricultural Economics 668).

**Geography and Appraisal of Soils of the Tropics** (Agronomy 401).

**Special Studies in Soils of the Tropics** (Agronomy 481).

**Livestock Production in the Tropics** (Animal Science 400).

**Special Studies in Livestock of the Tropics** (Animal Science 401).

**Ethnology of South America** (Anthropology 332).

**Ethnology of the Andean Region** (Anthropology 333).

**Ethnohistory** (Anthropology 418).

**Social Aspects of Housing in Developing Countries** (Consumer Economics and Housing 545-546).

**Comparative Rural Societies** (Development Sociology 420).

**Cross-Cultural Research Methods** (Development Sociology 516).

**Economic History of Latin America** (Economics 325).

**Economic Problems of Latin America** (Economics 565).

**Government and Politics of Latin America** (Government 340).

**Seminar in Latin American Politics** (Government 540).

**Latin American History Since Independence** (History 320).

**Problems in the History of Brazil** (History 488).

**Latin America in the Era of Independence** (History 489).

**Seminar in Latin American History** (History 687-688).

**Pre-Columbian Art** (History of Art 315).

**Cross-Cultural Studies of Work and Institutional Development** (Industrial and Labor Relations 622).

**Sociolinguistics** (Linguistics 515-516).

**Population Problems** (Sociology 230).

**Social Development in Mexico** (Sociology 271).

**Comparative Social Change** (Sociology 350).

**International Urbanization** (Sociology 433).

**Sociology of Health and Medicine** (Sociology 477).

**Introduction to Social Demography** (Sociology 530).

**Seminar: Contemporary Research in Demography** (Sociology 632).

**Reform vs. Revolution in Latin America: Brazil, Cuba, Mexico** (Sociology 648).

**Seminar: Social Psychology of Modernization** (Sociology 685).

**Modern Spanish-American Poetry** (Spanish 392).

**Seminar in Ibero-Romance Linguistics** (Spanish 600).

## Law

### Faculty

Robert A. Anthony, John J. Barcelo, John S. Brown, W. David Curtiss, W. Tucker Dean, W. Ray Forrester, Harrop A. Freeman, Kurt L. Hanslowe, Harry G. Henn, William E. Hogan, Milton R. Konvitz, John W. MacDonald, Ian R. Macneil, Walter E. Oberer, Robert S. Pasley, Norman Penny, David L. Ratner, Ernest F. Roberts, Jr., Faust F. Rossi, Rudolf B. Schlesinger, Robert S. Summers, Gray Thoron, Ernest N. Warren

### Field Representative

Robert A. Anthony, 305 Myron Taylor Hall

### MAJOR AND MINOR\* SUBJECT

#### Law

The Master of Laws (LL.M.) and the Doctor of the Science of Law (J.S.D.) degrees are conferred. The former is intended for the student who desires to increase his knowledge of law by work in a specialized field. The latter is intended for the student who desires to become a legal scholar and to pursue original investigations into the function, administration, history, and progress of law.

The minimum residence required is two full semesters, but completion of the LL.M. program will usually require one summer in addition, and the J.S.D. program normally requires three to four semesters. Longer periods may be required by the nature of the candidate's program, which is arranged on an individual basis. A candidate for either degree will ordinarily be expected to concentrate on one legal field and to do a substantial amount of work in at least one other field.

Students who meet the requirements for admission to the Graduate School's Division of Law but who do not wish to become candidates for a degree may, at the discretion of the faculty, be admitted as nondegree candidates.

**ADMISSION REQUIREMENTS.** Candidates for the LL.M. or J.S.D. degree are accepted only when, in the judgement of the Law School faculty, the candidate shows exceptional qualifications, the Cornell program offers sufficient advanced courses in the special field of the applicant's interest, and the Law School faculty is in a position to supervise properly the proposed course of study. An applicant for admission for an LL.M. or J.S.D. degree is expected (1) to hold a baccalaureate degree from a college or university of recognized standing; (2) to hold a degree of Bachelor of Laws or a degree of equivalent

rank from an approved law school; (3) to have had adequate preparation to enter upon study in the field chosen; and (4) to show promise of an ability, evidenced by his scholastic record or otherwise, to pursue satisfactorily advanced study and research and attain a high level of professional achievement. An applicant for admission for a J.S.D. degree must, in addition, have had professional practice or experience in teaching or advanced research since obtaining his degree of Bachelor of Laws.

An application for admission should state in as much detail as possible the objective for which the applicant wishes to do advanced graduate work and the particular fields of study that he wishes to pursue. It should also contain a brief personal and academic history of the applicant. Other general requirements for Graduate School admission should be met.

Applicants from countries other than the United States can be considered for candidacy for the LL.M. or J.S.D. degree only if they have completed their basic studies in law in a university abroad with grades of high distinction and have completed all the studies necessary for admission or licensing for the practice of law in their own country, and if their presence at Cornell Law School would, because of special circumstances, be of particular interest to the faculty and students. These requirements apply whether or not the applicant is seeking financial aid. Any applicant for whom English is not a native language must give satisfactory evidence of ability to carry on his studies in English successfully.

No special examinations or tests are required for admission. For further details, see the *Announcement of the Law School*.

**LANGUAGE REQUIREMENTS.** The Special Committee of a candidate may require demonstration of a reading knowledge of one or more foreign languages if the Committee deems it desirable, but there is no fixed language requirement.

**EXAMINATION AND THESIS REQUIREMENTS.** Examinations are administered in the courses taken for credit by the candidate. The degree candidate must also pass an oral examination and such other examinations as may be required by his supervisory Special Committee.

A thesis (or its reasonable equivalent, e.g., in the form of a report on field research) is required of LL.M. candidates. J.S.D. candidates are required to submit a scholarly dissertation evidencing original research and

\*For those majoring in other fields (especially in the social sciences) with the approval of the Field of Law.

independent thinking, worthy of publication as a contribution to legal literature.

#### RESEARCH AND STUDY OPPORTUNITIES.

While a candidate may select any topic of law which interests him, special opportunities exist at Cornell in city and regional planning, comparative law, commercial law, copyright and trademark law, corporation law, government contracts, industrial and labor relations, international legal studies, legislation, and property law. There are faculty specialists, both in the Law School and in other branches of the University, in all these subjects, as well as in the other subjects commonly offered at American schools.

While no minor is required for those major-

ing in the Field of Law, the following subjects serve to illustrate appropriate minors: city and social planning, economics, American government, political theory, comparative government, international law and relations, industrial and labor relations, international agricultural development.

### Courses

The courses offered in the Law School are all open to J.D., LL.M., and J.S.D. candidates. Reference should be made to the *Announcement of the Law School* for detailed course descriptions. See also the description on p. 34 of the International Legal Studies Program.

## Linguistics

#### Faculty

Frederick B. Agard, Leroy J. Benoit, Nicholas C. Bodman, John S. Bowers, J. M. Cowan, John M. Echols, Charles E. Elliott, Frederick A. Foos, James W. Gair, Joseph E. Grimes, Robert A. Hall, Jr., Baxter Hathaway, Charles F. Hockett, Robert B. Jones, Jr., Robert E. Kaske, Gerald B. Kelly, Herbert L. Kufner, Richard L. Leed, Pardee Lowe, Jr., Anthony G. Lozano, John McCoy, Gordon M. Messing, James S. Noblitt, Robert M. Quinn, Donald F. Solá, Donald S. Stark, Frans van Coetsem, John U. Wolff

#### Field Representative

Frederick B. Agard, 227 Morrill Hall

#### MAJOR AND MINOR SUBJECT

General Linguistics

**ADMISSION REQUIREMENTS.** There are no special requirements for admission to study in the Field of Linguistics other than the general requirements for admission to the Graduate School.

**LANGUAGE REQUIREMENTS.** The candidate for the M.A. degree is required to demonstrate a reading knowledge of one language other than his native language. The Ph.D. candidate is required to demonstrate a reading knowledge of two languages other than his native language, of which at least one must be chosen from English, German or Russian.

**EXAMINATIONS.** For the M.A., there is only the final examination. For the Ph.D., there are three examinations: (1) the qualifying examination, taken at the end of the second semester of residence; students entering with an M.A. in Linguistics from another institution

must take this examination as soon as possible and not later than the end of their first semester; (2) the admission to candidacy examination, to be taken no earlier than one year and no later than two years after the qualifying examination; and (3) the final examination on the candidate's thesis.

It is possible for a well-qualified student with a good background in linguistics to complete an M.A. degree in one year and a Ph.D. degree in three years after the B.A. Students entering Cornell without such a background in linguistics should normally expect to take two years for the M.A. and four years for the Ph.D. It is not required that an M.A. degree be earned on the way to a Ph.D. degree.

Since teaching experience is a required preparation for the Ph.D. degree, candidates who have not already satisfied this requirement will do teaching under senior staff supervision.

**SPECIALIZATION WITHIN A LINGUISTICS PROGRAM.** The broad scope of offerings in both pure and applied linguistics at Cornell can be seen from the following list of major and minor linguistic subjects available in various graduate Fields:

East Asian Linguistics\* (Asian Studies), English Linguistics\* (English Language and Literature), French Linguistics (see paragraph below), General Linguistics (Linguistics), Germanic Linguistics (Germanic Studies), Indo-European Linguistics\* (Classics), Italian Linguistics (see paragraph below), Romance Linguistics (see paragraph below), Slavic Linguistics (Slavic Studies), South Asian Linguistics\* (Asian Studies), Southeast Asian Linguistics\* (Asian Studies), Spanish Linguistics (see paragraph below).

\*Minor Subject only.

Subjects in Romance Linguistics are listed separately in a section following the Field of Romance Studies in the *Announcement of the Graduate School: Humanities*.

The specializations of the various faculty members follow.

Frederick B. Agard: Romance linguistics, Portuguese, Rumanian.

Leroy J. Benoit: French linguistics.

Nicholas C. Bodman: Chinese and Sino-Tibetan linguistics.

John S. Bowers: transformational grammar.

J. M. Cowan: language pedagogy, acoustical phonetics.

John M. Echols: Malayo-Polynesian linguistics.

Charles E. Elliott: English linguistics.

Frederick A. Foos: Slavic linguistics.

James W. Gair: general linguistics, South-Asian linguistics, Sinhalese.

Joseph E. Grimes: general linguistics, indigenous languages of the Americas.

Robert A. Hall, Jr.: comparative Romance linguistics, history of Italian language and literature, pidgin and creole languages.

Baxter Hathaway: English linguistics.

Charles F. Hockett: anthropological linguistics.

Robert B. Jones, Jr.: descriptive and comparative linguistics of Southeast Asia.

Robert E. Kaske: English linguistics.

Gerald B. Kelley: Dravidian, computational, general linguistics.

Herbert L. Kufner: Germanic linguistics.

Richard L. Leed: Slavic linguistics, Russian.

Pardee Lowe, Jr.: Germanic linguistics.

Anthony G. Lozano: Spanish linguistics.

John McCoy: Japanese and Chinese linguistics, Chinese dialects.

Gordon M. Messing: Classical linguistics.

James S. Noblitt: Romance linguistics, programmed learning.

Robert M. Quinn: Southeast Asian linguistics.

Donald F. Solá: Spanish linguistics, Quechua.

Donald S. Stark: Spanish linguistics.

Frans van Coetsem: Germanic linguistics.

John U. Wolff: Indonesian and Philippine linguistics.

For further information on these, see the Classics, English Language and Literature, Germanic Studies, Romance Studies and Slavic Studies in the *Announcement of the Graduate School: Humanities*; also under Asian Studies in this *Announcement*.

## Courses

### Linguistics

**207 Practical Phonetics.** Fall term. Credit three hours. Mr. Grimes.

**301-302 The Structure of English.** Throughout the year. Credit four hours a term. Mr. Elliott.

**304 Phonology.** Spring term. Credit four hours. Mr. Agard.

**305 Syntax.** Fall term. Credit four hours. Mr. Gair.

**306 Morphology.** Spring term. Credit four hours. Mr. Agard.

**331 India as a Linguistic Area.** Fall term in alternate years. Credit four hours. Prerequisite: Linguistics 202. Mr. Gair or Mr. Kelley.

**401 Language Structures.** Fall term. Credit four hours. Mr. Hockett.

**403-404 Analytic Techniques.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202. Mr. Hockett.

A practical training course in the techniques of observation and analysis of descriptive linguistics.

**406 Dialectology.** Spring term. Credit four hours. Mr. Hall.

A general survey of the study of dialectal variations in language and the various methodological problems found in European and non-European languages.

**413-414 Linguistic Data Processing.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201 and consent of the instructor. Mr. Kelley.

A brief survey of general computer design and techniques and elementary training in SNOBOL stressing character manipulation. Attention will be given to the computability of linguistic problems, and students will be expected to devise solutions to problems from their own data. This course is intended to provide emphasis on aspects of programming and computability of problems of interest to linguists which are not stressed in general, numerically oriented courses.

**432 Indo-Aryan Structures.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 201. Mr. Gair or Mr. Kelley.

A synchronic examination of the phonological and grammatical structures of major Indo-Aryan languages. Typological studies in the languages of the family.

**436 Dravidian Structures.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 201. Mr. Kelley.

A synchronic examination of the phonological and grammatical structures of the major languages of the family. Typological studies in Dravidian languages.

**441-442 History of the Romance Languages.** Throughout the year in alternate years. Credit four hours a term. Mr. Hall.

The history of the Romance languages as a whole from Latin times to the present and

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their interrelationships. A survey of the accomplishments and approaches of recent work in Romance linguistics.

**443-444 Comparative Romance Linguistics.** Throughout the year in alternate years. Credit four hours a term. Mr. Hall.

The family of Romance languages; the application of the comparative method and the reconstruction of Proto-Romance speech. The relation between Proto-Romance and Old and Classical Latin.

**445 Problems and Methods in Romance Linguistics.** Fall term every third year. Credit four hours. Mr. Hall.

Examination of selected samples of various methodologies in Romance linguistics, with reports and discussion.

**446 Romance Dialectology.** Spring term every third year. Credit four hours. Mr. Hall.

Examination of various types of dialectological description; study of overall relationship among Romance dialects.

**449 Areal Topics in Romance Linguistics.** Fall term every third year. Credit four hours. Course may be repeated. Mr. Hall.

Reading of texts and study of relationships of each area (Dalmatian, Rumanian, Provençal, Sardinian, Catalan).

**502 Comparative Methodology.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 201-202. Mr. Kufner.

A study of the methods and techniques in comparative linguistics; application of these methods to various language families depending on the student's background.

**504 History of Linguistics.** Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. Hall.

**505 Literature, Language, and Culture.** Fall term. Credit four hours. Mr. Hall.

A survey of the relation of literature to its linguistic medium and cultural matrix.

**506 Pidgin and Creole Languages.** Spring term. Credit four hours. Mr. Hall.

A survey of the field of pidginized and creolized languages, with discussion of methodological problems, historical relationships, and reading of selected texts.

**507-508 Field Methods and Linguistic Typology.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 404. Mr. Hockett.

**511-512 Acoustical Phonetics.** Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Mr. Cowan.

A rapid survey of the techniques of experimental articulatory phonetics; the speech mechanism as a sound generator; sound spectrography; psycho-physiology of hearing; application of acoustical analysis to the study of speech sounds. Requires no mathematical training beyond arithmetical computation.

**513-514 Transformational Analysis.** Throughout the year. Credit four hours a term. Mr. Bowers.

An introduction to the theory, literature, and practice.

**515-516 Sociolinguistics.** Throughout the year in alternate years. Credit four hours a term. Prerequisite: consent of the instructor.

**521-522 Comparative Indo-European Linguistics.** Throughout the year in alternate years. Credit four hours a term. Prerequisite: consent of the instructor.

A comparative study of the phonology and morphology of the Indo-European languages and of their interrelationships.

**530 Elementary Pali.** Either term as needed. Credit three hours.

**531-532 Elementary Sanskrit.** Throughout the year in alternate years. Credit three hours a term.

**534 Comparative Indo-Aryan.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 202, and 102 or equivalent of an Indo-Aryan language.

Comparative reconstruction of proto-Indo-Aryan phonology and grammar.

**536 Comparative Dravidian.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 202, and 102 or equivalent of a Dravidian language. Mr. Kelley.

Comparative reconstruction of a Proto-Dravidian phonology and grammar.

**537-538 Old Javanese.** Throughout the year. Credit four hours a term. Mr. Echols.

**561-562 Comparative Slavic Linguistics.** Throughout the year in alternate years. Credit four hours a term. Prerequisite: consent of the instructor. Mr. Foos.

**571-572 Seminar in Southeast Asian Linguistics.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202 and consent of the instructor. Mr. Jones.

Descriptive and comparative studies of mainland Southeast Asian languages are dealt with in alternate terms. Topics may be selected in accordance with the interests of the students.

**573-574 Malayo-Polynesian Linguistics.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202 and consent of the instructor. Mr. Wolff.

**581-582 Sino-Tibetan Linguistics.** Throughout the year. Credit four hours a term. Prerequisite: Linguistics 201-202 or Chinese 402-403 and consent of the instructor. Mr. Bodman.

Descriptive and comparative studies of Chinese dialects and Tibeto-Burman languages.

**583 Contrastive Vietnamese and Chinese Grammar.** Either term. Credit three hours. Prerequisite: consent of the instructor. Mr. Quinn.

**600 Seminar.** Each term. Credit to be arranged. Admission by permission of the instructor.

Subject to the needs of students and to the limitations of staff time, advanced seminars are set up in a wide variety of topics, which, in the past, have included the following: contemporary grammatical theory, applied linguistics in language teaching, applied linguistics in literary training and orthography formation, English grammar, German dialects, Romance-based creoles, discourse theory.

**615-616 Directed Research.**

## Linguistics Courses with Other Designations

**Chinese 401-402 History of the Chinese Language.** Throughout the year. Credit four hours a term. Prerequisite: consent of the instructor. Mr. Bodman.

**Chinese 403 Linguistic Structure of Chinese.** Either term. Credit four hours. Prerequisite: consent of the instructor. Mr. Bodman.

**Classics 421-422 Historical Grammar of Greek and Latin.** Throughout the year. Credit four hours a term. Mr. Messing.

Fall term: phonology. Spring term: morphology and syntax. The linguistic analysis of Greek and Latin sounds and forms and their historical development. The course will thus offer the student an insight into the methods of comparative linguistics as applied to Greek and Latin.

**English 383 The English Language.** Fall term. Credit four hours.

A historical and topical analysis of the development of English, from its beginning to the present.

**English 501 Readings in Old English.** Fall term. Credit five hours.

Elements of Old English grammar and readings in the shorter literary texts.

**English 503 Middle English.** Fall term. Credit five hours. Mr. Kaske.

Readings and critical analysis of major works, excluding Chaucer and the drama.

**English 510 Grammatical Analysis.** Spring term. Credit five hours. Mr. Hathaway.

Study of the structures of English revealed in the transformation of the basic components of predications.

**French 401-402 History of the French Language.** Throughout the year. Credit four hours a term. Prerequisite: qualification in French and Linguistics 201. Mr. Benoit.

Fall term: detailed study of the structural development of French from the origins to the Old French period. Spring term: selected readings in Old French texts, examination of structural changes from the Old French period to the present.

**French 404 Linguistic Structure of French.** Fall term. Credit four hours. Prerequisite: qualification in French and Linguistics 201. Mr. Noblitt.

A descriptive analysis of present-day French, with emphasis on its phonetics, phonemics, morphology, and syntax. Required of students seeking certification by New York State.

**French 554 Gallo-Romance Dialectology.** Spring term in alternate years. Credit four hours. Prerequisite: Linguistics 441-442 or 443-444 or consent of the instructor. Mr. Benoit.

**French 555 Historical Phonology of French.** Fall term. Credit four hours. Prerequisite: Linguistics 201 or consent of the instructor. Mr. Benoit.

The detailed study of sound changes from Latin to French, with attention to intermediate stages.

**French 558 Linguistic Structures of Old and Middle French.** Spring term. Credit four hours. Prerequisite: French 403 or consent of the instructor. Mr. Noblitt.

An attempt at synchronic linguistic analysis of the French of approximately A.D. 1100 and 1600.

**French 600 Seminar in French Linguistics.** Offered in accordance with student needs. Credit four hours a term. Mr. Hall.

**German 401-402 History of the German Language.** Throughout the year. Given in alternate years. Credit four hours a term. Prerequisite: German 204 and Linguistics 201 or consent of the instructor. Fall term: Mr. Kufner. Spring term: Mr. Lowe.

**German 403 Linguistic Structure of German.** Fall term. Credit four hours. Prerequisite: Ger-

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man 204 and Linguistics 201 or consent of the instructor. Mr. Kufner.

**German 501 Introduction to Germanic Linguistics.** Fall term in alternate years. Credit four hours. Mr. van Coetsem.

**German 502 Gothic.** Spring term in alternate years. Credit four hours. Mr. van Coetsem.

**German 503-504 Old Saxon, Old High German, Old Low Franconian, Old Frisian.** Throughout the year. Given in alternate years. Credit four hours a term. Prerequisite: Linguistics 201. Mr. van Coetsem.

**German 509-510 Old Norse.** Throughout the year. Credit four hours a term.

**German 651-652 Seminars in Germanic Linguistics.** Throughout the year, subject to the needs of students and to the limitations of staff time. Credit four hours a term.

Seminars will be set up in a variety of topics which may include the following: comparative Germanic linguistics, typology of the Germanic languages, primitive Nordic, runology, computational research on modern German, transformational analysis of German, German dialectology, Dutch dialectology, modern Frisian, and other topics.

**Hindi 401 History of Hindi.** Fall term in alternate years. Credit four hours. Prerequisite: Hindi 101-102 or equivalent and Linguistics 202.

**Hindi 600 Seminar in Hindi Linguistics.** Either term. Credit three hours. Prerequisite: consent of the instructor. Mr. Gair or Mr. Kelley.

**Indonesian 403 Linguistic Structure of Indonesian.** Either term. Credit four hours. Prerequisite: Indonesian 101-102 or equivalent and Linguistics 201. Mr. Wolff.

**Italian 431 Structure of Italian.** Fall term in alternate years. Credit four hours. Prerequisite: qualification in Italian. Mr. Hall.

**Italian 432 Italian Dialectology.** Spring term in alternate years. Credit four hours. Mr. Hall.

**Italian 433 Old Italian Texts.** Fall term in alternate years. Credit four hours. Prerequisite: consent of the instructor. Mr. Hall.

**Italian 434 History of the Italian Language.** Spring term in alternate years. Credit four hours. Prerequisite: qualification in Italian and Linguistics 201. Mr. Hall.

**Italian 600 Seminar in Italian Linguistics.** According to demand. Credit four hours. Admission by permission of the instructor. Mr. Hall.

**Japanese 404 Linguistic Structure of Japanese.** Spring term in alternate years. Credit four hours. Prerequisite: Japanese 102 or consent of the instructor, and Linguistics 201. Mr. McCoy.

A descriptive analysis of present-day Japanese, with emphasis on its phonetics, phonemics, morphology, and syntax. Relevant historical aspects of Japanese will also be covered.

**Quechua 600 Seminar in Quechua Linguistics.** Either term. Credit to be arranged. Admission by permission of the instructor. Mr. Solá.

**Russian 401-402 History of the Russian Language.** Throughout the year in alternate years. Credit four hours a term. Prerequisite: qualification in Russian and Linguistics 201. Mr. Leed.

The study of the divisions of the Russian language chronologically and geographically; the relationships of the Russian language, the Slavic group, the Indo-European group; the changes in the sounds and forms of the Russian language; vocabulary borrowings from Eastern and Western languages.

**Russian 403 Linguistic Structure of Russian.** Fall term in alternate years. Credit four hours. Prerequisite: qualification in Russian and Linguistics 201-202. Mr. Leed.

**Russian 501 Old Church Slavic.** Fall term in alternate years. Credit four hours.

**Russian 502 Old Russian.** Spring term in alternate years. Credit four hours.

**Russian 600 Seminar in Slavic Linguistics.** Offered in accordance with student needs. Credit four hours. Mr. Foos, Mr. Leed, or Mr. Olmsted.

**Russian 611 Seminar in Russian Dialect Geography.** Fall term. Credit four hours. Prerequisite: consent of the instructor. Mr. Leed.

**Spanish 401 History of the Spanish Language.** Fall term in alternate years. Credit four hours. Prerequisite: qualification in Spanish and Linguistics 201. Mr. Lozano.

The development of Spanish phonology, grammar, and lexicon from its Latin origin to modern times.

**Spanish 402 Old Spanish.** Spring term in alternate years. Credit four hours.

Linguistic analysis of Old Spanish texts with special emphasis on morphology and syntax.



**Spanish 403 The Grammatical Structure of Spanish.** Fall term. Credit four hours. Prerequisite: qualification in Spanish and Linguistics 201. Mr. Lozano.

Descriptive analysis of the morphological and syntactical structure of present-day standard Spanish.

**Spanish 501 Linguistic Structures of Ibero-Romance.** Fall term in alternate years. Credit four hours.

Analysis in depth of one or more dialects, e.g., Catalan, Portuguese, Galician, or Judeo-Spanish.

**Spanish 600 Seminar in Ibero-Romance Linguistics.** Offered in accordance with student needs. Credit four hours. Mr. Lozano or Mr. Solá.

**Tagalog 403 Linguistic Structure of Tagalog.** Either term. Credit four hours. Prerequisite: Linguistics 201. Mr. Wolff.

## Psychology

### Faculty

Henry A. Alker, Alfred L. Baldwin, Clara P. Baldwin, Harley A. Bernbach, Jack Bradbury, Urie Bronfenbrenner, Bert R. Brown, John Condry, Richard B. Darlington, William C. Dilger, John Doris, Harold Feldman, Eleanor J. Gibson, James J. Gibson, Herbert Ginsburg, Marvin D. Glock, Leopold W. Gruenfeld, Bruce P. Halpern, John S. Harding, Dalva E. Hedlund, Robert E. Johnston, Stephen C. Jones, William W. Lambert, Lee C. Lee, Eric H. Lenneberg, Harry Levin, David A. Levitsky, Thomas M. Lodahl, James B. Maas, Robert B. MacLeod, George W. McConkie, Anne McIntyre, Leo Meltzer, Jason Millman, Murray P. Naditch, Ulric Neisser, Joy D. Osofsky, Marion Potts, Dennis T. Regan, Henry N. Ricciuti, Richard E. Ripple, John R. Roberts, Bernard C. Rosen, Ned Rosen, Thomas A. Ryan, Fred Stollnitz, George J. Suci, Lawrence K. Williams, Gordon W. Wilcox

### Field Representative

Bruce P. Halpern, Morrill Hall

### MAJOR AND MINOR SUBJECTS

Developmental Psychology  
Differential Psychology and Psychological Tests  
Experimental Psychology  
Experimental Psychopathology  
History and Systems of Psychology  
Mathematical Psychology  
Personality and Social Psychology  
Physiological Psychology  
Psycholinguistics

## Related Courses

**Anthropology 520 Ethnolinguistics.** Spring term. Credit four hours.

A survey of problems and findings in the interrelations of language and culture.

**Classics 423 Vulgar Latin.**

**Classics 424 Italic Dialects.**

**Human Development and Family Studies 623 Seminar in the Development of Language.** Spring term. Credit three hours. Mr. Suci.

**Philosophy 215 Semantics.**

**Philosophy 590 Philosophy of Language.**

**Philosophy 595 Semantics.**

**Psychology 215 Linguistics and Psychology.**

**Psychology 313 Cognitive Processes.**

**Psychology 416 Psychology of Language.**

**Psychology 517-518 Language and Thinking.**

The following are available only as minor subjects:

Comparative Psychology  
General Psychology  
Industrial Psychology

Applicants for admission in Psychology are required to submit scores for the Graduate Record Examination (Advanced Test in Psychology and Aptitude Test) and for the Miller Analogies Test. An undergraduate major in psychology is desirable, but not required. Records of applicants are judged in terms of performance in mathematics and natural sciences as well as in psychology. Candidates for a terminal Master's degree are not accepted.

Special requirements of the Field, such as a statistics or language requirement, are determined by a conference consisting of the graduate students and the faculty in the Field. The student selects his program of study individually, in consultation with his Special Committee. All students will have some supervised teaching experience during their term of study.

The examination for admission to candidacy is normally taken during the third year of graduate work and is both written and oral. The final examination for the Ph.D. is an oral defense of the thesis. All oral examinations are administered by the Special Committee with the addition of one member appointed by the Field Representative.

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**RESEARCH FACILITIES.** The top two floors of Morrill Hall contain offices, classrooms, and teaching laboratories of the Field. Graduate and faculty research is conducted at the Cornell Research Park, at White Hall, and at Liddell Laboratory.

Most experimental research using human subjects is done at the Research Park. A large newly equipped shop is also located there.

White Hall provides special rooms for research in problems of perception and cognition and well-equipped, one-way observation rooms for experiments in social psychology. Cooperation at the local schools permits field research in the area of Developmental Psychology.

The Howard S. Liddell Laboratory of Comparative and Physiological Psychology includes an electrophysiological laboratory, shops, darkroom, surgery, histology laboratory, and facilities for research with monkeys, dogs, and other laboratory animals.

**FINANCIAL AID.** In addition to general fellowships open to all Fields, teaching fellowships and research assistantships, the following fellowships are specifically for students in this Field:

*National Institutes of Health Traineeships in Experimental and Social Psychology*—Stipend \$1,800 to \$2,400 plus tuition and General Fee. *John Wallace Dallenbach Fellowship in Experimental Psychology*—Stipend \$2,700 plus tuition and General Fee.

### Areas of Specialization

#### Developmental Psychology

A. L. Baldwin, C. P. Baldwin, U. Bronfenbrenner, H. Feldman, E. J. Gibson, H. Ginsburg, M. D. Glock, J. S. Harding, L. C. Lee, E. Lenneberg, H. Levin, J. D. Osofsky, M. Potts, H. Ricciuti, R. E. Ripple, and G. J. Suci.

Specialization in this area normally involves participation in a program jointly sponsored by the Fields of Psychology and Human Development and Family Studies. The program, which emphasizes cognitive development, may be entered via either Field. Training in research skills in both Fields is recommended. Current research interests of the faculty include development of language, perception and thinking, intellectual development in natural settings, conceptual and affective behavior in infancy, behavioral maturation, and cognitive socialization.

#### Differential Psychology and Psychological Tests

H. A. Alker, R. B. Darlington, D. E. Hedlund, and J. Millman.

Training within the Field of Psychology

emphasizes psychometric theory—test theory, scaling, and factor analysis—and its applications both in psychological research and in practical settings. Excellent relations are maintained with the Fields of Education and Human Development and Family Studies, where training in the use of specific tests is offered.

#### Experimental Psychology

H. A. Bernbach, E. J. Gibson, J. J. Gibson, B. P. Halpern, E. Lenneberg, H. Levin, J. B. Maas, R. B. MacLeod, G. W. McConkie, U. Neisser, R. E. Ripple, T. A. Ryan, F. Stollnitz, and G. W. Wilcox.

Experimental psychology is the study of basic processes in both humans and animals: learning, memory, motivation, perception, sensitivity, and thinking. An individual student will usually develop a special interest in one of these basic processes, although he should be familiar with the whole area. Both experimental method and the facts and theories derived from experimental observation are stressed. Some of the problems now under investigation are the nature of discrimination, attention, the perceiving of the environment, perceptual learning and development, the transmission of (visual and acoustic) information, memory, the development of concepts, the formation of learning sets, classical and instrumental conditioning, and the acquisition of helplessness and fear.

#### Experimental Psychopathology

H. A. Alker.

This area is concerned primarily with research on animal subjects relating to the effects of stress upon emotional behavior, disruption of performance, and "experimental neurosis," and the relation of these phenomena to human psychopathology.

#### History and Systems of Psychology

H. A. Alker and R. B. MacLeod.

This area is usually studied as a minor in conjunction with major specialization in one of the substantive subjects of psychology. Students who major in history and systems are expected to take a substantial minor in history or philosophy of science. A reading knowledge of the relevant foreign languages is considered essential for both majors and minors.

#### Mathematical Psychology

H. A. Bernbach and G. W. Wilcox.

The objective of this subject as a major is to train psychologists to develop theories and relations in their chosen area of interest, and to express these in mathematical form. Requirements for majors are a very strong

minor in the empirical content area of their choice, a dissertation that combines original empirical work in the content area with the application of mathematical models, computer experience, and training in mathematics at roughly the M.A. level.

The minor program is intended to give students the mathematical tools necessary to support their major area of interest. Courses in mathematics will generally be recommended in addition to departmental courses in mathematical behavior theory and methodology.

### Personality and Social Psychology

H. A. Alker, U. Bronfenbrenner, B. R. Brown, J. S. Harding, D. E. Hedlund, S. C. Jones, W. W. Lambert, A. McIntyre, L. Meltzer, M. P. Naditch, D. Regan, B. Rosen, N. Rosen, and L. K. Williams.

Students may place varying emphases on personality and on social psychology, even concentrating exclusively upon one or the other aspect if they wish. Staff research interests in personality include: aggressive behavior, anxiety and defenses, experimental psychodynamics, personality assessment, and emotional communication. Social psychology is taught jointly by members of the Graduate Fields of Psychology and Sociology. Majors admitted via Psychology often choose one minor within Sociology. Other relevant minors include anthropology, child development, organizational behavior, and statistics. Some current research interests of the faculty include: character development in the Soviet Union, nonverbal communication, new approaches to observation methodology, interpersonal evaluations, guilt and persuasion, attitude change, and cross-cultural studies of socialization.

### Physiological Psychology

J. Bradbury, B. P. Halpern, D. A. Levitsky, and E. Lenneberg.

The student is expected to develop his skill in a variety of biological techniques as well as to become firmly grounded in the experimental analysis of behavior. Students are advised to have one of their minor subjects in physiology, biochemistry, neurobiology and behavior, evolutionary biology, veterinary medicine, or physics. Research interests include brain-behavior relationships and sensory psychophysiology.

### Psycholinguistics

E. J. Gibson, E. Lenneberg, H. Levin, R. B. MacLeod, and U. Neisser.

This area combines aspects of psychology and linguistics in the study of the psychological representation of language, the acquisition of language, and its use in cognition

and communication. Some of the interests currently pursued in the Department are: the effects of linguistic structure on linguistic and nonlinguistic behavior, the generality of language-processing mechanisms in other mental operations, the nature of the switching mechanisms in dialect and language choice, the acquisition of reading skill, and the genesis of language investigated by means of developmental and comparative methods.

Students majoring in psycholinguistics frequently select general linguistics as a minor.

### Comparative Psychology

J. Bradbury, W. C. Dilger, and F. Stollnitz.

Comparative psychology is the study of similarities and differences in the behavior of various species. Staff research interests include evolution of behavior, primate behavior, classical and instrumental conditioning, discrimination learning and perception, and pathological behavior.

### General Psychology

Staff.

General psychology is designed as a minor for students majoring in some other Field, who wish to study some special combination of topics which overlaps with several of the areas listed above.

### Industrial Psychology

D. E. Hedlund, J. B. Maas, T. A. Ryan, and L. K. Williams.

This area may be elected as a minor subject by students in Psychology or other Fields such as Industrial and Labor Relations, Business and Public Administration, and Engineering. The emphasis is on research methods and results concerning the efficiency of performance, development of skill in complex tasks, effects of environment and methods of work, motivation, job satisfaction, and the evaluation of performance.

### Courses

**301 An Information Processing Approach to Psychology.** Spring term. Credit three hours. Prerequisite: one year of mathematics or a physical science or consent of the instructor. Mr. Bernbach.

Introductory treatment of human behavior as the behavior of an information processing system. Topics covered include input and coding of information (detection and perception), storage and retrieval of information (learning and memory), and output processes (skill learning and performance). Also covered is a treatment of behavior as a choice among alternatives and the bases of such choices (motivation).

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**305 Perception.** Fall term. Credit four hours. Prerequisite: two courses in psychology, including 101. Mr. Neisser.

The basic phenomena of visual and auditory perception studied in terms of the stimulus variables on which they depend and of the mechanisms involved. Topics include the detection of weak stimuli, perceptual constancy and illusion, visual and auditory space perception, motion, and perceptual adaptation.

**306 Learning.** Spring term. Credit four hours. Prerequisite: 101 or 201, or 301, or consent of the instructor. Mr. Stollnitz.

The fundamental conditions and principles of learning, both animal and human. The basic phenomena of operant conditioning, discrimination learning, motor learning, and verbal learning will be studied experimentally. Traditional and contemporary theories of learning will be reviewed, and selected experimental literature will be discussed with special emphasis upon recent developments in the field.

**307 Motivation.** Fall term. Credit four hours. Prerequisite: 101 and 201, or 306, or consent of the instructor. Mr. Alker.

Factors controlling the initiation, direction, and intensity of activity. Methods of research with emphasis upon experimental and statistical controls. Evaluation of evidence on major theories of motivation such as field theory, psychoanalysis, and behavioristic drive theory.

**309 Development of Perception and Attention.** Spring term. Credit four hours. Prerequisite: 201 or 210 or 305 or consent of the instructor. Mrs. Gibson.

Selection and processing of stimulus information—objects, space, events, and coded stimuli—in evolution and in human development; theories of perceptual learning.

**310 Human Learning and Memory.** Fall term. Credit three hours. Mr. Bernbach.

Basic process of human learning and memory, particularly for simple verbal material. Emphasis on the storage and retrieval of information as the fundamental unit of learning.

**313 Cognitive Processes.** Fall term. Credit four hours. Prerequisite: six hours of psychology or consent of the instructor. Mr. Baldwin.

An examination of the mental processes involved in language learning and use, concept formation, and problem solving; and the relation between language and thinking. Students are required to carry out a supervised experimental or observational study.

**323 Physiological Psychology.** Fall term. Credit three hours. Prerequisite: 201 or a

300-level laboratory course in psychology, Biological Sciences 101-102 or equivalent, and Chem 103-104 or equivalent. Mr. Halpern.

A selective examination of neural, endocrine, and biochemical functions related to emotion, memory, learning, perception, hunger, and thirst.

**323A Physiological Psychology Laboratory.** Fall term. Credit three hours. Prerequisite: concurrent registration in 323, 201, and 327 or Biological Sciences 320. Mr. Halpern.

Experiments will be done on physiological aspects of conditioning in vertebrates and invertebrates, memory, interactions between hormones and behavior, and effects of brain lesions on perceptual and alimentary behavior. A final original experiment will be planned and carried out.

**325 Abnormal Psychology.** Fall term. Credit four hours. Prerequisite: nine hours of psychology, or consent of the instructor.

An introduction to the study of disordered behavior. Description of major syndromes, investigations and theories of etiology, and approaches to treatment will be covered in an attempt to introduce the student to major concepts and problems in this area.

**326 Comparative Psychology.** Fall term. Credit four hours. Prerequisite: 101 or 201 or Biological Sciences 320, or consent of the instructors. Mr. Stollnitz and Mrs. Gibson.

Similarities and differences in the behavior of animals ranging from the unicellular forms to man. Psychological and ethological approaches to animal behavior will be discussed. Topics will include discrimination, learning, communication, and social behavior, stressing both species-specific and general trends in phylogeny.

**327 Behavioral Maturation (Biological Sciences 327).** Fall term. Credit four hours. Prerequisite: familiarity with psychological theories of learning and development and one year of college biology. Mr. Lenneberg.

Emergence of behavior will be studied in the light of developmental biology, including behavior genetics, neuroembryology and morphogenesis, physical maturation of the brain, transformation and allometry, as well as retarding influences from the environment.

**350 Statistics and Research Design.** Spring term. Credit four hours. Prerequisite: a course in the behavioral sciences. Mr. Darlington.

Devoted about equally to elementary applied statistics (both estimation and hypothesis testing) through one-way analysis of variance, and to general problems in the design and analysis of research projects.

**381 Social Psychology (Sociology 381).** Either term. Credit four hours. Prerequisite:

three hours of psychology and three hours of sociology. Mr. Lambert.

Analysis of the history, concepts, methods, and theories used to describe and conceptualize the ways in which people react to one another in social settings and in the laboratory. Students will work individually or as teams on projects, using experimental or other empirical methods. The topics for lectures and reading will include socialization, attitude change, communication, interpersonal influence, impression formation, leadership, and propaganda.

**385 Theories of Personality (Sociology 385).** Fall term. Credit four hours. Prerequisite: 101 or 102 or consent of the instructor. Mr. Lambert.

A critical survey of the concept of personality in literature, the social sciences, and psychology. A number of the modern specialists will be discussed at some length, and recent empirical and experimental work that has grown out of their thought will be analyzed. The empirical relation of personality notions to some philosophical beliefs and literary production will be considered. The emphasis will be mainly upon "normal" personality.

**387 Psychological Aspects of Political Behavior (Sociology 387).** Fall term. Credit four hours. Prerequisite: a course in social psychology, or consent of the instructor. Mr. Alker.

A survey covering student activism, dogmatism, political paranoia, determinants of "left" and "right" ideology, Machiavellianism, autocratic vs. democratic leadership, need for power, group polarization and consensus, political socialization and psychocultural theories of war. An empirical, hypothesis-testing approach will be adopted.

**401 Psychological Testing I.** Spring term. Credit four hours. Prerequisite: six hours in psychology and a course in elementary statistics. Mr. Darlington.

Emphasis is on the logical and mathematical problems in the interpretation, evaluation, and construction of tests. No training will be given in administering tests.

**402 Psychological Testing II.** Spring term. Credit four hours. Prerequisite: 401 or consent of the instructor. Mr. Darlington.

A more advanced treatment of the topics discussed in Psychology 401.

**410 Individual Differences and Personality.** Spring term. Credit four hours. Prerequisite: seven hours of psychology, or consent of the instructor. Mr. Alker.

A selective survey of individual differences in personality, intelligence, creativity, psycho-

pathology, learning, motivation, perception, and attitude change. Attention will be given to the conflict between experimental and correlational or observational research approaches. Related topics in the methodology of assessment will also be considered.

**416 Psychology of Language.** Spring term. Credit four hours. Prerequisite: 313 or consent of the instructor.

An advanced treatment of the nature of the human capacity for language, the reading process, social and psychological aspects of bilingualism, speech perception and production. Instruction will be supplemented by experimental exercises.

**424 Brain and Behavior (Biological Sciences 424).** Spring term. Credit four hours. Prerequisite: familiarity with theories of perception, memory, and physiological psychology, or permission of the instructor. Mr. Lenneberg.

A theoretical introduction to human neurology for psychologists. This survey of clinical symptoms and their etiology is designed to enable students to make use of knowledge of diseases for research purposes.

**426 Experimental Psychopathology.** Spring term. Credit four hours. Prerequisite: consent of the instructor.

The application of experimental methods to behavior disorders. A survey of current investigations of etiology and treatment with special emphasis upon a scientific approach to pathology.

**427 Sensory Function (Biological Sciences 427).** Fall term. Credit three hours. Prerequisite: Biological Sciences 320 or permission of the instructors. Mr. Halpern and Mr. Tapper.

Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptor will be examined in terms of anatomy, biochemistry, biophysics of transduction, and the central nervous system control of peripheral input. Offered in alternate years.

**427A Sensory Function Laboratory (Biological Sciences 427A).** Fall term. Credit two hours. Prerequisite: 427 (or concurrent registration) and permission of the instructors. Enrollment limited to 15 students. Mr. Halpern and Mr. Tapper.

Experiments on the principles of receptor function and afferent neural activity. Offered in alternate years.

**429 Psychophysics and Scaling.** Spring term. Credit four hours. Prerequisite: one year of calculus and a course in experimental psy-

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chology, or consent of the instructor. Mr. Wilcox.

Emphasis on the theory and application of quantification procedures in psychology. Topics include measurement theory, psychophysical scaling procedures, signal detection theory, receptor sensitivity, auditory and visual discrimination, and multidimensional scaling methods.

**432 Social Psychological Aspects of Social Change.** Spring term. Credit four hours. Mr. Naditch.

A critical analysis of social psychological theories of social change. The development of social change theories and of the personality and social systems approach to understanding social change by examination of the utility of these approaches for understanding contemporary social phenomena.

**462 Discrimination Learning.** Fall term. Credit four hours. Prerequisite: 306 or equivalent. Mr. Stollnitz.

Theories of discrimination learning will be examined in the light of data. Discrimination performance of human and nonhuman subjects in acquisition, reversal, transfer, and learning-set experiments will be included. Laboratory work will emphasize individual projects.

**465 Mathematical Behavior Theory.** Fall term. Credit four hours. Prerequisite: one year of calculus. Mr. Wilcox.

The purpose of this course is to give a brief overview of current developments in mathematical psychology and to develop techniques for the application of mathematics to psychological theory. Topics covered include choice behavior, decision theory, psychophysics, memory and learning theory, and information processing models of behavior.

**466 Theories of Vision.** Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. Gibson.

**471-472 Statistical Methods in Psychology.** Throughout the year. Credit four hours each term. Prerequisite: 101 or 201 or Human Development and Family Studies 115 or consent of the instructor; 471 is prerequisite to 472. Mr. Ryan.

An analysis of the methods for treating various kinds of psychological data. Fall term: tests of significance and confidence limits, analysis of variance and correlation. Spring term: complex designs in analysis of variance, analysis of trends and covariance, multiple and curvilinear correlation, introduction to factor analysis.

**476 Instrumentation for Psychological Research.** Fall term. Credit three hours. Enrollment limited to 10 students. Prerequisite:

consent of the instructor. Lecture and laboratory totaling three hours. Messrs. Wilcox, Stollnitz, and staff.

Principles and use of basic circuitry, digital logic, amplifiers and transducers, mechanical and optical devices, photography.

**480 Attitudes and Attitude Change (Sociology 480).** Spring term. Credit four hours. Prerequisite: three hours of psychology and three hours of sociology. Mr. Regan.

A systematic survey of theory and research on attitudes and attitude change.

**481 Advanced Social Psychology (Sociology 481).** Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor. Mr. Regan.

Emphasis is on the empirical study of social psychological phenomena. Students will be introduced to empirical laboratory and field methods used in social psychology. Substantive problems will provide the focus for the demonstration and use of these techniques.

**483 Social Interaction (Sociology 483).** Fall term. Credit four hours. Prerequisite: written consent of the instructor, three hours in psychology, and three hours in sociology.

A field and laboratory course dealing with the major dimensions of interpersonal perception and behavior. The relation of these dimensions to self-conception, social roles, group structure and dynamics is examined. Contemporary research is stressed in the readings. Student projects are an integral part of the course.

**484 Experimental Group Dynamics (Sociology 484).** Spring term. Credit four hours. Prerequisite: a course in statistics and a course in social or experimental psychology. Mr. Meltzer.

A practicum. Supervised research experience in the design, execution, and analysis of experimental research on topics such as group cohesiveness, group pressures, group goals, leadership, group performance, and interpersonal influence and communication.

**486 Groups as Socializing Agents (Sociology 486).** Spring term. Credit four hours. Prerequisite: consent of the instructor. Mr. Bronfenbrenner.

The seminar examines critically existing theory and research on the role of groups in shaping the behavior and values of their members. Particular attention is focused on such processes as modeling, social reinforcement, and pressure to conform in enduring social structures such as the family, the peer group, work teams, and business organizations. Students are expected to work independently in assembling and evaluating material relevant to particular issues.

**489 Seminar: Selected Topics in Social Psychology (Sociology 489).** Either term. Credit four hours. Prerequisite: consent of the instructor, three hours of psychology, and three hours of social psychology or sociology. Fall term: Mr. Jones; spring term: staff.

A small discussion seminar dealing with issues in both social and personality psychology. Fall term: initial discussions will focus on specific areas of the field such as interpersonal evaluation, attitude change, and group processes. Subsequently, the discussions will become more general and raise such questions as: What are the major themes social psychologists should be studying? What are the appropriate units of analysis of social behavior? Spring term topics to be announced.

**490 Persistent Problems in Psychology.** Fall term. Credit four hours.

**496 Supervised Study.** Either term. Credit two hours. Staff.

**497 Supervised Study.** Either term. Credit four hours. Staff.

**Biological Sciences 320 Neurobiology and Behavior.** Spring term. Credit three hours. Prerequisite: Biological Sciences 101-102 or 103-104. Messrs. Camhi, Eisner, Emlen, Gilbert, Halpern, Howland, O'Brien, Rosenblatt, and Mrs. Salpeter.

**Biological Sciences 421 Comparative Vertebrate Ethology.** Fall term. Credit three hours. Prerequisite: Biological Sciences 101-102, or 103-104 and permission of the instructor. Mr. Dilger.

**Biological Sciences 521-522 Brain Mechanisms and Models.** Throughout the year. Credit four hours a term. Prerequisite: one year of calculus and one year of biological sciences or psychology, and consent of the instructor. Mr. Rosenblatt, with assistance of guest lecturers.

## Graduate Courses and Seminars

Primarily for graduate students, but may be taken by qualified undergraduates with the consent of the instructor. Approximately five graduate courses or seminars will be offered each term, the selection to be determined by the needs of the students. Prior to the registration period, the list of courses and seminars for the following term will be posted, specifying instructors, topics to be covered, and hours of meeting. Only grades of S or U will be given in the courses listed below.

**501-502 General Seminar for Beginning Graduate Students.** Either term. Credit three hours.

**511-512 Perception.** Either term. Credit four hours.

**513-514 Learning.** Either term. Credit four hours.

**515-516 Motivation.** Either term. Credit four hours.

**517-518 Language and Thinking.** Either term. Credit four hours.

**521-522 Psychobiology.** Either term. Credit four hours.

**523-524 Physiological Psychology.** Either term. Credit four hours.

**525-526 Mathematical Psychology.** Either term. Credit four hours.

**531-532 History of Psychology.** Either term. Credit four hours.

**541-542 Statistical Methods.** Either term. Credit four hours.

**543-544 Psychological Tests.** Either term. Credit four hours.

**545-546 Methods in Social Psychology.** Either term. Credit four hours.

**547-548 Methods of Child Study.** Either term. Credit four hours.

**561-562 Human Development and Behavior.** Either term. Credit four hours.

**575-576 Personality.** Either term. Credit four hours.

**577-578 Industrial Psychology.** Either term. Credit four hours.

**581-582 Experimental Psychology.** Either term. Credit four hours.

**583-584 Proseminar in Social Psychology (Sociology 583-584).** Either term. Credit four hours. Prerequisite: graduate major in social psychology or minor in social psychology and consent of instructor.

**585 Social Structure and Personality (Sociology 585).** Fall term. Credit four hours. Mr. B. Rosen.

A discussion seminar examining the impact of structural factors on personality development, and on the ways in which individual internal states and behavior patterns affect the functioning of social systems.

**591-592 Educational Psychology.** Either term. Credit four hours.

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**595-596 The Teaching of Psychology.** Either term. Credit four hours.

**601-602 Practicum in the Teaching of Psychology.** Either term. Supervisor and credit hours to be individually arranged.

**611-612 Practicum in Research.** Either term. Apprenticeship in research with individual staff members. The problem, the supervisor, and credit hours are to be individually arranged.

**621-622 Thesis Research.** Either term. Supervisor and credit hours to be individually arranged.

**681-682 Seminar in Social Psychology.** Either term. Credit four hours.

Research-oriented analysis of selected topics in social psychology.

**683 Research Practicum in Social Psychology.** Fall term. Credit four hours.

**685 Seminar: Social Psychology of Modernization (Sociology 685).** Spring term. Credit four hours. Mr. B. Rosen.

An analysis of the interacting effects of social structure and personality on social change in developing countries.

## Sociology

### Faculty

Henry A. Alker, Gordon H. DeFries, Allan G. Feldt, Rose K. Goldsen, Gerald Gordon, Donald P. Hayes, Neil Henry, Stephen C. Jones, Joseph A. Kahl, William W. Lambert, Parker G. Marden, Robert McGinnis, Leo Meltzer, Marshall W. Meyer, Murray P. Naditch, D. Ian Pool, Dennis Regan, Leonard Reissman, John M. Roberts, Bernard C. Rosen, Gordon F. Streib, J. Mayone Stycos, Nicholas Tavuchis, William F. Whyte, Robin M. Williams, Jr., Paul R. Wozniak.

### Field Representative

Parker G. Marden, McGraw Hall

### MAJOR SUBJECTS\*

General Sociology  
Demography-Ecology  
Research Methodology  
Social Organization and Change  
Social Psychology

### MINOR SUBJECTS

Demography-Ecology  
Research Methodology  
Social Organization and Change  
Social Psychology

**ADMISSION REQUIREMENTS.** Candidates for the Master's degree should have an undergraduate degree from a recognized college or university. The required subjects of the Cornell M.A. program or their equivalent are prerequisite to candidacy for the Ph.D. degree in Sociology. In addition to a general background in the social sciences, the entering student should have some knowledge of the basic concepts and applications of quantitative analysis. Graduate Record Examination scores are required.

\*General Sociology is required as major subject in the Master's degree program; others may be major subjects only in the Ph.D. program.

The prospective student is advised to consult the brochure *Sociology at Cornell*, which may be obtained by writing to the Field Representative.

All applications for admission to graduate study in the Field of Sociology and inquiries concerning financial aid should be made directly to the Field Representative, Department of Sociology, McGraw Hall.

**LANGUAGE REQUIREMENTS.** A candidate for the degree of Ph.D. must demonstrate proficiency in one modern language other than his native tongue; or upon the unanimous approval of the student's Special Committee, a specified level of preparation in mathematics may be substituted. Any Special Committee may, at its discretion, require knowledge of additional foreign languages.

The modern language or mathematics requirement for the M.A. candidate shall be determined by his Special Committee.

**FIELD REQUIREMENTS.** M.A. candidates major in general sociology, which covers the four specific subjects of the Field of Sociology: social organization and change, research methodology, demography-ecology, and social psychology; and students must demonstrate competence in each of these areas. Following the recommendations of their Special Committee, students entering Cornell with a Master's degree from other institutions will be required to make up deficiencies in the subjects specified for the Cornell M.A. degree.

Students in the Ph.D. program may register in general sociology initially, but must select one of the four major subjects described below before taking the admission to candidacy examination. By the time of this examination, students are expected to have



completed the course equivalent of the Cornell M.A. program.

All students in the Ph.D. program are required to have one year of directed research experience and one year of directed teaching experience during their program of study at Cornell. Exemptions from this requirement will be granted for appropriate previous experience or under special circumstances. Typically, for the student entering with a B.A., the research practicum would be scheduled to begin in the spring term of the first year of residence, and the teaching practicum would be scheduled for the second year of residence. Scheduling of the practicum for students entering with an M.A., while following the same general pattern, might be varied as circumstances require.

Procedures for examining candidates for the Master's degree will be determined by the student's Special Committee. Part of this examination must be oral. It may also include a written examination, satisfactory completion of a Master's thesis or essay, or both. Any M.A. candidate who proposes to apply for Ph.D. candidacy must have selected his Ph.D. Special Committee prior to taking this examination, which under these circumstances may be combined with a Ph.D. qualifying examination.

The Ph.D. degree is normally expected to be completed within two to three years following completion of the M.A. degree by candidates in full-time residence. A diagnostic qualifying examination may be held at the option of either the candidate or his Special Committee; if so, it should be scheduled no later than the end of the second semester in residence. In very exceptional instances, at the discretion of the Special Committee, the qualifying examination may serve simultaneously as the admission to candidacy examination. Normally, however, the admission to candidacy examination will be scheduled at the end of the fourth semester of graduate work. At the completion of the student's thesis, an oral examination on it will be conducted by his Special Committee.

## Ph.D. Major Subjects and Requirements

**SOCIAL ORGANIZATION AND CHANGE.** When offered as a major: (1) a thorough knowledge of theories of and research in social organization and social change; (2) a working knowledge of research methods; (3) a detailed knowledge of two subfields in social organization such as the following: formal organization and bureaucracy, the family, ethnic relations, political sociology, social stratification, public opinion, sociology of religion, sociology of work.

When offered as a minor: a general knowl-

edge of parts (1) and (2) of the above requirement and a working knowledge of one subfield.

**SOCIAL PSYCHOLOGY.** When offered as a major: (1) a thorough knowledge of social psychological theory and research, with emphasis upon current developments; (2) a working knowledge of the methodology of social psychological research; (3) a working knowledge of psychology, sociology, and relevant aspects of other related disciplines; and (4) detailed knowledge of some specialized aspect of social psychology to be selected by the student.

When offered as a minor: a general knowledge of parts (1) and (2) of the above requirements, as well as a working knowledge of whichever aspects of social psychology are relevant to the Ph.D. dissertation topic.

**DEMOGRAPHY-ECOLOGY.** When offered as a major: (1) a thorough knowledge of demographic and ecological theory and substantive research; (2) a thorough knowledge of the techniques of demographic and ecological data collection and analysis; (3) a working knowledge of the theory and methods of social organization and change.

When offered as a minor: a general knowledge of (1) and (2) above.

**RESEARCH METHODOLOGY.** When offered as a major: (1) a detailed knowledge of the logic of science; (2) a general knowledge of research design, data collection techniques, and analytic procedure; (3) a working knowledge of the theory of social organization and change; (4) a concentration of study in one of the areas listed in (1) and (2).

When offered as a minor: requirements (1), (2), and (3).

## Research Training Program

Members of the Field sponsor various social research programs and field projects in which graduate students may participate for purposes of research training. Research activities of the staff have included studies in intergroup relations (Messrs. Rosen and Williams), attitudes and values (Mrs. Goldsen, Messrs. Meltzer, Naditch, Regan, Roberts, and Williams), demography and ecology (Messrs. Feldt, Marden, Pool, Stycos, and Wozniak), social gerontology (Messrs. Marden and Streib), complex organizations (Messrs. Gordon, Meyer, and Whyte), small groups (Messrs. Hayes and Meltzer), personality, political social psychology (Mr. Alker), interpersonal relations (Messrs. Jones, Naditch, and Roberts), cross-cultural socialization (Messrs. Lambert and Rosen), stratification (Messrs. Kahl, Reissman, and Tavuchis), social systems analysis and theory construction

(Messrs. Henry, McGinnis, and Williams), medical sociology (Messrs. DeFries and Marden), kinship (Messrs. Streib and Tavuchis), sociology of science (Messrs. Gordon and McGinnis), educational sociology (Mrs. Goldsen and Mr. Meyer), urbanization (Messrs. DeFries, Feldt, Marden, Reissman, and Streib). Many of these investigations have been done in cross-cultural settings: Africa (Mr. Pool), Latin America (Mrs. Goldsen, Messrs. Kahl, Marden, Rosen, Stycos, and Whyte), Europe (Messrs. Lambert, Streib, and Williams). Staff members also participate closely in teaching and research activities of the Center for International Studies and various area study programs (see pp. 31-40).

## Courses

Courses numbered in the 500s or above are principally open to graduate students. Courses numbered in the 400s are open to advanced undergraduate majors as well as graduate students. *All course listings are subject to change.* Students should make final checks with the Department before registering.

**402 Social Theory and Social Research.** Fall term. Credit four hours. Prerequisite: a course in sociology.

Critical analyses of some recent publications in which dispassionate social scientific investigation of contemporary issues is attempted. The focus will be on empirical studies suggesting propositions of theoretical interest, in which the social scientist (as opposed to the social critic) tries to investigate problems without having his own values or current fashions intrude on the selection of relevant data or interpretation of results. Each study will be examined for stated and unstated assumptions, theoretical perspectives, concepts and operationalization of concepts, and empirical support for conclusions.

**420 Mathematical Sociology I.** Spring term. Credit four hours. Prerequisite: 101 and one year of college mathematics, or consent of the instructor.

Elementary mathematics as applied to sociological theory. Both deterministic and probabilistic models are considered. Stochastic probability processes are emphasized in relation to theories of social change.

**421 Mathematical Sociology II.** Fall term. Credit four hours. Prerequisite: courses in calculus and probability or consent of the instructor.

Models of social processes with particular attention to their relevance to social science research techniques. A detailed examination of James Coleman's book, *Mathematical Sociology*.

**425 Foundations of Statistical Analysis.** Fall term. Credit four hours. Prerequisite: a course in statistics or consent of the instructor.

The logic of social research; sets and relations; measurement; probability models.

**433 International Urbanization.** Spring term. Credit four hours. Prerequisite: background in the social sciences or consent of the instructor.

An examination of the processes and prospects of urbanization in an international context. The growth, nature, and roles of urban centers in both developed and developing nations will be considered. Urbanization will be viewed from an interdisciplinary perspective.

**434 Sociology of Human Fertility.** Spring term. Credit four hours. Prerequisite: 230 or consent of the instructor.

Social and psychological factors affecting human fertility; review of research on programs of fertility control in the United States and abroad.

**435 Mortality and Morbidity.** Fall term. Credit four hours. Prerequisite: 230 or consent of the instructor.

The determinants and consequences of these demographic forces will be considered with special attention being paid to trends and differentials. The role of mortality in the "demographic transition" of both developed and underdeveloped areas will be examined. The demographic, sociological, and epidemiological approaches will be applied to selected problems involving mortality, illness, health, and medical care.

**437 Population Growth and Development.** Fall term. Credit four hours. Prerequisite: 230 or consent of instructor.

Problems of development resulting from the growth of population and changes in its distribution, particularly in countries of the Third World. Problems covered include food supplies, utilization of rural resources, rapid social change, economic growth, and others as appropriate.

**438 Human Migration.** Spring term. Credit four hours. Prerequisite: 230 or consent of instructor.

An analysis of international and internal migration as it affects the social and economic structure of societies and the groups in movement. The major theoretical and methodological investigations will be examined from such varied perspectives as individual motivation and mathematical models of migration.

**441 Structure and Functioning of American Society I.** Fall term. Credit four hours. Prerequisite: 101 or consent of instructor.

Systematic analysis of the major institutions of kinship, stratification, economic activity, political structure, education and religion. Special attention is given to values and their interrelations in the modern social order. A survey of the more important types of groups and associations making up a pluralistic nation is included.

**442 Structure and Functioning of American Society II.** Spring term. Credit four hours. Prerequisite: 441 or consent of instructor.

Primary attention is directed to the study of interrelations of institutions, including analysis of the regulation of economic and political systems. Group cooperation and conflict are surveyed. Analysis of important processes of change in institutions, values, and social organizations.

**447 Sociology of Health and Medicine.** Fall term. Credit four hours. Prerequisite: background in the social sciences, premedical status, or consent of the instructor.

An analysis of health, illness, and the health professions and institutions from the sociological perspective. Topics will include social epidemiology, mortality and morbidity, the social psychology of illness, the socialization of health professionals, the organization of health care, and patient-professional relationships. Some attention will be directed to health and medical care in developing areas.

**480 Attitudes and Attitude Change.** Spring term. Credit four hours. Prerequisite: three hours of psychology and three hours of sociology.

A systematic survey of theory and research on attitudes and attitude change.

**481 Advanced Social Psychology (Psychology 481).** Fall term. Credit four hours. Prerequisite: a course in social psychology or consent of the instructor.

Emphasis is on the empirical study of social psychological phenomena. Students will be introduced to empirical laboratory and field methods used in social psychology. Substantive problems will provide the focus for the demonstration and use of these techniques.

**483 Social Interaction.** Fall term. Credit four hours. Prerequisite: written consent of the instructor and three hours in psychology and three hours in sociology.

A field and laboratory course dealing with the major dimensions of interpersonal perception and behavior, and the relation to self-conception, social roles, group structure, and dynamics. Contemporary research is

stressed in the readings. Student projects are an integral part of the course.

**484 Experimental Group Dynamics.** Spring term. Credit four hours. Prerequisite: a course in statistics and a course in social or experimental psychology.

A practicum. Supervised experience in the design, execution, and analysis of experimental research on topics such as group cohesiveness, group pressure, group goals, leadership, group performance, and interpersonal influence and communication. Students will read and discuss experimental studies as well as pertinent theoretical articles.

**486 Groups as Socializing Agents. (Psychology 486).** Spring term. Credit four hours. Prerequisite: consent of the instructor.

The seminar examines critically existing theory and research on the role of groups in shaping the behavior and values of their members. Particular attention is focused on such processes as modeling, social reinforcement, and the pressures to conform in enduring social structures such as the family, the peer group, work teams, and business organizations. Students are expected to work independently in assembling and evaluating material relevant to particular issues.

**488 Individual and Society in the Soviet Union.** Spring term. Credit four hours. Prerequisite: consent of the instructor.

Will be conducted as a seminar.

**489 Seminar: Selected Topics in Social Psychology (Psychology 489).** Either term. Credit four hours. Prerequisite: consent of the instructor, three hours of psychology and three hours of social psychology or sociology.

A small discussion seminar dealing with issues in both social and personality psychology. Fall term: initial discussions will focus on specific areas of the field such as interpersonal evaluation, attitude change, and group processes. Subsequently, the discussions will become more general and raise such questions as: What are the major themes social psychologists are or should be studying? What are the appropriate units of analysis of social behavior? Spring term: topics to be announced.

**491 Selected Topics in Sociology.** Either term. Credit four hours.

**492 Selected Topics in Sociology.** Either term. Credit four hours.

**497 Social Relations Seminar.** Fall term. Credit four hours.

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**501 The Metropolitan Community.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

An interdisciplinary course focused upon social, political, and economic aspects of metropolitan communities. Viewed from the perspectives of demography, ecology, social organization, and planning, it will consider the emergence of a new societal form and its implications for contemporary America.

**503 Sociology of Science.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

Examination of the relationships between the scientist and society, and of the effects of the scientist on society and of society on the scientist.

**511 Theory of Culture and Social Organization.** Fall term. Credit four hours. Prerequisite: 402 or equivalent.

Analysis of recent conceptual development in theories of cultural and social systems. Special attention will be given to the work of Talcott Parsons and associates, with comparative study of alternative conceptual schemes.

**522 Philosophy of Social Research.** Fall term. Credit four hours.

Dialectical versus positivistic social research. The "value freedom" controversy. Objects of social analysis with implications for research strategies. A paradigm of the scientific process. Measurement, experimentation, and quasi-experimentation.

**523 Foundations of Statistical Analysis.** Fall term. Credit four hours. Prerequisite: a course in statistics or consent of the instructor.

The logic of social research; sets and relations; measurement; probability models.

**524 Research Design and Statistical Inference.** Spring term. Credit four hours. Prerequisite: 523 and a course in statistics or consent of the instructor.

The logic of statistical inference, experimentation, and decision theory. Measures of association for cross-classification. Causal analysis of multivariate relations, using regression analysis and related techniques.

**526 Stochastic Processes in Sociology.** Spring term. Credit four hours. Prerequisite: one year of college mathematics and one term of statistics or consent of the instructor.

Finite probability theory is reviewed. Recurrent events, stationary Markov chains, and dynamic Markov processes are evaluated as models of social organization and change.

**528 Measurement and Latent Structure Theory.** Spring term. Credit four hours. Prerequisite: 524 or consent of the instructor.

The problem of index construction and

classification is the focus for a study of factor analysis, latent structure analysis, and nonmetric multidimensional scaling procedures. Emphasis is on the logic of models and their relations to social theory and data. Computer routines will be used.

**530 Introduction to Social Demography.** Spring term. Credit four hours. Prerequisite: consent of the instructor.

A survey of the methods, theories, and problems of contemporary demography. Special attention is directed to the social determinants and consequences of fertility, mortality, and migration. The populations of both developed and developing areas are examined.

**531 Demographic Theory.** Spring term. Credit four hours.

Deals with theory construction, hypothesis derivation, and the integration of theory and research in demography. Although emphasis is placed on contemporary theories, earlier formulations beginning with Malthus also are examined insofar as they deal with fertility, mortality, migration, and the people-resource question.

**535 Techniques of Demographic Analysis.** Spring term. Credit four hours. Prerequisite: 230 or consent of the instructor.

Methods of processing and analyzing demographic data. Measures of mortality, fertility, and migration as applied to census and vital statistics data will be analyzed, and the more general applications of demographic techniques to other classes of data illustrated.

**536 Demographic Research Methods.** Spring term. Credit four hours. Prerequisite: 230 or consent of the instructor.

Application of basic demographic techniques to selected regions of the world, particularly those less developed economically. Attention is directed to field survey techniques, including sampling and questionnaire construction, as well as formal demographic analysis. Students may work on selected research projects.

**539 Population in Tropical Africa.** Fall term. Credit four hours. Prerequisite: 230 or consent of the instructor.

The study of population trends in Tropical Africa. Analyses will be made of the basic demographic factors: sources of data; levels of mortality and fertility; migration and urbanization; population problems and population policies. An attempt will be made to determine research priorities and strategies in African population studies.

**541 Social Organization and Change.** Fall term. Credit four hours.

An analysis of major problems in theory and research in the general field of social

organization and change. The subject will be studied from the standpoint of the nature and size of the social system (small groups, communities, large organizations, societies) and also in terms of its social processes and properties (integration, authority, conformity, and deviance).

**543 Family, Kinship, and Society.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

A systematic analysis of the nuclear family, extended family systems, and corporate kinship groups cross-culturally and historically. The relation of family structures to other institutional areas; for example, economy, polity, stratification, and their relations to specific social processes such as demographic events, social disorganization, mobility.

**547 Contemporary Research on Social Stratification.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

The focus will be on systematic research on American social classes, with detailed examination of methodological issues. Comparative materials from other industrial societies will lend perspective. Classic theory will be used from time to time, but not studied as a central theme.

**583-584 Proseminar in Social Psychology.** Either term. Credit four hours.

Critical analysis of the major current theories and research, emphasizing sociological perspectives in the fall and psychological ones in the spring.

**585 Social Structure and Personality.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

A discussion seminar examining the impact of structural factors on personality development, and on the ways in which individual internal states and behavioral patterns affect the functioning of social systems.

**632 Seminar: Contemporary Research in Demography.** Spring term. Credit four hours.

Critical analysis of recent research investigations in demography.

**633 Seminar: Comparative Urbanization.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

An analysis of processes, problems, and prospects of urbanization in an international context. Comparisons with other variables of social change will be considered. The growth, nature, and roles of urban centers will be examined. Urbanization will be viewed from an interdisciplinary perspective. Attention will be directed to possible comparisons between developed and developing nations in this regard.

**636 Seminar: Manpower Research.** Spring term. Credit four hours.

**641 Socialization of the Sociologist.** Spring term. Credit four hours.

The course will utilize both institutional and social psychological perspectives. Among topics to be discussed: structure of American higher education; educational goals and norms; role requirements for sociologists as teachers and researchers; anticipatory socialization; rewards and punishments; criteria of "success" and "failure." Some topics will receive more attention from year to year depending upon the background and interests of the students.

**642 Seminar: Comprehensive Health Planning (Business and Public Administration 463 and Planning 789).** Spring term. Credit three hours. Prerequisite: consent of the instructor.

**643 Seminar: Sociology of Medicine.** Spring term. Credit four hours.

Selected topics in medical sociological research.

**648 Seminar: Reform vs. Revolution in Latin America: Brazil, Cuba, Mexico.** Spring term. Credit four hours. Prerequisite: consent of the instructor. Reading knowledge of Spanish or Portuguese recommended.

The seminar will confront this issue: Is development possible by the "reform" route, or is "revolution" necessary? Three test cases will be studied in depth: Brazil's attempts to modernize with minor reforms; Cuba's profound revolution; and Mexico's early revolution which later turned conservative.

**657 Seminar: Social Change and the Community.** Fall term. Credit four hours.

The seminar will concentrate upon the topics of leadership, religious organizations, and the process of social change.

**659 Seminar: Sociology of Adulthood and Aging.** Fall term. Credit four hours. Prerequisite: consent of the instructor.

The focus will be upon the latter half of the life cycle and will utilize both institutional and social psychological frameworks. Theory and research related to the following topics will be discussed: the middle aged and the elderly in relation to family, economy, and the polity; demographic trends and issues; social aspects of health; adult socialization; role changes and role crises. Emphasis will depend upon the background and interests of the students.

**662 Seminar: Social Systems Analysis.** Spring term. Credit four hours.

Foundations of social systems analysis.

## 140 Statistics

**663 Seminar: Social Systems Analysis.** Fall term. Credit four hours.

Foundations of social systems analysis.

**681-682 Seminar in Social Psychology.** Either term. Credit four hours.

Research-oriented analysis of selected topics in social psychology.

**683 Research Practicum in Social Psychology.** Fall term. Credit four hours.

Research on interaction and social structure.

**685 Seminar: Social Psychology of Modernization.** Spring term. Credit four hours.

An analysis of the interacting effects of social structure and personality on social change in developing countries.

**691-692 Directed Research.** Either term. Credit to be arranged.

**Planning 712 Introduction to Human Ecology.**

## Statistics

### Faculty

Robert E. Bechhofer, Isadore Blumen, Lawrence D. Brown, Mark Brown, Roger Farrell, Walter T. Federer, Ivor Francis, Harry Kesten, Jack Kiefer, Philip J. McCarthy, Narahari U. Prabhu, Douglas S. Robson, Shayle R. Searle, Daniel Solomon, Frank L. Spitzer, Howard M. Taylor 3rd, Lionel Weiss.

### Field Representative

Isadore Blumen, 360 Ives Hall.

### MAJOR SUBJECT

Statistics

### MINOR SUBJECTS

Provisions for minoring in statistics are given in the descriptions of the Fields of Operations Research, Industrial and Labor Relations, Mathematics, and Plant Breeding and Biometry contained in the *Announcements* of the various areas of the Graduate School.

**ADMISSION REQUIREMENTS.** Since one of the principal aims of graduate work in the Field of Statistics is that of training individuals who will have a thorough knowledge of the theoretical basis of modern statistical method and will have demonstrated ability to make significant contributions to this theory, applicants should ordinarily have obtained nearly the equivalent of an undergraduate major in mathematics. It is strongly recommended that applicants resident in the United States during the year before entering the Graduate School present scores on the Graduate Record Examination Aptitude Test.

**LANGUAGE REQUIREMENT.** There is no foreign language requirement for the M.S. degree. A candidate for the Ph.D. degree must demonstrate reading ability in one language besides English, chosen from among French, German, or Russian.

**PROGRAM OF STUDY.** A student majoring in the Field of Statistics must complete a graduate sequence of courses in mathematical

statistics which has been approved by his Special Committee. Other course work will be chosen from among the offerings of the members of the Field, as listed below. A doctoral student in the Field ordinarily has two minor subjects but may, in consultation with the chairman of his Special Committee, choose to work in one minor subject. One minor subject will often be in an area of interest to the student in which the methods of statistics find extensive application. A second minor is usually devoted to mathematics, computing, or a similar subject.

**PH.D. EXAMINATIONS.** In addition to the admission to candidacy examination, which will ordinarily be administered by the student's Special Committee during or at the end of the third year of graduate study, and the final examination on the thesis, the student will be given a qualifying examination. This examination will occur shortly after the first year of graduate study. It will serve to determine the ability of the candidate to pursue doctoral studies and to assist the Special Committee in developing a program of study for the candidate.

**TEACHING AND RESEARCH INTERESTS OF THE FACULTY.** In extremely broad terms, the teaching and research interests of faculty members are in the following general areas: biological applications of probability and statistics (Federer, Robson, Searle, Solomon); engineering and operations research applications of probability and statistics (Bechhofer, M. Brown, Prabhu, Taylor, Weiss); mathematical theory of probability and statistics (L. D. Brown, Farrell, Kesten, Kiefer, Spitzer); social science applications of probability and statistics (Blumen, Francis, McCarthy).

Some of the more specific areas of current interest are: analysis and probability theory (M. Brown, Kesten, Spitzer); design and analysis of experiments (Bechhofer, Federer, Kiefer, Robson, Searle); high-speed computing (Francis, Searle); mathematical theory of

statistics (Farrell, Kiefer, Solomon); multiple decision procedures (Bechhofer); multivariate analysis (Blumen, Francis); nonparametric statistics (Blumen, Weiss); queuing and inventory theory (Prabhu); sampling theory (McCarthy, Robson); sequential sampling methods (Kiefer, Weiss); statistical control theory (Taylor); statistical genetics (Federer, Robson, Searle).

## Courses

Descriptions of the following courses may be found in the *Announcements* of the various areas of the Graduate School under the Fields with which they are identified. In those sections reference is also made to several advanced seminars, both formal and informal, whose content varies from year to year.

## Advanced Undergraduate and Master's Level Courses

### OPERATIONS RESEARCH

- 9460 Introduction to Probability Theory with Engineering Applications.
- 9470 Introduction to Statistical Theory with Engineering Applications.
- 9512 Statistical Methods in Quality and Reliability Control.
- 9570 Intermediate Engineering Statistics.

### INDUSTRIAL AND LABOR RELATIONS

- 310 Design of Sample Surveys.
- 311 Statistics II.
- 410 Techniques of Multivariate Analysis.
- 411 Statistical Analysis of Qualitative Data.

### MATHEMATICS

- 371 Basic Probability.
- 472 Statistics.
- 473 Statistics.

### PLANT BREEDING AND BIOMETRY

- 411 Stochastic Models in Biology.
- 417 Matrix Algebra in Biology and Statistics.
- 510 Statistical Methods I.
- 511 Statistical Methods II.

## Advanced Master's and Doctor's Level Courses

### OPERATIONS RESEARCH

- 9560 Applied Stochastic Processes.
- 9561 Queuing Theory.
- 9562 Inventory Theory.
- 9565 Time Series Analysis.
- 9571 Design of Experiments.
- 9572 Statistical Decision Theory.
- 9573 Statistical Multiple-Decision Procedures.

### INDUSTRIAL AND LABOR RELATIONS

- 610 Economic and Social Statistics.
- 614 Theory of Sampling.

### MATHEMATICS

- 571 Probability.
- 572 Probability.
- 574 Statistical Analysis.
- 575 Information Theory.
- 673 Analysis of Variance.
- 674 Design of Experiments.
- 675 Statistical Estimation.
- 676 Decision Functions.
- 677-678 Stochastic Processes.

### PLANT BREEDING AND BIOMETRY

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- 519 Statistical Genetics.

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# Graduate School Calendar, 1970-71

## FALL TERM

1970-71

Registration, new students	Sept. 10
Registration, continuing students	Sept. 11
Fall term instruction begins, 7:30 a.m.	Sept. 14
Last day for filing statement-of-courses forms and change-of-committee forms and for new students to file nomination-of-committee forms	Sept. 25
Last day for old students to take admission-to-candidacy examinations in order to have them considered as of the beginning of the term	Oct. 15
Citizenship recess:	
Instruction suspended, 1:10 p.m.	Oct. 24
Instruction resumed, 7:30 a.m.	Nov. 5
Last day for change of course registration	Nov. 20
Thanksgiving Day, a holiday	Nov. 26
Christmas recess:	
Instruction suspended, 4:30 p.m.	Dec. 22
Instruction resumed, 7:30 a.m.	Jan. 4
Fall term instruction ends, 1:10 p.m.	Jan. 9
Independent study period begins, 2:00 p.m.	Jan. 9
Final examinations begin	Jan. 13
Last day for completing all requirements for a January degree	Jan. 15
Final examinations end	Jan. 20
Intercession begins	Jan. 21

## SPRING TERM

Registration, new and rejoining students	Jan. 28
Registration, continuing students	Jan. 29
Spring term instruction begins, 7:30 a.m.	Feb. 1
Last day for filing fellowship and scholarship applications for the following year	Feb. 1
Last day for filing statement-of-courses forms and change-of-committee forms and for new students to file nomination-of-committee forms	Feb. 12
Last day for old students to take admission-to-candidacy examinations to have them considered as of the beginning of the term	March 1
Spring recess:	
Instruction suspended, 1:10 p.m.	March 27
Instruction resumed, 7:30 a.m.	April 5
Last day for change of course registration	April 9
Spring term instruction ends, 1:10 p.m.	May 15
Independent study period begins	May 17
Final examinations begin	May 24
Last day for completing all requirements for a June degree	May 24
Final examinations end	June 1
Commencement Day	June 7

## SUMMER

Summer Research period begins	June 2
Registration for Summer Session	June 21 (8-week)
	June 30 (6-week)
Last day for filing statement-of-courses forms and change-of-committee forms and for new students to file nomination-of-committee forms	July 7
Summer Session ends	Aug. 13
Last day for completing all requirements for September degree	Aug. 27
Summer Research period ends	Sept. 10

# Graduate School Calendar, 1971-72 (Tentative)

## FALL TERM

1971-72

Registration, new students	Sept.	9
Registration, continuing	Sept.	10
Fall term instruction begins, 7:30 a.m.	Sept.	13
Last day for filing statement-of-courses forms and change-of-committee forms and for new students to file nomination-of-committee forms	Sept.	24
Last day for old students to take admission-to-candidacy examinations in order to have them considered as of the beginning of the term	Oct.	14
Last day for change of course registration	Nov.	19
Thanksgiving recess:		
Instruction suspended, 1:10 p.m.	Nov.	24
Instruction resumed, 7:30 a.m.	Nov.	29
Fall term classes end, 1:10 p.m.	Dec.	18
Christmas recess	Dec.	18
Last day for completing all requirements for a January degree	Jan.	7
Independent study period begins	Jan.	3
Final examinations begin	Jan.	10
Final examinations end	Jan.	18
Intersession begins	Jan.	19

## SPRING TERM

Registration, new students	Jan.	27
Registration, continuing students	Jan.	28
Spring term instruction begins, 7:30 a.m.	Jan.	31
Last day for filing fellowship and scholarship applications for the following year	Feb.	1
Last day for filing statement-of-courses forms and change-of-committee forms and for new students to file nomination-of-committee forms	Feb.	11
Last day for old students to take admission-to-candidacy examinations to have them considered as of the beginning of the term	Feb.	28
Spring recess:		
Instruction suspended, 1:10 p.m.	March	25
Instruction resumed, 7:30 a.m.	April	3
Last day for change of course registration	April	7
Spring term classes end, 1:10 p.m.	May	13
Independent study period begins	May	15
Last day for completing all requirements for a June degree	May	22
Final examinations begin	May	22
Final examinations end	May	30
Commencement	June	5

## SUMMER

Summer Research period begins	May	31
Registration for Summer Session	June	19 (8-week)
	June	28 (6-week)
Last day for filing statement-of-courses forms and change of-committee forms and for new students to file nomination-of-committee forms	July	5
Summer Session ends	Aug.	11
Last day for completing all requirements for a September degree	Aug.	28
Summer Research period ends	Sept.	8