

Faculty

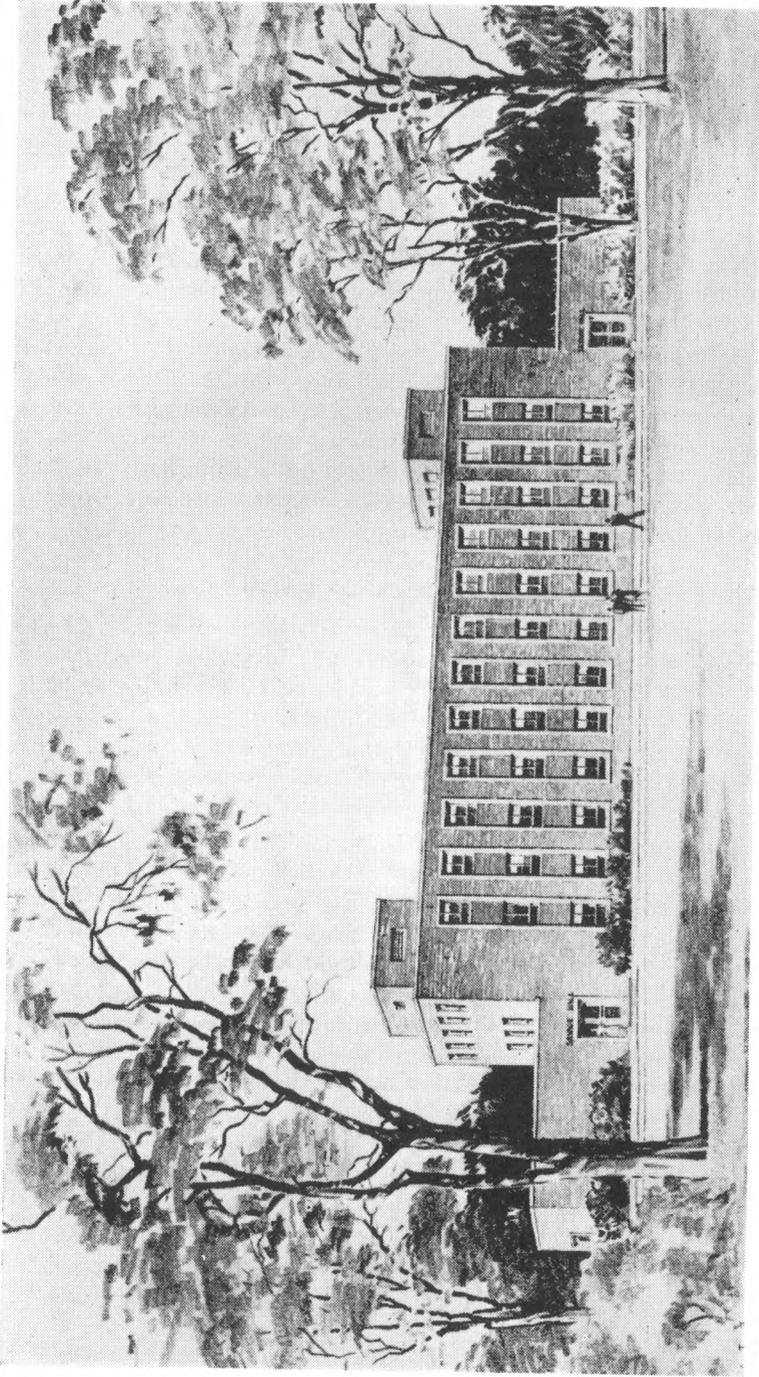
ADMINISTRATION

Edmund Ezra Day, Ph.D., LL.D., *President of the University*
Leonard Amby Maynard, Ph.D., D.Sc., *Director of the School*
Walter L. Nelson, Ph.D., *Acting Secretary of the School*

INSTRUCTION AND RESEARCH

Sydney Arthur Asdell, Ph.D., *Professor (Physiology)*
LeRoy Leshner Barnes, Ph.D., *Associate Professor (Biophysics)*
Kathleen K. Berrésford, M.S., *Instructor (Nutrition)*
Richard Bradfield, Ph.D., *Professor (Agronomy)*
Alice Briant, Ph.D., *Associate Professor (Food)*
Cornelius K. Cain, Ph.D., *Assistant Professor (Organic Chemistry)*
Louise J. Daniel, Ph.D., *Assistant Professor (Biochemistry)*
Charles Douglas Darling, M.D., *Associate Professor (Clinical Medicine)*
Lawrence B. Darrah, Ph.D., *Associate Professor (Economics)*
Peter J. W. Debye, Ph.D., *Professor (Chemistry)*
Herrel F. DeGraff, Ph.D., *Professor (Economics)*
Eugene F. DuBois, M.D., *Professor (Physiology)*
Henry Hugh Dukes, D.V.M., *Professor (Physiology)*
Vincent DuVigneaud, Ph.D., *Professor (Biochemistry)*
Joseph A. Dye, Ph.D., *Professor (Physiology)*
Gordon H. Ellis, Ph.D., *Associate Professor (Biochemistry)*
Frederick S. Erdman, Ph.D., *Associate Professor (Mechanical
Engineering)*
Faith Fenton, Ph.D., *Professor (Food)*
Grace Fiala, A.B., *Research Associate (Clinical Medicine)*
Howard Merrill Giff, C.E., *Professor (Sanitary Engineering)*
Ella Gleim, M.S., *Research Associate (Food)*
Carl Edward Frederick Guterman, Ph.D., *Professor (Pathology)*
David B. Hand, Ph.D., *Professor (Biochemistry)*
Katharine Wyckoff Harris, M.A., *Professor (Institution Management)*
Hazel Marie Hauck, Ph.D., *Professor (Nutrition)*
Barbour L. Herrington, Ph.D., *Professor (Biochemistry)*
Gustave F. Heuser, Ph.D., *Professor (Nutrition)*
Forrest Frank Hill, Ph.D., LL.D., *Professor (Economics)*
Frances Johnston, Ph.D., *Assistant Professor (Nutrition)*
Vivian Lightbody, M.S., *Research Associate (Nutrition)*

- John Kaspar Loosli, Ph.D., *Professor (Nutrition)*
Clive Maine McCay, Ph.D., *Professor (Nutrition)*
Nancy K. Masterman, M.S., *Research Associate (Food)*
Leonard Amby Maynard, Ph.D., D.Sc., *Professor (Nutrition)*
John I. Miller, Ph.D., *Professor (Animal Husbandry)*
Norman Slawson Moore, M.D., *Professor (Clinical Medicine)*
Frank Barron Morrison, B.S., D.Sc., *Professor (Nutrition)*
Yoshi Nakayama, M.A., *Research Librarian (Nutrition)*
Walter L. Nelson, Ph.D., *Associate Professor (Biochemistry
and Nutrition)*
Leo Chandler Norris, Ph.D., *Professor (Nutrition)*
Catherine Personius, Ph.D., *Professor (Food)*
Marion Caroline Pfund, Ph.D., *Professor (Food Chemistry)*
Helen Pilcher, B.S., *Instructor (Nutrition)*
Paul Ramstad, Ph.D., *Associate Professor (Biochemistry)*
Fred Hofman Rhodes, Ph.D., *Professor (Chemical Engineering)*
Charles I. Sayles, M.M.E., *Associate Professor (Engineering)*
Milton L. Scott, Ph.D., *Associate Professor (Nutrition)*
James Morgan Sherman, Ph.D., *Professor (Bacteriology)*
Sedgwick E. Smith, Ph.D., *Associate Professor (Nutrition)*
G. Fred Somers, Ph.D., *Assistant Professor (Biochemistry)*
Grace Steininger, Ph.D., *Associate Professor (Nutrition)*
James Batcheller Sumner, Ph.D., *Professor (Biochemistry)*
Kenneth L. Turk, Ph.D., *Professor (Animal Husbandry)*
Frances Elizabeth Volz, M.S., *Research Associate (Biochemistry)*
Harold H. Williams, Ph.D., *Professor (Biochemistry)*
Charlotte Marie Young, Ph.D., *Associate Professor (Medical Nutrition)*



Savage Hall, the home of the School of Nutrition

The School of Nutrition

THE School of Nutrition was established at Cornell University in order to meet the enlarged and diversified needs of the many fields, both academic and industrial, in which a thorough knowledge of food and nutrition, and their underlying sciences, has become of importance. The program of the School offers an opportunity for the study of problems in nutrition, food technology and food economics, and problems of food supply and distribution. Its curricula provide for the training of research workers and teachers in nutrition, both human and animal; nutritionists in public health and institutional work; and personnel for the food and feed industries.

ORGANIZATION AND FACILITIES

The School is an organization in which the various colleges of the University are cooperating to provide an integrated program of research and teaching in food and nutrition. It is administered by a Board consisting of the Deans of the Colleges of Agriculture, Arts and Sciences, Engineering, Home Economics, and Medicine, the Provost, the Vice President designated by the President, the Director of the School, with the President of the University as Chairman.

The School is housed in a new building, provided by a special gift to the University for the purpose. This building contains offices, classrooms, and laboratories, and is equipped for teaching and research in the various aspects of food and nutrition. The facilities include biochemical, microbiological, and food laboratories, air-conditioned rooms for small-animal studies, and several laboratories equipped for other specific purposes. In addition, well-equipped laboratories and other facilities are available in the cooperating colleges for studies of both human and farm animal nutrition and of the food supplies concerned. The Department of Clinical and Preventive Medicine of the University offers opportunities for studying the clinical aspects of nutrition. The U. S. Plant, Soil, and Nutrition Laboratory, established at Cornell in 1939, provides unusual opportunities for studying the relation of the production and processing of food crops to their nutritive value.

CURRICULUM AND DEGREES

The School offers a two-year curriculum providing for specialization in either nutritional science or food science, and leading to the degree of Master of Nutritional Science or Master of Food Science.

ADMISSION

To be admitted to the School the applicant must hold a bachelor's degree from a college or university of recognized standing, except that admission is open to Cornell undergraduates who can otherwise qualify at the end of their third year and for whom a combined curriculum can be planned which will enable them to receive the bachelor's degree in their college and simultaneously complete the first year's work of the School. The applicant must have a definite professional interest in the field of nutrition. His training must have included the completion, with a superior record, of courses in the following subjects, with the approximate number of semester hours stated:

	<i>Hours</i>		<i>Hours</i>
Chemistry, (including		Introductory course in	
Quant. & Organic)	16	physiology	3
Physics	6	Introductory course in	
Biology or Zoology	6	human or animal	
Bacteriology	6	nutrition	3
Social studies	9		

In addition, the applicant's record must show evidence that he has satisfactorily completed other courses which would be prerequisite to those he would need to take as a candidate for the degree for which he wishes to register. An applicant who cannot meet in full the specific course requirements listed above may be admitted if the Committee on Admissions and Counselling of the School so recommends after a consideration of his case, but with the understanding that the deficiencies must be made up before graduation.

An applicant who enters with the bachelor's degree and who can meet the full requirements for admission and in addition has taken certain courses considered fully equivalent to certain ones specified as required for graduation, or which his faculty adviser might consider to satisfy the requirements for approved electives, may be given advanced standing upon recommendation of the Committee on Admissions and Counselling.

Admission as special students is open to applicants who desire to register for a term or more to take specific courses but who do not wish to become candidates for a degree. Such applicants must hold a bachelor's degree, meet the other requirements specified above for admission, and show evidence that the courses desired will be of special benefit to them in their professional career.

Students not previously registered at Cornell University must meet the general requirements for admission to the University as set forth in its General Information booklet. These include the following medical requirements: (1) Every student matriculating in the University must present a certificate of vaccination against smallpox showing a successful vaccination within five years or at least three unsuccessful

attempts in that period. (2) Entering students are also required to have two injections of tetanus toxoid either by a private physician before the student enters the University or by staff doctors during the first two months of residence. If the injections are given before entrance, a physician's certificate must be presented by the student. (3) Within a month preceding or following matriculation every student must submit to the University Health Officer for permanent filing a satisfactory chest radiograph taken within this two-month period. Such radiographs are made at the Infirmary at a special rate for students.

All students admitted to the School must also register with the Registrar of the University at the beginning of each term or session. Students wishing to register for the degree of Doctor of Philosophy with a major in nutrition should apply to the Graduate School which has exclusive jurisdiction over this degree.*

Inquiries about admission should be addressed to the Office of the School of Nutrition, Cornell University, Ithaca, New York. An application for admission should be made upon the form supplied by the Office of the School. No application will be acted upon until all credentials enumerated in this form have been filed.

REQUIREMENTS FOR GRADUATION

Each student's program is carried out under the guidance of a faculty adviser. The requirements for graduation call for the completion of 60 semester hours, including the preparation of a written report on an approved problem, which may or may not require laboratory research. The two-year course differs in accordance with the field in which the student wishes to specialize, as follows:

A. *Nutritional Science.* The specialized training in this field leading to the degree of Master of Nutritional Science, emphasizes the scientific knowledge and techniques underlying nutrition. The completion of the following curriculum is required:

	<i>Hours</i>		<i>Hours</i>
General Biochemistry	6	History of Nutrition	1
Principles of Nutrition	3	Seminars	2
Laboratory work in nutrition	3	Advanced course in human or animal nutrition	3
Physiology	6	Report on individual problem	6-10
Food Economics	3	Approved electives	25-21
Statistics (Biometry)	2		

The electives will be those approved by the faculty adviser as being appropriate for rounding out the student's training in the field of nutritional science.

* Candidates for this degree who are majoring in nutrition may become informally affiliated with the School of Nutrition, if they so desire, provided they can meet its entrance requirements.

B. *Food Science.* The specialized training in this field, leading to the degree of Master of Food Science, emphasizes the sciences involved in food processing and utilization. The completion of the following curriculum is required:

	<i>Hours</i>		<i>Hours</i>
General Biochemistry	6	Advanced course in	
Advanced Bacteriology	6	nutrition	3
Advanced course in foods	6	Seminars	3
Food Economics	3	Report on individual	
Statistics (Biometry)	2	problem	6-10
		Approved electives	25-21

The electives will be those approved by the faculty adviser as being appropriate for rounding out the student's training in the field of food science.

The work involved in the report on an individual problem, required in the case of both degrees, may be carried out, with the approval of the student's faculty adviser, under the direction of any member of the faculty of the School whom the student may choose and who is willing to supervise it.

TRAINING FOR SPECIALIZED FIELDS

The provision for approved electives in the curricula for the two degrees enables the student, under the guidance of his faculty adviser, to prepare himself for one of several specialized fields in the general area in which the School operates. Students who wish to prepare themselves for teaching or research are given training in the principles governing the nutrition of all species, and they also have the opportunity, through an appropriate choice of electives, to learn how to apply these principles in either human or animal nutrition.

Special opportunities are provided for students of appropriate background who are interested to prepare themselves for work as nutritionists with health and welfare agencies. Here the approved electives will include certain phases of social science, the elements of public health, and appropriate informational service techniques. Opportunities for supervised experiences with health agencies are available for selected students. Suitable students are urged to spend a portion of the summer in "in-service" training in nutrition as applied to public health. Help will be given in making the necessary contacts. These opportunities will provide assignments which can be used as a basis for meeting the requirement for a report on an individual problem.

Students who desire to prepare themselves for positions in the food industry will receive training in the sciences fundamental to work in food production and processing, quality control, and industrial research and development. The special training will emphasize bio-

chemistry, bacteriology, and engineering, and their applications in food processing and preservation. Opportunity will be provided for studies in economics, marketing, and business administration to round out the basic needs of the student for a professional career. It is also hoped that the student will gain practical experience in a food-processing establishment prior to the completion of his studies.

Students who desire to prepare for positions in the feed industry should have completed, prior to admission, reasonably broad training in livestock production, including poultry. They will receive in the School special training in the sciences which are fundamental to the work dealing with the formulation of rations for animals, the analysis of feedstuffs, and the conduct of experimental work. The training will stress principles of animal nutrition, experimental methods in animal nutrition, animal physiology, bacteriology, and analytical procedures. In order to round out the training of the student, courses in food economics, marketing, and business administration are provided. The student will be encouraged to obtain practical experience in a feed-manufacturing plant before completing his studies for the degree.

RESIDENCE REQUIREMENTS

The normal period of residence for the completion of the requirements for a degree is four semesters or two academic years. Students holding a bachelor's degree may be considered for advanced standing, as previously mentioned. In no case may a student receive a degree from the School who has not completed two terms of residence during the regular academic year after receiving the bachelor's degree from Cornell or elsewhere. A student who holds a teaching or research assistantship involving a significant loss of time from his course work will not be given full residence credit. Assistants whose duties call for approximately 20 hours of work weekly will receive only three-fourths residence credit a term. In other cases the amount of the deduction will be determined by the Committee on Admissions and Counselling.

CREDIT FOR WORK DONE IN THE SUMMER

A student who is registered in the School may receive credit for work done in the University Summer Session if his program is approved in advance by his faculty adviser. To receive this credit he must also be registered in the Summer Session.

A student who has been registered in the School for one term after receiving his bachelor's degree may, with the approval of his faculty adviser, register for a minimum of four and a maximum of twelve weeks for work on his individual problem under personal direction of a member of the faculty of the School and thus earn four to twelve weeks of residence credit. The student can thus make use of the sum-

mer period to meet, in whole or in part, the requirement of ten credit hours which are granted upon the completion of his report on an approved problem. A student who is registered in the School for work under personal direction must also register with the Registrar of the University.

TUITION AND FEES

A Registration Deposit of \$25.00 is required of every student. A check or money order payable to Cornell University should be remitted to the School of Nutrition upon notification of acceptance by the School. A Matriculation Fee of \$11 and a Chest Radiograph Fee of \$2 is deducted from this Registration Deposit leaving a Guaranty Fund of \$12 which is refundable upon graduation or permanent withdrawal from the University.

A Tuition Fee of \$225 a term is to be paid by all students registered in the School except that those students jointly registered in one of the undergraduate colleges will pay the tuition of that college.

A Graduation Fee of \$10 is required of every candidate for a degree in the School at least 10 days before the degree is to be conferred.

A Laboratory and Library Fee of \$12 a term is required of all students in the School who have received the bachelor's degree. Others pay the fee required in the undergraduate college in which they are registered.

The following fees are required of all students each term:

- An Administration Fee of \$12.50
- A Health and Infirmary Fee of \$15
- A Physical Education and Recreation Fee of \$5
- A Student Union Fee of \$5

Students of the School who attend classes in the Summer Session must register both in the School and in the Summer Session and pay the tuition and other fees required by the Summer Session.

A student working under personal direction in the School of Nutrition for twelve weeks (the maximum amount of residence credit which can be earned), or less, during the summer must pay a tuition fee of \$14.064 a week of residence credit. He must also pay the following fees for the twelve-week period or one-half of these fees if registered for 8 weeks or less:

Administration Fee	\$15.00
Student Union Fee	5.00
Health and Infirmary Fee	12.50

Waivers of tuition may be granted, at the discretion of the President, to assistants seeking degrees in the School of Nutrition, in accordance with the following sliding scale based on the amount of their salaries as such and including bonus:

If the salary for the academic year is not greater than \$1,600, the tuition fee may be waived entirely.

If the salary is greater than \$1,600 but not greater than \$1,700, 25 per cent of the tuition will be charged and 75 per cent may be waived.

If the salary is greater than \$1,700 but not greater than \$1,800, 50 per cent of the tuition will be charged and the balance may be waived.

If the salary is greater than \$1,800 but not greater than \$1,900, 75 per cent of the tuition will be charged and the balance may be waived.

If the salary is greater than \$1,900, no waiver will be made.

FELLOWSHIPS, ASSISTANTSHIPS, AND SCHOLARSHIPS

The School of Nutrition has a limited number of fellowships, assistantships, and tuition free scholarships to which appointment is made usually during the spring term for the following year. Applications for these fellowships, assistantships, and scholarships should be made to the Office of the School of Nutrition not later than March 1.

ADVISORY SERVICE FOR STUDENTS PREPARING AT CORNELL TO ENTER THE SCHOOL

Students who prepare for admission to the School of Nutrition in the Colleges of Agriculture, Arts and Sciences, or Home Economics at Cornell University, are advised during the period of preparation by members of the faculty of the School who are also members of the faculty of the college in which the students matriculate.

Undergraduates interested in nutrition who are matriculating at Cornell University for the first time should state upon the application for admission that the business or profession (field of work) which they expect to enter upon completion of their studies is nutrition. This is necessary in order that appropriate faculty advisers may be assigned to them.

Description of Courses

THE following list of courses includes both those previously specified as required for the degrees offered and also those from which electives may be selected, with the approval of the student's faculty adviser, in accordance with his specific field of interest.

The information in parentheses following the name of the course refers to the college in which the course is given, the department, and the course number. In registering for any of these courses the information shown in the parentheses should be given rather than the name of the course. In some instances the time and place are not given in the descriptive material enclosed in the parentheses following the title of the course. In order to obtain this information the student should consult the specific departmental office or special announcements issued by the college concerned.

NUTRITION

PRINCIPLES OF NUTRITION. (Agriculture; Animal Husbandry 110.) Fall. Credit three hours. Prerequisite: a course in human or veterinary physiology, and a course in organic chemistry. Lectures, M W F 10. Savage 100. Professor MAYNARD.

The chemistry and physiology of nutrition and the nutritive requirements for growth, reproduction, lactation, and other body functions.

LABORATORY WORK IN NUTRITION. (Agriculture; Animal Husbandry 111.) Fall. Credit three hours. Must be preceded or accompanied by Animal Husbandry 110. Registration by permission, M W F 2-4:20. Stocking 160. Professor McCAY.

This course is designed to familiarize the student with the application of chemical methods to the solution of fundamental problems of nutrition.

NUTRITION. (Home Economics; Food and Nutrition 230.) Spring. Credit three hours. Prerequisites, elementary college courses in nutrition, biochemistry, and human physiology. Discussion, T Th 8. Van Rensselaer 339. Laboratory, F 2-4 or S 9-11. Van Rensselaer 426. Professor HAUCK and Mrs. GIFFT.

The function of various food constituents such as proteins, minerals, and vitamins. Application of the principles of nutrition to needs of normal individuals. During and as a result of this course the student is expected to establish and maintain good nutrition practices.

FAMILY NUTRITION, WITH SPECIAL EMPHASIS ON CHILD FEEDING. (Home Economics; Food and Nutrition 340.) Fall. Credit two hours. Prerequisite, Food and Nutrition 103, 130, or 190. Lecture and discussion, M W 8. Van Rensselaer 339. Mrs. POWELL.

Family nutrition with special emphasis upon the nutritional needs of the child. Relation of nutrition to physical growth and development.

CHILD FEEDING LABORATORY. (Home Economics; Food and Nutrition 342.) Spring. Credit 1 hour. Prerequisite 340 or equivalent. Th 10-12. Van Rensselaer 432. Miss TEW.

Actual laboratory experience in planning and preparing meals for families with children. Observation and practical experience in nursery school situations.

NUTRITION OF GROWTH AND DEVELOPMENT. (Home Economics; Food and Nutrition 440.) Spring. Credit two hours. Prerequisite 230 or equivalent. T Th 8. Van Rensselaer 432. Miss TEW.

Relation and importance of nutrition to growth and development from pregnancy to adulthood. A study of research literature on nutrition in human development.

HISTORY OF NUTRITION. (Agriculture; Animal Husbandry 215.) Fall. Credit one hour. Prerequisite, Animal Husbandry 110 and permission to register. W 4:15. Stocking 160. Professor McCAY.

Lectures and conferences on the nutrition of animal species from the invertebrate to man, with special emphasis upon the fundamental discoveries in such fields as growth, comparative biochemistry, and physiology that have been synthesized into the modern science of nutrition.

SPECIAL TOPICS IN ANIMAL NUTRITION. (Agriculture; Animal Husbandry 210.) Spring. Credit one hour. Registration by permission, T 8. Stocking 160. Professors LOOSLI, MAYNARD, and McCAY.

A presentation and discussion of the knowledge and techniques of special fields of animal nutrition, with particular reference to farm animals.

EXPERIMENTAL METHODS IN POULTRY NUTRITION. (Agriculture; Poultry Husbandry 210.) Spring. Credit two hours. Registration by appointment. Discussion and laboratory period, Th 2-4:30. Rice 201. Professor NORRIS.

A critical consideration of the domestic fowl as an experimental animal and of the experimental methods used in conducting research in poultry nutrition.

ADVANCED LIVESTOCK FEEDING AND APPLIED ANIMAL NUTRITION. (Agriculture; Animal Husbandry 115.) Spring. Credit two hours. Prerequisite, a course in livestock feeding and a course in animal nutrition. Lectures and discussions, T Th 9. Wing E. Professor MORRISON.

This course includes a presentation and discussion of recent developments in the feeding and nutrition of farm animals, study of experimental methods, and critical analysis of published data.

[READINGS IN NUTRITION. (Home Economics; Food and Nutrition 400.) Spring. Offered in alternate years. Credit two hours. Registration with permission of the instructor. Discussion, T Th 11. Van Rensselaer 301. Professor HAUCK.

Critical review of literature relating to energy metabolism, proteins, fats, and carbohydrates, with emphasis on the experimental data on which the principles of human nutrition are based.] Not offered in 1948-1949.

SEMINAR IN ANIMAL NUTRITION. (Agriculture; Animal Husbandry 219.) Spring. Credit one hour. Open to students of the Graduate School and the School of Nutrition. Registration by permission. Assigned readings on selected topics, with weekly conferences. M 4:15. Savage 100. Professors MAYNARD, McCAY, NORRIS, and LOOSLI.

A consideration of the experimental data on which the principles of animal nutrition are based, and a critical review of current literature.

SEMINAR IN FOOD AND NUTRITION. (Home Economics; Food and Nutrition 360.) Fall. Credit one hour. Prerequisites, Food and Nutrition 103 or 130 and 210, 215 or 225. Th 2. Van Rensselaer 301. Professor FENTON and Associate Professor STEININGER.

Study of historical and current literature.

ADVANCED SEMINAR IN NUTRITION. (Home Economics; Food and Nutrition 420.) Fall. Credit one hour. T 4. Van Rensselaer 301. Professor HAUCK and department staff.

CLINICAL NUTRITION. (Arts and Sciences; Clinical and Preventive Medicine 2.) Spring. Credit two hours. Prerequisites, a course in nutrition, in physiology, and in biochemistry. Registration by permission of the instructor. For School of Nutrition

and Graduate School students only. T Th 12. Savage 145. Associate Professor YOUNG and members of the medical staff.

This course is designed to familiarize the student with some of the applications of nutrition to clinical problems.

FIELD OBSERVATION AND EXPERIENCE IN COMMUNITY NUTRITION. (Arts and Sciences; Clinical and Preventive Medicine 3.) Both terms. Credit two hours (a term). Prerequisite, consent of the instructor. For School of Nutrition and Graduate School students only. Th 9-12 and others as arranged. Room as arranged. Mrs. BERRESFORD.

Supervised observation and experience in the community nutrition program of a county health unit. Supervision is provided by a qualified nutritionist.

DIET THERAPY. (Home Economics; Food and Nutrition 330.) Fall. Credit three hours. Prerequisite, Food and Nutrition 230. Registration with permission. Lecture and discussion, T Th 8, F 3. Van Rensselaer 426. Professor HAUCK.

Diet in those diseases such as fever, gastrointestinal disturbances, and diabetes.

PUBLIC HEALTH

PUBLIC HEALTH AND COMMUNITY SANITATION. (Engineering 2509.) Spring. Credit three hours. Elective for advanced and graduate students. M W F 12. Room to be arranged. Associate Professor GIFFT and Assistant Professor BOND.

A general course outlining basic principles in transmission of disease and communicable disease control; organizations and functions of Federal, State and local Health Departments; standards of environmental sanitation, including water supply, waste disposal, milk, restaurant and school sanitation, insect and rodent control; industrial hygiene; vital statistics. Content of the course adjusted to the needs of the students enrolled in order to demonstrate the responsibility of individuals and their professions for maintaining the public health.

FOOD

FOOD PREPARATION: PRINCIPLES AND COMPARATIVE METHODS. (Home Economics; Food and Nutrition 225.) Fall. Credit five hours. Not to be elected by students who have had Food and Nutrition 210 or 215. Limited to 18 students. Registration by permission. Lecture, T W Th 9. Van Rensselaer 339. Laboratory, T Th 10-12:20. Van Rensselaer 361. Professor FENTON.

The principles of food preparation and the application of science, particularly chemistry, to the solution of cookery problems such as color, flavor, texture, and nutritive changes in handling and cooking vegetables and fruits; heat penetration and hydrogen-ion in canning; crystallization in candies, ice creams, and quick-frozen foods; principles of meat cookery and changes in nutritive values during cooking; relation of manipulation of doughs and reaction time of baking powders to quality of cakes and muffins. The literature is reviewed and typical comparative experiments are made.

PRINCIPLES OF FOOD PRESERVATION. (Agriculture; Biochemistry 130.) Spring. Credit two hours. Registration by permission. Lectures, T Th 10. Savage 145. Associate Professor RAMSTAD.

A discussion of the basic physical, chemical, and biological principles of food preservation and their application in refining, dehydration, cold storage, freezing, canning, fermentation, chemical preservation, and packaging. The effects of food processing upon the maintenance of nutritive value and on other food qualities.

SCIENCE RELATED TO FOOD, ADVANCED COURSE. (Home Economics; Food and Nutrition 310.) Fall. Credit three hours. Prerequisites, Food and Nutrition 210, 215 or 225, and 240 or 260. Registration with permission. M W F 8. Van Rensselaer 339. Professor PERSONIUS.

The scientific principles necessary to the understanding of modern theory and

practice in the field of food preparation. Historical and current literature is reviewed. *EXPERIMENTAL COOKERY.* (Home Economics; Food and Nutrition 320.) Spring. Credit three hours. Prerequisites, Food and Nutrition 210, 215 or 225, and 240 or 260; Food and Nutrition 310 is recommended to precede this course. Registration with permission. Discussion and laboratory, W F 8-11. Van Rensselaer 356 and 358. Professors PERSONIUS and PFUND.

Independent laboratory work in the solving of practical problems in food preparation. Study of methods and techniques used in experimental work in food. Judging of food products.

FOOD DEMONSTRATIONS. (Home Economics; Food and Nutrition 305.) Fall and spring. Credit one hour. Limited to 10 students. Prerequisites, Food and Nutrition 210, 215 or 225, and 103 or 130. Registration with permission. T Th 2-3:30. Van Rensselaer 361. Assistant Professor FOSTER.

Emphasis on the purposes and techniques of demonstrations in relation to food preparation and nutrition, with application to teaching, extension, business, and social service.

QUANTITY FOOD PREPARATION: PRINCIPLES AND METHODS. (Home Economics; Institution Management 230.) Fall and spring. Credit five hours. Registration by permission. Prerequisites, Institution Management 100, Food and Nutrition 215 or 225. Should parallel Institution Management 220. Discussion, M 9. Van Rensselaer G62. Practice, W F 8-1:30. Van Rensselaer G62 and Cafeteria. Assistant Professor NEIDERT.

A major course in institution management, with emphasis given to quantity cookery in the cafeteria kitchen; observation of management and personnel problems; use, operation, and maintenance of equipment. The student is expected to apply what has been taught in prerequisite or parallel courses, including basic principles and procedures of food preparation, food chemistry, marketing, and nutrition. Student ability for professional work in food administration is evaluated.

QUANTITY FOOD PREPARATION AND CATERING, ADVANCED COURSE. (Home Economics; Institution Management 330.) Fall and spring. Credit five hours. Registration by permission. Prerequisite, Institution Management 210 or 230. Limited to twelve students. Special catering assignments require 25 to 30 hours in addition to the scheduled laboratories.

Fall: Hotel students only. Laboratory, T Th 8:30-2. Discussion, S 9.

Spring: Home economics students, Laboratory, T Th 8:30-2; Hotel students, W F 8:30-2. Discussion, S 9 for both groups.

Conference hours by appointment. Van Rensselaer Green Room. Assistant Professor NEIDERT.

Practice in organization of work, requisition of food supplies, making menus, calculating costs, supervision of service and preparation of food for luncheons and dinners and other catering projects as assigned.

INSTITUTION ORGANIZATION AND ADMINISTRATION. (Home Economics; Institution Management 320.) Spring. Credit four hours. Prerequisites, Institution Management 230 and Hotel Accounting 240. Hotel Administration 119, Child Development 260, and Textiles and Clothing 310 are suggested. Registration with permission. Lectures and discussions, M F 2-4. Van Rensselaer 124. Professor HARRIS.

Analysis and interpretation of major administrative problems such as: physical plan of organization, policies underlying the plan, budget making, record keeping, personnel relationships, job specifications, scheduling employees, planning of efficient kitchens, and selection of equipment. A two-day trip to Syracuse or Rochester to visit various types of institutions may be included. Estimated cost of trip, \$12.

FROZEN FOOD SEMINAR. (Home Economics; Food and Nutrition 325.) Spring. Credit one hour. Registration by permission. Lectures, Th 2. Van Rensselaer Auditorium. Professor FENTON.

Lectures on each subject will be given by a staff member who is currently engaged in research in that area.

Selecting and processing vegetables; selecting and processing fruits; selecting and processing meats; packaging materials and methods; freezing rates; freezing methods and equipment; storage; precooked or prepared foods; thawing and cooking; economic trends; patron and consumer desires; quality control.

ADVANCED SEMINAR IN FOOD. (Home Economics; Food and Nutrition 421.) Spring. Credit one hour. T 4. Van Rensselaer 421. Professor FENTON and department staff.

[*CHEMISTRY OF MILK.* (Agriculture; Dairy Industry 113.) Fall. Credit two hours. Prerequisite, qualitative and quantitative analysis and organic chemistry. M W 8. Stocking 120. Professor HERRINGTON.] Not given in 1948-1949.

A consideration of milk from the physico-chemical point of view.

MILK-PRODUCTS MANUFACTURING. (Agriculture; Dairy Industry 103.) Fall. Credit five hours. Prerequisite, Dairy Industry 1 and Bacteriology 1 or its equivalent. T Th 11-4:30. Stocking 120. Professor GUTHRIE and Associate Professor AYRES.

The principles and practice of making butter, cheese, and casein, including a study of the physical, chemical, and biological factors involved. Consideration is given also to commercial operations and dairy-plant management.

MILK-PRODUCTS MANUFACTURING. (Agriculture; Dairy Industry 104.) Spring. Credit five hours. Prerequisite, Dairy Industry 1; should be preceded or accompanied by Dairy Industry 5. F 12-5, S 8-1. Stocking 120. Associate Professor AYRES.

The principles and practice of making condensed and evaporated milk, milk powders, ice-cream, and by-products, including a study of the physical, chemical, and biological factors involved.

HANDLING, STORAGE, AND UTILIZATION OF FRUIT. (Agriculture; Pomology 111.) Fall. Credit three hours. Prerequisite, Pomology 1. Lectures, T Th 8. Laboratory, Th or F 2-4:30. Plant Science 107 and the packing house. Professor SMOCK and Mr. MATTUS.

The important factors in harvesting and handling fruit that affect quality and marketability are studied. Emphasis is placed on the practices and problems of handling apples, but the work covers also such fruits as peaches, pears, and grapes, in so far as these are available. The effect of grades and packages on distribution and marketing is fully discussed, with some attention to the problems of market inspection. Consideration is given to the principles and practices of common, cold, and modified air storage, and to the utilization of fruits in the dried, canned, frozen, or juice forms.

SPECIAL TOPICS IN VEGETABLE CROPS. (Agriculture; Vegetable Crops 225.) Spring. Credit three hours. Given in alternate years. Primarily for graduate students. Prerequisite, Vegetable Crops 101 and Botany 31. It is recommended that Botany 231 and 232 precede or accompany this course. Room and time to be arranged. Professors THOMPSON, WORK, RALEIGH, ORA SMITH, and Associate Professor SWEET.

In this course the students are expected to review critically and to evaluate the more important research publications that deal with vegetable production, handling, and storage problems. In the discussions attention is given to research methods and techniques.

GRADING AND HANDLING VEGETABLE CROPS. (Agriculture; Vegetable Crops 112.) Fall. Credit three hours. Lectures, T Th 8. East Roberts 222. Laboratory, T or W 2-4:30. East Roberts 223, vegetable greenhouses, and East Ithaca gardens. Associate Professor SWEET.

Geography of vegetable production and distribution. Factors of environment, culture, and handling as affecting quality, condition, and marketing of vegetable crops. Harvesting, grades and grading, packing, shipping-point and terminal-market

inspection, transportation, refrigeration, and storage are discussed with reference to the various crops for marketing or processing. A two-day trip is required.

VEGETABLE CROPS, ADVANCED COURSE. (Agriculture; Vegetable Crops 101.) Fall. Credit three hours. Prerequisite, Vegetable Crops 1 and Botany 31. Lectures, M W F 9. One conference period to be arranged. East Roberts 223. Professor THOMPSON.

A course devoted to a systematic study of the sources of knowledge and opinions as to practices in vegetable production and handling. Results of experiments that have been concluded or are being conducted are studied, and their application to the solution of practical problems is discussed.

ELEMENTARY CHEMICAL ENGINEERING. (Engineering 5110.) Spring. Credit three hours. Prerequisite, Chemistry 102 or 104. Primarily for students in Agriculture or Nutrition. Not open to students in Chemical Engineering. Lectures, M W F 11. Olin 158. Professor RHODES.

A general discussion of the fundamental operations and processes of chemical engineering, with particular emphasis on their applications in the food-processing industries. Among the topics discussed are the unit operations of evaporation, filtration, agitation, distillation, and drying, and the general design of food-processing plants.

ELEMENTARY FOOD ENGINEERING. (Engineering 3510.) Fall. Credit three hours. Prerequisite, Elementary physics and chemistry. Primarily for students of Agriculture or Nutrition. Not open to Engineering students. Lectures, T Th S 9. Warren 225. Mr. SILVER.

An elementary course to acquaint non-engineering students with some of the basic principles and knowledge of electric motors, engines, and refrigerating equipment used in the preservation and storage of foods.

BACTERIOLOGY

APPLIED BACTERIOLOGY. (Agriculture; Bacteriology 103.) Spring. Credit six hours. Prerequisite, Bacteriology 1, quantitative analysis, and organic chemistry. Lectures and laboratory practice, M W F 1:40-5. Stocking 119. Professors SHERMAN, SEELEY, and assistants.

The important groups of bacteria that are of significance in water, milk, and foods, together with the methods used in the bacteriological analysis and control of these products.

HIGHER BACTERIA AND RELATED MICROORGANISMS. (Agriculture; Bacteriology 105.) Fall. Credit four hours. Prerequisite, Bacteriology 1. Lectures, recitations, and laboratory practice, T Th 1:40-5. Stocking 119 and 323. Professor KNAYSI and assistant.

A study of the higher bacteria, together with the yeasts and molds that are of special importance to the bacteriologist.

SELECTED TOPICS IN BACTERIOLOGY. (Agriculture; Bacteriology 212.) Fall and spring. Credit one hour a term. For seniors and graduate students. F 8. Stocking 120. Professor RAHN.

The topics change each term. The topics are: the yeast industries, bacteriology of water and sewage, food industries, disinfection.

CHEMISTRY OF BACTERIAL PROCESSES. (Agriculture; Bacteriology 215.) Spring. Credit two hours. For seniors and graduate students. Lectures, T Th 8. Stocking 119. Professor — and —.

The chemistry of metabolism, fermentation, and nutrition of microorganisms.

BIOCHEMISTRY

GENERAL BIOCHEMISTRY, LECTURE. (Agriculture; Biochemistry 101.) Fall. Credit four hours. Prerequisites, Chemistry 215, 307, 308, and 311, or the equivalent. Lectures, M W F S 11. Savage 100. Professor WILLIAMS.

For graduate and advanced undergraduate students, dealing with the chemistry of plant and animal substances and the reactions occurring in biological systems.

GENERAL BIOCHEMISTRY, LABORATORY. (Agriculture; Biochemistry 102.) Fall. Credit two hours. Prerequisite or parallel, Biochemistry 101. Laboratory, M W or T Th 2-4:20. Savage 230. Professor WILLIAMS and assistants.

Laboratory practice with plant and animal materials, and the experimental study of their chemical properties.

BIOCHEMISTRY OF LIPIDS AND CARBOHYDRATES. (Agriculture; Biochemistry 201.) Spring. Credit two hours. Prerequisite, Biochemistry 101 and 102. Lectures, M W 9. Savage 145. Professor SUMNER and Associate Professor NELSON.

For graduate students only. Discussion of the biological and physical chemistry of the lipids and carbohydrates.

BIOCHEMISTRY OF PROTEINS AND ENZYMES. (Agriculture; Biochemistry 202.) Spring. Credit two hours. Prerequisite, Biochemistry 101 and 102. Lectures, T Th 9. Savage 145. Professor SUMNER.

For graduate students only. Discussion of the biological and physical chemistry of proteins and enzymes.

SELECTED TOPICS IN FOOD BIOCHEMISTRY. (Agriculture; Biochemistry 140.) Spring. Credit two hours. Prerequisite, Biochemistry 101. Lectures, M W 10. Savage 145. Associate Professor RAMSTAD.

A discussion of some of the important non-microbial changes in foods, such as oxidative rancidity and the Maillard browning reaction. Emphasis is placed on the occurrence, significance, and prevention or control of the changes as they affect the color, odor, flavor, texture, or nutritive value of foods.

PLANT BIOCHEMISTRY. (Agriculture; Biochemistry 210.) Spring. Credit two hours. Prerequisite, Biochemistry 101 and 102 or the equivalent. Given in alternate years. Lectures, T Th 11. Savage 145. Associate Professor NEAL.

Lectures and discussion of biochemical topics of particular interest to students in plant sciences.

ADVANCED BIOCHEMISTRY, LABORATORY. (Agriculture; Biochemistry 203.) Spring. Credit two hours. Prerequisite, to accompany or follow Biochemistry 201 and 202. M W 2-4:20. Savage 230. Professor SUMNER and Associate Professor W. L. NELSON.

For graduate students only. Practice in the use of special techniques and instruments employed in biochemical research and in the isolation of biochemical compounds.

BIOCHEMISTRY SEMINAR. (Agriculture; Biochemistry 215.) Fall. Credit one hour. Registration by permission. M 4:15. Savage 145. Professor SUMNER.

Assignments and discussion of recent advances in biochemistry.

CHEMISTRY AND PHYSICS

[CHEMISTRY OF NATURAL PRODUCTS. (Arts and Sciences; Chemistry 395-396.) Throughout the year. Two hours a term. Prerequisite, Chemistry 320 or 365-366. Primarily for graduate students. Students may register for either term separately. Lectures, T Th 11. Assistant Professor CAIN.

A discussion of the organic chemistry of natural products. Fall term: terpenes, vitamin A, quinones, plant pigments, antibiotics, and alkaloids. Spring term: amino acids, proteins, carbohydrates, vitamin C, the vitamin B group, and steroids. Given in alternate years.] Not offered in 1947-1948.

[ANALYTICAL METHODS. (Agriculture; Dairy Industry 111.) Spring. Credit four hours. Prerequisite, quantitative analysis. Lectures, T Th 11. Laboratory practice, T 1-5. Stocking 120. Professor HERRINGTON and Mr. SHAIPE.

A study of the more important operations and apparatus used in quantitative analysis and their practical application.] Offered in Fall 1948-1949 only.

PHYSICAL CHEMISTRY FOR STUDENTS OF BIOLOGICAL SCIENCES. (Arts and Sciences; Chemistry 405, 406.) Throughout the year. Credit: Chemistry 405 three hours; Chemistry 406 two hours. Prerequisite, Chemistry 375 and Mathematics 153-154. Open only to students in the biological sciences. Lectures, Fall term, T Th S 12; Spring term, T Th 12. Professor BRIGGS.

A survey of the principles of elementary physical chemistry, including an introduction to colloid chemistry and electro-chemistry.

INTRODUCTORY PHYSICAL CHEMISTRY. (Arts and Sciences; Chemistry 403-404.) Throughout the year. Credit three hours a term. Prerequisite, Chemistry 307-308, Mathematics 161-162-163, and Physics 107 and 108 (or their substantial equivalent). Required of candidates for the degree of B. Chem. Eng. Lectures, M W F 9. Professor BRIGGS.

A systematic presentation of the principles of physical chemistry. The topics include: the properties of gases, liquids, and solids; physical and chemical equilibrium in homogeneous and heterogeneous systems; the mass law, theorem of Le Chatelier, and the phase rule; thermochemistry and elementary thermodynamics; the theory of solutions; ionic equilibria; chemical kinetics; problems in physical chemistry.

INTRODUCTORY PHYSICAL LABORATORY. (Arts and Sciences; Chemistry 411-412.) Throughout the year. Credit three hours a term. Prerequisite or parallel course, Chemistry 403-404, or 407-408. Enrollment may be limited. Laboratory, M T or Th F 2-4:30, or S 8-1. Professors BRIGGS, HOARD, and assistants.

Qualitative and quantitative experiments illustrating the principles of physical chemistry, and practice in performing typical physico-chemical measurements.

COLLOID CHEMISTRY. (Arts and Sciences; Chemistry 440.) Spring. Credit three hours. Prerequisite, Chemistry 403-404, or 407-408. Lectures, M W F 12. Professor BRIGGS.

The general theory of colloid chemistry and adsorption, with emphasis on the preparation and properties of inorganic colloids.

PHYSICS FOR STUDENTS OF BIOLOGY AND MEDICINE. (Arts and Sciences; Physics 200.) Either term. Credit three hours. Prerequisites, six semester hours of college work in each of the following: physics, chemistry, and a biological science. Lectures, T Th 12. Rockefeller B. Laboratory, T or Th 2-4. Rockefeller 354. Associate Professor BARNES.

ECONOMICS

FOOD ECONOMICS. (Agriculture; Agricultural Economics 160.) Spring. Credit three hours. Designed especially for students in the School of Nutrition and in the College of Home Economics. Not open to students in the College of Agriculture except by permission of the instructor. Lectures and discussion, M W F 8. Warren 325. Professor DeGRAFF.

Economic aspects of food, including production, distribution, and consumption, with special emphasis on the economics of diet.

MARKETING. (Agriculture; Agricultural Economics 141.) Fall. Credit three hours. Lectures, M W F 10. Warren 225. Professor —.

A general course dealing with problems of distribution of farm products. Characteristics of consumer-demand; factors to be considered in judging the best marketing plan from the standpoint of when, where, in what form, and through what channels to sell; public regulation and controls.

ECONOMIC PROBLEMS OF FAMILIES. (Home Economics; Economics of the Household and Household Management 410.) Spring. Credit two hours. The instructor should be consulted before registering. Th 2-4. Van Rensselaer 108. Professor CANON.

Analysis of a few outstanding contributions to economic thought related to this field. Examination of methods of research.

INTRODUCTION TO INDUSTRIAL AND LABOR RELATIONS. (Ind. Labor Relations 10.) Fall and spring. Credit three hours. Open to students not in ILR School. M W F 2. Room to be arranged. Mr. FERGUSON.

A survey of social, economic, political, and intellectual influences in the American scene which have shaped the nature and proposed solutions of problems in industrial and labor relations.

MATHEMATICS

ANALYTIC GEOMETRY AND CALCULUS. (Arts and Sciences; Mathematics 161-162-163.) Three terms; each course is offered each term. Credit three hours a term. Primarily for students in the College of Engineering; the prerequisites for such students are Mathematics 133 and Mathematics 129 or 131, or the equivalent. For students in the College of Arts and Sciences, the prerequisites for Mathematics 161 are the same as those stated for Mathematics 171. Time and rooms to be announced later.

MATHEMATICS FOR SOCIAL AND BIOLOGICAL SCIENCES. (Arts and Sciences; Mathematics 153-154.) Fall and spring. Credit three hours a term. Prerequisite, Mathematics 111, or the equivalent. T Th S 9. White 115. Professor FELLER.

Covers those parts of analytic geometry and calculus which are of greatest importance in statistics and various applications in economics, sociology, psychology, biology, etc. Emphasis is on conceptual understanding. This course is not intended to satisfy prerequisites for courses in Mathematics, Physics, Chemistry, Architecture, or Engineering. Mathematics 154 will serve as prerequisite for Mathematics 721.

STATISTICAL METHODS OF ANALYSIS. (Agriculture; Plant Breeding 211.) Fall. Credit three hours. For graduate students. Seniors admitted by special permission. T 11. Warren 25. Th 2-4. Plant Science 233. Associate Professor LIVERMORE.

A discussion of statistical methods for the study of variation, correlation, curve fitting, experimental error, the analysis of variance and of covariance; and the application of these methods to problems in biology and related fields.

PRINCIPLES OF INDUSTRIAL ACCOUNTING AND COST FINDING. (Engineering 3231.) Fall. Credit three hours. Two recitations and one computing period a week. Lectures, T Th 11; Laboratory periods, M 2-4:30, T 8-10:30, Th 2-4:30, F 10:30-1. Room to be arranged. Associate Professor SCHULTZ and Assistant Professor SCOTT.

A basic course in modern industrial accounting and in cost finding.

PHYSIOLOGY AND HISTOLOGY

PHYSIOLOGY. (Veterinary; Physiology 12.) Spring. Credit three hours. M W F 8. James Law Hall. Professor DUKES.

Lectures, demonstrations, and recitations on blood and lymph, circulation, respiration, digestion, and absorption. The action of drugs (pharmacodynamics) will be considered where possible.

PHYSIOLOGY. (Veterinary; Physiology 13.) Fall. Credit three hours. M T W 9. James Law Hall. Professors DUKES and DYE.

Lectures, demonstrations, and recitations on excretion, metabolism, heat regulation, endocrine organs, muscle and nerve, central nervous system, senses, and reproduction. The action of drugs will receive attention where possible.

EXPERIMENTAL PHYSIOLOGY. (Veterinary; Physiology 14.) Fall. Credit three hours. Laboratory, M 10-12:30, F 8-1; or W 10-12:30, S 8-1. James Law Hall. Professor DUKES and —.

Special emphasis is placed on mammalian physiology. A part of the course is devoted to pharmacodynamics.

ADVANCED EXPERIMENTAL PHYSIOLOGY. (Veterinary; Physiology 16.) Spring. Credit three hours. Prerequisites, Physiology 12 or 13, or its equivalent. Registration

by permission. Laboratory, F 9-1. A conference hour to be arranged. James Law. Professors DUKES and DYE.

A laboratory course in mammalian and avian physiology.

ELEMENTARY ENDOCRINOLOGY. (Agriculture; Animal Husbandry 127.) Fall. Credit one hour. Registration by permission. Th 9. Wing B. Professor ASDELL.

A general course in the physiology of the endocrine system.

PHYSIOLOGY OF REPRODUCTION. (Agriculture; Animal Husbandry 125.) Spring. Credit two hours. Prerequisite, a course in human or veterinary physiology. Lectures, M W 10. Wing C. Professor ASDELL.

An advanced course in reproduction, principally in mammals.

ENDOCRINOLOGY AND METABOLISM. (Veterinary; Physiology 305.) Fall. Credit three hours. Prerequisite, six or more hours each of biology and chemistry. M W F 8. Moore Laboratory 101. Professor DYE.

Study of digestion, metabolism, endocrinology, and reproduction.

HISTOLOGY: THE BIOLOGY AND DEVELOPMENT OF THE TISSUES. (Arts and Sciences; Zoology 301.) Fall. Credit four hours. Prerequisites, Zoology 101-102, or 103-104, and 211-212. Lectures, T Th 11. Laboratory, T Th 8-10:30 or 2-4:30. Stimson G I. Assistant Professor WIMSATT and assistants.

A general survey of the structure and development of the tissues. The treatment is general, designed to provide students of biology with a basis for the understanding of normal and abnormal structure of the vertebrates. Each student will make for his own use a series of typical microscopic preparations.

THE ORGANS: HISTOLOGY AND DEVELOPMENT. (Arts and Sciences; Zoology 302.) Spring. Credit four hours. Prerequisite, Zoology 301. Lectures, W F 9. Laboratory, W F 2-4:30. Stimson G I. Assistant Professor WIMSATT and assistants.

A continuation of Zoology 301. Zoology 301 and 302 together give the fundamental facts of the microscopic structure and development of the body. There is also offered opportunity to gain knowledge of technique in the fixing, embedding, and sectioning of selected organs.

SOCIAL STUDIES

THE FIELD OF SOCIAL WORK. (Agriculture; Rural Sociology 124.) Each term. Credit four hours. Not open to freshmen or sophomores. Prerequisite, one course in sociology and one course in psychology. Lectures and discussions, M W F 9. Two hours' experience weekly in a social agency in Ithaca and Tompkins County, to be arranged. Warren 240. Assistant Professor TAIETZ.

This course considers the field of social work as a network of services designed to meet a wide range of human needs growing out of social, economic, and emotional maladjustments. A concept of social work as an institution is developed through a study of the processes of social case work, social group work, and community organization. Consideration is given to social work as a career, the professional knowledge and skill necessary for the practice of social work, and how these can be acquired through graduate training.

SOCIAL SERVICES TO INDIVIDUALS. (Agriculture; Rural Sociology 126.) Spring. Credit three hours. Prerequisite, Rural Sociology 124. Lectures and discussion, M W F 11. Warren 302. Assistant Professor TAIETZ.

An analytical study of attitudes and behavior commonly encountered in helping others. The role of emotional factors in influencing thinking and action, and in the use individuals make of the services of social agencies. Principles and methods in interviewing. Discussion of case material provided by instructor and from student's own experience.

AN INTRODUCTION TO THE PUBLIC SOCIAL SERVICES. (Agriculture; Rural Sociology 128.) Fall and spring. Credit three hours. Prerequisite, Rural Sociology 124. Lectures and discussion, T Th S 10. Warren 302. Assistant Professor LEYEN-DECKER.

A study of the various social services considered as a function of government. The development of governmental responsibility for meeting certain social needs will be traced and there will be an analysis of basic concepts related to the organization and administration of such services. Attention will be paid to the use of social work principles and skills in public welfare, the attitudes of society toward such programs, and their effect upon those in need.

ADULT EDUCATION. (Home Economics; Home Economics Education 437.) Fall and spring. Credit two or three hours. M 4 and other hours to be arranged. Van Rensselaer 124. Assistant Professor PATTERSON.

Designed for teachers, nutritionists, extension agents, health and social workers, leaders in parent education and other adult-education programs.

This course deals with philosophy, organization, program planning, promotion, leadership, and evaluation of adult education. Attention is given to the contributions that different agencies can make to adult education in the community program. Students observe and participate in adult-homemaking programs within the vicinity. Time must be planned for trips. Estimated cost of trips, \$5 to \$7.

ADULT EDUCATION (Advanced). (Home Economics; Home Economics Education 438.) Fall and spring. Credit two or three hours. Assistant Professor PATTERSON. S 9 and other hours to be arranged. Room 124.

This course is a continuation of Home Economics Education 437. However, students with experience in adult education may register for this course with permission of instructor without registering for Home Economics Education 437.

This course deals with a variety of desirable learning experiences and provides opportunities for experimentation with a variety of teaching methods and materials suited to adults. Attention is given to discussion, demonstrations, home visits, the use of the radio, films, recordings, printed materials, and other procedures for group and non-group teaching. Each student observes and participates in adult programs according to interests and time available. Estimated costs of transportation, \$8 to \$10.

PERSONAL COUNSELING. (Home Economics; Child Development and Family Relationships 480.) Spring. Credit three hours. Open to graduate students. Limited to twelve students. Prerequisite: several courses in Child Development and Family Relationships and/or psychology, and permission of the instructor. Th 2-4:30. G22. Professor DALTON.

The place of personal counseling in human relationships. Consideration will be given to some theories underlying maladjustment and to some of the psychotherapeutic approaches currently in use. Attention will be directed to several diagnostic methods and one of these — The Thematic Apperception Test — will be examined rather intensively.

MANAGEMENT IN FAMILY LIVING. (Home Economics; Economics of the Household 310.) Fall and spring. Credit two hours. Prerequisite, Economics of the Household 308. For juniors, seniors, and graduate students. Graduate students should consult the instructor before registering. W F 2-4:20, and one additional hour for graduate students. Room G19. Associate Professor CUSHMAN and Miss BOETTCHER.

A study at first hand of the ways in which different families manage to achieve their individual purposes with the resources available. Experience in homes in observing the procedure of management and in recognizing the values and goals of different families. Cooperation with family members in analyzing source material for use in making their decisions and in evaluating results on the basis of their goals. Similar cooperative projects in the areas of the students' vocational choices, and their personal activities. One all-day tour, time to be arranged.

FAMILY RELATIONSHIPS AND PERSONALITY DEVELOPMENT. (Home Economics; Child Development and Family Relationships 460.) Fall. Credit three or four hours. Graduate section of 260. T Th 11-12:30. Room 121. Professor ROCKWOOD.

DYNAMICS OF PERSONALITY. (Home Economics; Child Development and Family Relationships 360.) Fall. Credit three hours. Open to juniors, seniors, and graduate students. Prerequisite: one course in Child Development and Family Relationships or Psychology. Limited to forty-five students. M W F 11. Room 124. Professor DALTON.

A study of the development of the personality in the American culture. Special attention will be given to some of the basic determinants of personality; the development of control and structure in the individual; unconscious processes as they influence behavior; and some of the directive forces in behavior.

PROBLEMS IN RURAL COMMUNITY ORGANIZATION. (Agriculture; Rural Sociology 111.) Spring. Credit three hours. Prerequisite, Rural Sociology 12, or permission of the instructor. M W F 10. Warren 302. Associate Professor LARSON.

The application of sociology to the practical problems of community organization.