

## Division of Nutritional Sciences

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**115 Ecology of Human Nutrition and Food** Fall and spring. 3 credits. S-U grades optional. Prerequisites: *fall*: high school biology (juniors and seniors with advanced biological science background must have permission of the instructor); *spring*: a one-semester college biology course or permission of the instructor. Cost of handouts and pamphlets, \$3.

Fall: M W F 9:05; spring: M W F 11:15. M. Devine. An introduction to the field of human nutrition and food that focuses on the mutual relationships between individuals and their biological and physical environment. Includes study of human nutritional needs, problems encountered in providing food to meet nutritional needs, relationships among physiological needs, sociocultural systems, food and the significance of these relationships to the attainment of health.

**146 Introductory Foods** Fall and spring. 3 credits. Each section limited to 16 students. Prerequisite: NS 115 or concurrent registration and permission of instructor during course registration (permission of instructor forms may be obtained from and returned to 335 Martha Van Rensselaer Hall).

Lec, fall: M 11:15; spring: M 10:10. Labs, W F 10:10–12:05 or T R 10:10–12:05 or 2:30–4:25. M. Pimentel.

Criteria for evaluating the practice of the science of food and nutrition. Lab includes an introduction to the physiochemical properties of food and the relationship of these properties to preparation, techniques, and food quality. Some meal preparation, focusing on human nutritional needs and the management of money and time, is included.

**222 Maternal and Child Nutrition** Spring. 3 credits. Prerequisites: NS 115 and a college biology course. S-U grades optional.

M W F 11:15. V. Utermohlen. Involves a study of the nutritional requirements in pregnancy, lactation, and growth through adolescence. Topics include the relationship between maternal diet and pregnancy outcome; analysis of different methods of infant feeding; and nutritional status of pregnant women, children, and adolescents in the United States and in developing countries.

**246 Introduction to Physiochemical Aspects of Food** Fall or spring. 4 credits. Each section limited to 18 students. Prerequisites: a college course in organic chemistry or biochemistry, NS 146, and permission of instructor during course registration (permission of instructor forms may be obtained from and returned to 335 Martha Van Rensselaer Hall). S-U grades optional.

Lecs, T R 9:05; labs, T R 10:10–12:35 or M W 2–4:25. Staff.

A study of (a) the colligative properties of solutions, (b) colloidal systems—sols, gels, foams, and emulsions; (c) physical and chemical properties of

the major groups of foods, the effect of basic methods of food preparation and preservation on these properties and their relation to food quality—especially color, flavor, and texture. Labs in comparative cookery introduce the experimental study of food and illustrate the function of ingredients and effect of treatment on food quality.

**300 Special Studies for Undergraduates** Fall or spring. Special arrangements to establish equivalency for courses not transferred from a previous major or institution. Students prepare a description of the study they wish to undertake on forms available from the Counseling Office, N105 Martha Van Rensselaer Hall. The form, signed by both the instructor directing the study and the associate director for academic affairs, is filed at course registration or during the change-of-registration period.

**301 Nutritional Aspects of Raw and Processed Foods (also Food Science 301)** Spring. 3 credits. Prerequisite: NS 115 or permission of the instructor. M W F 9:05. D. Miller.

An evaluation of the nutritional qualities of human foods with an emphasis on changes that occur during processing and storage. Topics, including food processing methods, dietary trends, vegetarian diets, fabricated foods, fast foods, and food additives, will be discussed in the context of their potential impact on nutrition and health.

**302 Orientation to Field Study in Extension** Fall. 2 credits. Limited to 10 juniors and seniors. Prerequisites: NS 115, 146, and permission of instructor. S-U grades only.

F 12:20–2:20; field trips to nearby counties are arranged as student schedules permit. R. Klippstein.

The selection and preparation of appropriate food and nutrition information for specific lay audiences. Participants complete an individual project using two different mass media teaching tools. When appropriate, the project is taught to established county audiences. The major project is a group project presenting programs to a scheduled extension audience. Additional experiences include a field visit to a county extension office and review of extension organization and resources. Understanding the needs of audiences, informal teaching techniques, and self-critiquing and group critiquing are stressed.

**325 Sociocultural Aspects of Food and Nutrition** Fall. 3 credits. Limited to juniors and seniors. Prerequisites: NS 115 and a college course in anthropology or sociology.

M W F 2:30. D. Sanjur. The course offers a cross-cultural perspective for understanding the environmental and sociocultural parameters affecting the development of food consumption patterns. Emphasis is on theories on formation of food habits, dietary methodologies, ethnicity and food habits and educational programs in nutrition, in national and international contexts.

**331 Physiological and Biochemical Bases of Human Nutrition** Spring. 3 credits. Prerequisites: Biological Sciences 330 or 331 and NS 115 or equivalent. S-U grades optional.

M W F 10:10. M. C. Nesheim and T. C. Campbell. The biochemical and physiological bases for human nutrition requirements, including digestion and absorption, energy metabolism, food intake regulation, protein amino acids, minerals, vitamins, and determination of nutritional status.

**332 Laboratory in Nutrition** Fall and spring. 3 credits. Each section limited to 18 students. Prerequisites: NS 331 or concurrent registration and permission of instructor during course registration (permission of instructor forms may be obtained from and returned to 335 Martha Van Rensselaer Hall).

Lec, T 8; labs, M W 1:25–4 or T R 1:25–4. M. Stipanuk.

Introduction to principles and procedures of experimental design, analytical techniques, and data analysis in human nutrition. Emphasis on methods of analysis of nutrients and metabolites in food, tissues, and body fluids. Application of these methods in assessing physiological and biochemical responses to alterations of nutrient intake in animal and human studies.

**346 Consumer Food Issues** Fall. 2 credits. Limited to 30 juniors and seniors. Prerequisites: NS 115 and 146 or permission of instructor. S-U grades optional.

T R 11:15. C. Bisogni.

An examination of selected consumer issues related to the availability, safety, and quality of food. Current legislative and regulatory proposals will be investigated in terms of relevant research and potential impact on consumers and the food supply.

**347 Human Growth and Development: Biological and Social Psychological Considerations (also HDFS 347)** Spring. 3 credits. Prerequisites: Biological Sciences 101 or 109 or equivalent; HDFS 115 or Psychology 101 and NS 115 or equivalent.

M W F 1:25. J. Haas and H. Ricciuti.

A review of major patterns of physical growth from the fetal period through adolescence, with consideration of biological and socioenvironmental determinants of growth, as well as physical and psychological consequences of variations in growth patterns. An examination of normal patterns of growth will be followed by an analysis of major sources of variations in growth (normal and atypical).

**361 Biochemistry and Human Behavior (also Psychology 361)** Fall. 3 credits. Prerequisites: Biological Sciences 101–102, Chemistry 103–104, Psychology 123, or permission of instructor. A fundamental knowledge of human biology and chemistry is essential. S-U grades optional.

M W F 11:15. D. Levitsky.

A survey of the scientific literature on the role of brain and body biochemical changes as determinants of human behavior. The topics covered include action and effects of psychopharmacologic agents, biochemical determinants of mental retardation, biochemical theories of psychosis, and effects of nutrition on behavior.

**378 Management Principles in Food Service Operation** Spring. 4 credits. S-U grades optional. Prerequisites: NS 246, Agricultural Economics 220, Hotel Administration 211, I&LR 121, I&LR 151, I&LR 260, I&LR 363 or equivalent, or permission of instructor. Estimated cost, \$5.

T R 10:10–12:05. R. Holmes.

Applications of management principles to food service operations involved in production, distribution, and service of quality food in quantity. Includes layout, design, menu planning, food cost control, purchasing, sanitation, and safety.

**398 Honors in Nutritional Sciences** Fall. 1 credit. Limited to students admitted to the division honors program. S-U grades only.

T 2:30. M. Morrison, coordinator.

Research design. Delineation of honors research problem in consultation with a faculty adviser.

**400–401–402 Special Studies for Undergraduates** Fall or spring. Credits to be arranged. S-U grades optional.

Division faculty.

For advanced, independent study by an individual student or for study on an experimental basis with a group of students in a field of nutritional sciences not otherwise provided through course work in the department or elsewhere at the University. Students prepare a description of the study they wish to undertake on forms to be signed by the instructor directing the study and the associate director of academic affairs. The forms, available from the Counseling Office, are filed at course registration or within the change-of-registration period. To ensure

review before the close of the course registration or change-of-registration period, students should submit the special studies form to the associate director for academic affairs as early as possible.

**400 Directed Readings** For study that predominantly involves library research and independent reading.

**401 Empirical Research** For study that predominantly involves data collection and analysis or laboratory or studio projects.

**402 Supervised Fieldwork** For study that involves both responsible participation in a community setting and reflection on that experience through discussion, reading and writing. Academic credit is awarded for this integration of theory and practice.

**441 Nutrition and Disease** Fall. 4 credits. Prerequisites: NS 331 and a human physiology course. S-U grades optional. Cost of handouts and pamphlets, \$5.

M W F 10:10 and F 8. J. Rivers.

Study of the physiologic and metabolic anomalies in chronic and acute illnesses and the principles of nutritional therapy and prevention. The topics covered are diabetes mellitus, starvation, obesity, nutritional assessment, nutritional pharmacology, severe injury, infection, cancer, gastrointestinal diseases, liver disorders, renal diseases, cardiovascular diseases, and pediatrics. Original research papers, books, review papers, and publications of professional organizations are used throughout the course.

**442 Diet Formulation and Analysis** Fall. 2 credits. Limited enrollment. Prerequisites: NS 246, coregistration in NS 441 (or equivalent background), and permission of the instructor. S-U grades optional. Lec, M 11:15; lab, M 2:30–4:25 or T 11:15–1:10. C. Lanciult.

Development of skills in formulation and analysis of therapeutic dietary regimens. Various sources of information on food composition, diet planning, and enteral and parenteral nutrition supplements are used.

**445 Community Nutrition and Health** Spring. 3 credits. S-U grades optional. Prerequisites: NS 331 or concurrent enrollment in 331. Recommended: NS 325. The field project component of this course may involve off-campus activity. Students are responsible for their own transportation or bus fare.

Lecs, M W 1:25; disc, W 2:20–4:30. S. Kumanyika. Study of human nutrition and health problems from a community perspective: programs and policies related to nutrition at local, state, and federal levels; approaches and techniques of effective application and dissemination of nutrition knowledge in communities.

**446 Physicochemical Aspects of Food** Fall. 3 credits. Prerequisites: NS 246 and a college course in biochemistry, which may be taken concurrently. S-U grades optional.

M W F 9:05. G. Armbruster.

The relation of food quality to (a) rheological properties of food systems, (b) oxidation and reduction reactions, and (c) enzymatic and nonenzymatic browning. Covers physical and chemical factors accounting for the color, flavor, and texture of natural and processed foods.

**447 Physicochemical Aspects of Food—Laboratory** Fall. 1 credit. Limited to 16 students. Prerequisite: NS 446 or concurrent registration. S-U grades optional.

T 1:25–4:25. G. Armbruster.

Laboratory experiments designed to illustrate the effect of varying ingredients and treatment on the quality of food products. Objective testing methods are used to determine food quality characteristics.

**448 Physicochemical Aspects of Food—Laboratory** Fall. 1 credit. Limited to 16 students. Prerequisite: NS 446 or concurrent registration. S-U grades optional.

R 1:25–4:25. G. Armbruster.

Laboratory experiments designed to illustrate (a) the physicochemical behavior of colloidal systems, (b) chemical reactions of some food components, and (c) effects of temperature, pH, moisture, inorganic salts, and enzymes on physicochemical changes in natural foods, food components, and food mixtures.

**456 Experimental Foods Methods** Spring. 3 credits. Limited to 16 students. Prerequisites: NS 446, 448, and a course in statistics recommended.

Labs, T R 1:25–4:25. G. Armbruster.

Application of the scientific method in the design and performance of experimental food problems and the interpretation and evaluation of results. Evaluation of the use of instruments and chemical and sensory methods in the measurement of food properties. Independent problems.

**457 National and International Food Economics** Spring. 3 credits. Prerequisites: college course in economics and junior standing or permission of instructor. S-U grades optional.

M W F 9:05. E. Thorbecke.

Examination of individual components essential for an understanding of the United States and world food economies. Analysis of the world food economy. Review and analysis of (a) the major economic factors determining the demand for food, the composition of food consumption, and nutritional intake and (b) the major economic factors affecting food production and supply. Examination and evaluation of the effectiveness of various food policies and programs in altering food consumption patterns. Principles of nutritional planning in developing countries within the context of the process of economic and social development.

**488 Applied Dietetics in Food Service Systems** Fall and spring. 3 credits. Limited to 30 students per semester. Prerequisite or corequisite: NS 378 and permission of instructor before course registration. S-U grades optional. Estimated cost, \$5.

Lec. M 8; lab, one sec, M–F 2:30–7.

J. M. L. Koch.

Lab will be arranged through Cornell Dining. Other experiences may be possible in community food service operations. Students will gain experience in care and use of institutional equipment, job analysis, volume food production, applied sanitation, and recipe development and evaluation as well as other management skills required to operate a food service program. Possible field trip.

**498 Honors in Nutritional Sciences** Spring. 1 credit. Limited to students admitted to the division honors program. Students may register in NS 499 concurrently.

R 9:05. M. Morrison, coordinator.

Informal presentation and discussion of current topics in food and nutrition in which all members participate. Written reports on topics discussed may be requested.

**499 Honors Problem** Fall and spring. Credits to be arranged. Open only to students in the division honors program.

Hours to be arranged. Division faculty; M. Morrison, coordinator.

An independent literature, lab, or field investigation. Students should plan to spread the work over two semesters.

**600 Special Problems for Graduate Students** Fall or spring. Credit to be arranged. Limited to graduate students recommended by their chairperson and approved by the instructor in charge. S-U grades optional.

Hours to be arranged. Division faculty.

Emphasis on independent, advanced work. Experience in research laboratories in the division may be arranged.

**601–604 Advanced Nutrition Series** A series of nutrition courses offered jointly by the Division of Nutritional Sciences and the Departments of Animal Science and Poultry Science. Prerequisites: courses in nutrition, physiology, and biochemistry, including intermediary metabolism, or permission of instructor.

**601 Proteins and Amino Acids in Nutrition (also Animal Science 601)** Fall. 2 credits. Prerequisites: courses in physiology, biochemistry, and nutrition or permission of instructors.

W F 10:10. R. E. Austic and M. A. Morrison.

Advanced course in amino acid and protein nutrition with emphasis on the dynamic aspects of protein digestion, amino acid absorption, protein synthesis, amino acid metabolism, and nitrogen excretion. Discussion will include nutritional interrelationships, amino acid and protein requirements, evaluation of protein quality and bioavailability of amino acids. Emphasis is on basic principles and their applications to animal and human nutrition.

**602 Lipids** Fall. 2 credits.

T R 11:15. A. Bensadoun.

Advanced course in biochemical, metabolic, and nutritional aspects of lipids. Emphasis is on critical analysis of current topics of lipid methodology, lipid absorption, lipoprotein secretion, structure, and catabolism; mechanisms of hormonal regulation of lipolysis and fatty acid synthesis; and cholesterol metabolism and atherosclerosis.

**604 The Vitamins** Fall. 2 credits. Register in Animal Science 604.

T R 10:10. G. F. Combs, Jr.

Lectures on nutritional aspects of the vitamins, including recent developments in nutritional and biochemical interrelationships with other nutrients and metabolites.

**606 Carbohydrate Chemistry** Spring. 2 credits. Prerequisite: organic chemistry. Recommended: biochemistry. S-U grades optional.

T R 11:15. B. A. Lewis.

The chemistry and physicochemical properties of simple carbohydrates, polysaccharides, and their complexes with lipids, proteins, and inorganic ions. The functional role of the carbohydrates in food systems and their nutritional implications will be discussed as well as applications of carbohydrates in food processing.

**611 Molecular Toxicology** Spring. 2 credits.

Prerequisite: full-year 400-level course in biochemistry or equivalent. S-U grades optional. Offered alternate years.

T R 11:15. C. Wilkinson, C. Campbell, A. Aronson, and others.

A study of fundamental biochemical mechanisms of absorption, transport, metabolism, and excretion of drugs, carcinogens, and toxicants. Emphasis on oxidative and conjugative pathways of metabolism and of environmental and nutritional factors that influence toxicant metabolism and disposition. Methods of evaluating *in vivo* and *in vitro* metabolism.

**612 Methods of Assessing Physical Growth in Children** Spring. 2 credits. Limited to graduate students and students who have permission of the instructor. S-U grades optional.

Lec, T 1:25; labs, T R 1:25–4:25. J. Haas.

A lab course to train students in methods and techniques used to assess the physical growth and development of growing children. The methods explored will be those applicable for field or community studies and will cover anthropometry, body composition, skeletal age, maturity indicators, physical fitness, and physiological responses to environmental stress.

**616 Readings in Food** Fall. 2 credits. Prerequisite: organic chemistry. Recommended: biochemistry. S-U grades optional. May be repeated for credit with permission of instructor.

M 7:30–9:25 p.m. N. Mondy.

Critical review of selected topics in the current literature. Emphasis on experimental data and basic scientific principles underlying modern theory and practice relative to food quality.

**617 Teaching Seminar** First half of semester during fall or spring. 1 credit. Limited to division graduate students and students who have permission of the instructor. S-U grades only.

S 9–12. M. Devine and N. Yaghlian.

A series of workshops focusing on development of teaching skills for guiding classroom learning in lec, disc, and lab settings. Preparation of content, presentation, and interaction techniques and evaluative methods are emphasized in relation to the student's specific teaching assignment. Videotape simulations provide opportunity for practice and analysis of teaching behaviors.

**618 Teaching Experience** Fall or spring.

Noncredit. Limited to division graduate students and students who have permission of the instructor.

To be arranged. Division faculty, M. Devine, coordinator.

Designed to provide experience in teaching nutritional sciences by direct involvement in college courses under supervision of a faculty member. The aspects of teaching and the degree of involvement vary depending on the needs of the course and the experience of the student.

**619 Field of Nutrition Seminar (also Animal**

**Science 619)** Fall or spring. Noncredit. S-U grades only.

M 4:30. Faculty and guest lecturers.

Lectures on current research in nutrition.

**621 General Nutrition** Spring. 3 credits.

Prerequisites: NS 331, Biological Sciences 331, and Veterinary Medicine 346; or equivalent course work with permission of instructor. Intended for graduate students with a major or minor in nutrition and undergraduate nutrition majors with the necessary background.

M W F 10:10. D. Roe.

An in-depth treatment of nutritional science with human application. Topics will include historical perspectives, nutritional physiology, assessment of nutritional status, human nutritional requirements, and nutritional disease due to diet, disease, or drugs.

**[625 Seminar in Food Habits Research** Fall.

3 credits. Limited to 12 graduate students.

Prerequisite: statistics or research design course. Offered alternate years. Not offered 1980–81.

W F 3:35. D. Sanjur.

Emphasizes a critical review of the literature and development of a research proposal using sociological theories and techniques as applied to nutritional data.]

**626 Special Topics in Food** Spring. 2 credits.

Hours to be arranged. G. Armbruster and

B. A. Lewis.

Current research related to food will be reviewed in the context of basic principles and their application to the quality of food.

**627 Special Topics in Food** Spring. 2 credits.

Prerequisite: organic chemistry. Recommended: biochemistry. S-U grades optional.

M 7:20–9:25 p.m. N. Mondy.

Current research related to food production and processing will be reviewed. May be repeated for credit with permission of instructor.

**630–633 Advanced Nutrition Laboratory** Spring.

1–5 credits. Limited to 12 students.

T R 2:15–5:15. Division faculty.

Study of the anthropometric, dietary, clinical, and biochemical assessment of human nutritional status. The individual courses are taught in sequence over the entire semester. Any or all of the modules may be taken for credit.

**630 Anthropometric Assessment** 1 credit.

Prerequisites: NS 331 or equivalent and permission of instructor.

J. Haas.

Study of methods and procedures for anthropometric, radiographic, and energetic assessment of children and adults in clinical, research, and survey settings.

**631 Dietary Assessment** 1 credit. Prerequisites: statistics and NS 331 or equivalent, and permission of instructor.

D. Sanjur.

Study of methods and techniques for assessing dietary intakes at the individual and household levels.

**632 Clinical Assessment** 1 credit. Prerequisites:

NS 630, 631, 441, Biological Sciences 330 or 331, and either NS 332 or Biological Sciences 430, and permission of instructor.

V. Utermohlen and division faculty.

Study of methods and techniques for clinical assessment of nutritional status and diagnosis of nutritional disorders.

**633 Biochemical Assessment** Weeks 9–14;

interested students must enroll with the instructor during the first 2 weeks of the term. 2 credits.

Prerequisites: NS 331, Biological Sciences 330 or 331, either NS 332 or Biological Sciences 430, a course in human physiology, and permission of instructor.

M. N. Kazarinoff and division faculty.

Biochemical assessment of nutritional status. Experiments are selected to exemplify measurements of intake, use, and output of primary nutrients and their metabolites.

**[634 Vitamins and Coenzymes (also Biological**

**Sciences 634)** Spring. 2 credits. Prerequisites: organic chemistry 253 or 357–358 and Biological Sciences 331 or 330, or their equivalents in biochemistry. Offered alternate years. Not offered 1980–81.

T R 10:10. M. N. Kazarinoff.

The chemical, biochemical, and nutritional aspects of the vitamins and coenzymes.]

**635 Enzymology and Metabolic Regulation (also**

**Biological Sciences 635)** Spring. 2 credits.

Prerequisites: Chemistry 357–358 and either Biological Sciences 330 or 331 or permission of the instructor. Recommended: physical chemistry.

T R 9:05. W. L. Dills and division faculty.

Lectures only. The study of enzymes and the molecular mechanisms of metabolic regulation.

**637 Epidemiology of Nutrition** Fall. 2 credits.

Limited to graduate students. Prerequisites: Statistics and Biometry 602 or 604 or equivalent; NS 331, 441, 601, 603, 630, and 631, or equivalent, and permission of instructor. S-U grades optional.

Hours to be arranged. J-P. Habicht.

In the context of designing and evaluating population interventions to improve protein-calorie nutrition, students will (a) review past evidence of effectiveness and efficiency of intervention, (b) attempt to quantify sensitivity and specificity of outcome measures, and (c) design methods to improve interventions and evaluations.

**638 Epidemiology of Nutrition** Spring. 2 credits.

Limited to graduate students. Prerequisites: Statistics and Biometry 602 or 604 or equivalent; NS 331, 441, 601, 603, 630, and 631, or equivalent, and permission of instructor. S-U grades optional.

Hours to be arranged. J-P. Habicht.

In the context of designing national nutrition surveillance, students will review (a) principles

underlying surveillance, (b) prerequisites of indicators, and (c) current surveillance proposals to identify strengths and weaknesses. The role of evaluation of programs in nutrition surveillance also will be reviewed.

**645 Seminar on United States Nutritional Services and Programs** Spring. 2 credits. Limited to graduate students with a major or minor in human nutrition. S-U grades optional.

M W F 1:25. S. Kumanyika.

Students will be guided in the study and discussion of United States food and nutrition programs, community settings for nutrition service delivery, and linkages of these settings to acute care. Participants will be responsible for preparing and presenting relevant material in class.

**646 Seminar in Physicochemical Aspects of**

**Food** Spring. 3 credits. Prerequisite: a college course in organic chemistry or biochemistry. S-U grades optional.

T R 9:05; disc, hours to be arranged.

An introduction to physicochemical aspects of food for graduate students who have had limited or no work in this area. The seminar uses the lectures of NS 246 as a basis for supplementary readings and critical review of research on selected topics.

**650 Clinical and Public Health Nutrition** Spring.

3 credits. For graduate students with a major or minor in nutrition and undergraduate nutrition majors in their senior year. Prerequisite: NS 331 or equivalent.

M W F 9:05. D. Roe.

Lectures will cover social, environmental, and disease variables that influence the nutrition of infants, children, and adults. Endemic nutritional problems (such as obesity, dental caries, and anemias) of public health importance in the United States will be discussed. Student presentations will be made in class. Limited field experience will be offered.

**651 Nutrition and the Chemical Environment**

Fall. 3 credits. Prerequisite: NS 331 or equivalent.

M W F 11:15. D. Roe.

The relationship between nutrition and the effects of foreign chemicals. Students will be offered an overall view of compounds to which we are exposed, including natural food toxicants, food additives, water pollutants, pesticide residues, and radioactive wastes, as well as medications and illegal drugs. A factual and scientific background will be developed so students can interpret information and misinformation circulated in the news media.

**652 Nutrition Counseling** Spring, weeks 1–7.

2 credits. Limited to students in the Clinical Nutrition Program. Prerequisites: NS 441, 442, and permission of instructor. S-U grades only.

T R 8–10. C. Lanciault.

Principles and procedures of nutritional counseling in clinical practice. Emphasis on subject matter and process skills necessary to develop, implement, and evaluate nutritional care plans for individuals and groups. Includes workshops, simulation techniques, and work with clients in selected settings.

**659 The Nutrition and Physiology of Mineral**

**Elements (also Veterinary Medicine 759)** Fall.

2 credits. Prerequisites: basic physiology, intermediate biochemistry, and general nutrition.

T R 8. R. Wasserman, R. Schwartz, and

D. VanCampen.

Lectures on nutritional aspects and physiological, biochemical, and hormonal relationships of the prominent macro- and micro-elements, with emphasis on recent developments. Included will be information on methodologies of mineral research and the chemistry of ions and complexes as well as essentiality, requirements, transport, function, homeostasis, interrelationship, and toxicity of various mineral elements.

**660 Special Topics in Nutrition** Fall or spring. 3 credits maximum each term. Registration by permission of the instructor.

Hours to be arranged. Division faculty. Designed for the student who wishes to become informed in any specific topic related directly or indirectly to nutrition. The course may include individual tutorial study, experience in research laboratories, a lecture series on a special topic selected by a professor or a group of students, and/or selected lectures of another course already offered. Topics may be changed so that the course may be repeated for credit.

**669 Field Seminar** Spring; offered during January intersession or immediately following final examinations spring semester. 1 credit. Limited to 12 students. Required for graduate students in clinical nutrition. Open to other graduate students in nutrition with permission of instructor.

J. Rivers and M. Devine. Overview of policy decision making and implementation of nutrition programs at the state and national levels. Seminars alternate between Washington, D.C. (even years) and Albany, N.Y. (odd years). Provides opportunities to meet and confer with staff members of selected governmental and private agencies. Upon return to campus an integrated summary report is required prior to group discussion.

**670 Clinical Field Studies** Spring-summer. 15 credits maximum. Limited to graduate students in clinical nutrition. Prerequisites: NS 441, 442, 652, 630, 631, 632, and 633. S-U grades only.

Full-time study at off-campus clinical sites. C. Lanciault, R. Holmes, V. Utermohlen, and J. Rivers. The delivery of nutritional care in hospitals, outpatient clinics, and community settings.

**680 International Nutrition Problems, Policy and Programs** Fall. 3 credits. Prerequisite: permission of instructor.

T R 11:15 - 12:30. M. Latham. Designed for graduate students who wish to learn about the important nutritional problems of developing countries. The major forms of malnutrition related to poverty and their underlying causes will be discussed. Emphasis will be placed on programs and policies that can assist poor countries and communities to improve their nutritional and health status.

**690 Seminar in Nutrition and Behavior** Spring. 3 credits. Prerequisite: at least one course in biopsychology, physiology, and nutrition and permission of instructor. S-U grades optional.

Hours to be arranged. D. Levitsky. Selected topics include the effect on diet on the developing brain and its effect on behavior, physiological basis of feeding and drinking behavior, and control of obesity.

**695 Seminar in International Nutrition and Development Policy** Spring. 2 credits. Prerequisite: NS 680 or equivalent. S-U grades optional.

T R 10:10 - 12. M. Latham and division faculty. The role of nutrition in national development. Emphasis will be on the interdisciplinary nature of the programs and policies needed to solve the food and nutrition problems of low-income countries and communities. Planning of programs and evaluation of alternate strategies designed to improve nutrition will be discussed, using examples from particular countries.

**699 Special Topics in International Nutrition** Fall and spring. 3 credits maximum each term. Registration by permission of the instructor.

International nutrition faculty. This option is designed for the graduate student who wishes to become familiar with some specific topic related to international nutrition. The instruction will

usually consist of individual tutorial study involving extensive use of existing literature. In certain semesters it may consist of a lecture or seminar course on a subject such as nutrition and parasitology or the nutritional problems of some geographic region. On occasions it may involve laboratory or field studies. Because the topics may change, this course may be repeated for credit.

**703 Seminar in Nutritional Science** Fall or spring. 1 credit. S-U grades only.

T 12:20 or W 12:20. Division faculty.

**899 Master's Thesis and Research** Fall or spring. Credit to be arranged. Prerequisite: permission of the chairperson of the graduate committee and the instructor. S-U grades optional.

Hours to be arranged. Division graduate faculty.

**999 Doctoral Thesis and Research** Fall or spring. Credit to be arranged. Prerequisite: permission of the chairperson of the graduate committee and the instructor. S-U grades optional.

Hours to be arranged. Division graduate faculty.