

816. Reproductive and Perinatal Epidemiology
Spring of even-numbered years. 3(3-0)
P: HM 810 or concurrently. R: Open only to master's students in Epidemiology or approval of college.
Epidemiology of adverse health states in pregnancy and the puerperium. Impact of these health states on subsequent child development.

817. Epidemiology of Communicable Diseases
Fall of even-numbered years. 3(3-0)
P: HM 810. R: Open only to master's students in Epidemiology or approval of college.
Application of principles of epidemiology to research in communicable diseases relevant to public health in the U.S. and other countries.

818. The Epidemiology of Zoonotic Diseases
Spring of odd-numbered years. 3(3-0) Interdepartmental with Veterinary Medicine.
P: HM 810. R: Open only to master's students in Epidemiology or approval of college.
Human susceptibility to diseases of animals. Modes of transmission, surveillance, and strategies for prevention of specific zoonotic diseases.

819. Spatial Epidemiology and Medical Geography
Spring of even-numbered years. 3(3-0) Interdepartmental with Geography.
P: HM 810. R: Open only to master's students in Epidemiology or approval of college.
Concepts, techniques, and utilization of spatio-epidemiologic analyses for human health.

823. Cancer Epidemiology
Summer of odd-numbered years. 3(3-0)
P: STT 421, HM 810. R: Open only to master's students in Epidemiology or approval of college.
Basic principles of carcinogenesis. Major etiologic factors, types of malignancies, and biomarkers for susceptibility and exposure. Prevention and early detection of cancer.

824. Injury Epidemiology
Fall of odd-numbered years. 3(3-0)
P: HM 810. R: Open only to master's students in Epidemiology or approval of college.
Injury epidemiology, control, and prevention.

825. Epidemiologic Modeling
Summer of even-numbered years. 3(3-0)
P: HM 810, STT 422. R: Approval of college.
Mathematical modeling of epidemics. Stochastic and chaotic systems approaches. Applications through pc software.

829. Design and Conduct of Epidemiological Studies and Clinical Trials
Spring. 3(2-2) Interdepartmental with Large Animal Clinical Sciences. Administered by Large Animal Clinical Sciences.
P: VM 533 or approval of department. R: Open only to graduate students in the colleges of Human Medicine, Osteopathic Medicine, or Veterinary Medicine.
Applied analytical methods in experimental design. Assessment of health and disease status of animal and human populations. Risk assessment and interpretation of clinical trials.

890. Independent Study in Epidemiology
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.
P: HM 810. R: Open only to master's students in Epidemiology or approval of college.
Independent study in areas relevant to epidemiology such as population genetics.

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.
R: Open only to master's students in Epidemiology.

HUMAN NUTRITION AND FOODS

HNF

Department of Food Science and Human Nutrition
College of Agriculture and Natural Resources
College of Human Ecology

150. Introduction to Nutrition and Food Science
Fall, Spring, Summer. 3(3-0) Interdepartmental with Food Science.

Nutrition needs in life stages from a human ecological perspective. Domestic and international factors affecting the availability of a safe, nutritious food supply. Relationships of food choices to health and disease.

300. Experimental Approaches to Foods
Spring. 4(2-4)
P: CEM 143. R: Open only to majors in Dietetics and Foods: Technology and Management. Completion of Tier I writing requirement.

Effects of preparation methods and ingredient substitutions on chemical and physical properties of food constituents. Effects of changes in chemical and physical properties on functional and sensory attributes of foods.

311. Principles of Human Nutrition
Spring. 3(3-0)

P: BCH 200.
A human ecological approach to identification, function and food sources of nutrients required by humans. Normal metabolism. Effects of deficiencies or excesses of specific nutrients on metabolism.

320. Basic Skills in Dietetic Practice
Spring. 2(1-2)

P: CPS 100 or CPS 130 or CPS 131; HNF 150 or HNF 311; STT 200 or STT 201. C: STT 201. R: Not open to freshmen. Open only to students in the Department of Food Science and Human Nutrition.
Evaluation and communication of scientific and consumer information. Sources of reliable food and nutrition information. Statistical interpretation of journal articles. Nutritional epidemiology, nutrient composition, and computer diet analysis.
SA: HNF 220

350. Food Consumption Behavior
Fall. 3(3-0)

P: EC 201 or EC 202; ML 302 or concurrently. R: Completion of Tier I writing requirement.
Introduction to consumer behavior relative to food and food services. Food consumption and expenditure trends. Factors influencing food consumption and expenditures. Consumer advocacy and consumerism.

375. Community Nutrition
Fall. 3(3-0)

P: HNF 150 or HNF 311.
Dietary and anthropometric assessment of population groups. Policies, programs and resources available to address community nutritional needs.

379. Basic Nutritional Counseling
Spring. 3(2-3)
P: HNF 150 or HNF 311. R: Not open to freshmen. Open only to students in Department of Food Science and Human Nutrition.

Interviewing. Medical records and dietary history. Assessment of nutritional status. Planning, implementing, and evaluating nutritional programs. Quality assurance. Professional ethics.

400. Art and Science of Food Preparation
Spring. 1 credit.

P: HNF 200.
Art and science of food preparation in relation to cost, health, and historical, regional, ethnic, and religious customs. Product evaluation using sensory techniques. Offered half of semester.

404. Food Product Development
Fall. 4(3-3)

P: FSC 401 or HNF 300. R: Not open to freshmen and sophomores.
Functions of proteins, carbohydrates, and fats, and their interactions with other food ingredients. Objective and sensory food evaluation techniques.

406. Sociocultural Aspects of Food
Spring. 3(3-0)

R: Not open to freshmen and sophomores. One ISS "B" course option or concurrently.
Factors impacting food consumption from a human ecological perspective. International and national food consumption patterns. Geographic, political, and economic aspects of food consumption. Food availability and distribution. Family structure, taboos, religion, and food related health problems.

410. Sensory Assessment of Foods
Spring. 2(1-2)

P: STT 200 or STT 201 or STT 315 or STT 421 or STT 464; HNF 200 or FSC 401. R: Open only to majors in Department of Food Science and Human Nutrition.
Discriminative, consumer and descriptive methods used to evoke, measure, analyze, and interpret sensory reactions to food characteristics.

440. Foodservice Operations
Fall. 3(3-0)

P: HNF 150 or HNF 311; HNF 200. R: Not open to freshmen and sophomores.
Principles, processes and control strategies in foodservice operations. Menu planning, procurement, and on-premise storage and issue. Production, consumer distribution, safety and sanitation.

441. Management of Foodservice Operations
Spring. 2(2-0)

P: CPS 100 or CPS 130 or CPS 131; HNF 440; MGT 310 or concurrently. R: Not open to freshmen and sophomores.
Fiscal management of human and material resources in food service operations. Application of manual and electronic data processing strategies to analyze and control costs.

444. Computerized Foodservice Management Laboratory
Spring. 1(0-3)

P: CPS 100 or CPS 130 or CPS 131; HNF 441 or concurrently. R: Open only to majors in Dietetics, Foods: Technology and Management, Human Nutrition, and Nutritional Sciences.
Use of prototype foodservice management software for inventory management, recipe adjustment, recipe and menu precosting, nutrient analysis, cost analysis, and other foodservice applications.

Descriptions — Human Nutrition and Foods of Courses

- 445. Foodservice Management Experience**
Spring. 2 credits.
P: HNF 441 or concurrently; MIC 205. R: Open only to seniors in Dietetics and graduate students in Human Nutrition. Approval of department.
 Receipt, storage, preparation and service of foods. Safety and sanitation. Design, layout, and care of equipment. Costing. Meal tickets required. Offered half of semester.
- 450. Contemporary Cases from the Food Industry**
Spring. 3(3-0)
P: HNF 350. R: Open only to seniors in the Department of Food Science and Human Nutrition.
 Analysis and interpretation of the consumer environment. Development of effective strategies and policies for the food industry. Case study approach.
- 460. Advanced Human Nutrition**
Fall. 5(5-0)
P: BCH 200 or BCH 401; HNF 150 or HNF 311; PSL 250.
 Metabolism of carbohydrates, proteins, fats, vitamins, and minerals as related to dietary requirements and disease processes in humans. Recommended dietary allowances of nutrients. Metabolism of nutrients. Food sources of nutrients.
- 463. Nutrition and Human Development**
Fall. 3(3-0)
P: HNF 460 or concurrently.
 Role of nutrients in anatomical, physiological, and biochemical processes as related to human growth and development. Nutrition throughout the life cycle. Nutritional assessment and programs.
- 470. Clinical Nutrition and Dietetics**
Spring. 4(3-2)
P: BCH 200 or BCH 401; HNF 460; PSL 250 or PSL 431. R: Not open to freshmen and sophomores. Completion of Tier I writing requirement.
 Anatomical, physiological and biochemical changes associated with diseases. Nutritional assessment. Use of modified diets as adjuncts to other therapies.
- 473. Interpretation of Clinical Laboratory Tests in Dietetics**
Fall. 3(3-0)
P: HNF 460 or concurrently.
 Principles, procedures and interpretation of clinical laboratory tests. Interrelationships of nutrition and the biological sciences. Relationships of test results to total nutritional care.
- 474. Drug-Nutrient Interactions**
Spring. 2(2-0)
P: HNF 460, one PSL course, one BCH course. R: Open only to juniors, seniors, and graduate students in the Department of Food Science and Human Nutrition.
 Reciprocal effects of foods, nutrients, and dietary constituents and pharmacologic agents. Drug-nutrient interactions in high risk groups including the elderly. Drug-nutrient counseling.
- 480. Concepts of Human Nutrition Research Methods**
Spring. 2(1-3)
P: HNF 311 or HNF 460; FSC 455. R: Open only to seniors and graduate students. Completion of Tier I writing requirement. Approval of department.
 Issues and techniques involved in nutrition research with humans and animals. Guided laboratory experience plus independent project.

- 490. Independent Study**
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course.
R: Open only to juniors and seniors. Approval of department.
 Individual study of selected topics in foods, foodservice management or nutrition.
- 490H. Honors Independent Study**
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course.
R: Not open to freshmen and sophomores. Open only to honors students. Approval of instructor.
 Individual study of selected topics in foods, foodservice management or nutrition.
- 494. Practicum**
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 10 credits in all enrollments for this course.
R: Open only to majors in Department of Food Science and Human Nutrition. Approval of department.
 Professional experience in selected settings and organizations under faculty supervision.
- 840. Human Nutrition and Chronic Diseases**
Fall of odd-numbered years. 3(3-0)
R: Open only to graduate students in Food Science, Human Nutrition, and Nursing.
 Dietary intervention and treatment of chronic diseases: obesity, cardiovascular disease, diabetes, gastrointestinal disorders and cancer.
- 843. Community Nutritional Assessment**
Spring. 3(2-2)
R: Open only to graduate students in Food Science, Human Nutrition, and Nursing.
 Nutritional assessment of population groups in community settings. Interpretation of national and international health data.
- 890. Supervised Individual Study**
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Open only to graduate students in Food Science and Human Nutrition. Students are limited to a combined total of 10 credits in HNF 890 and HNF 894.
 Faculty supervised study of nutrition areas of individual interest.
- 891. Topics in Human Nutrition (MTC)**
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.
R: Open only to graduate students.
 Current topics in applied and basic human nutrition.
- 892. Nutrition Seminar**
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course.
 Presentations by students on current topics in nutrition.
- 894. Human Nutrition Practicum**
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Open only to graduate students in Food Science and Human Nutrition. Students are limited to a combined total of 10 credits in HNF 890 and HNF 894. Approval of department.
 Experience in agencies or offices related to Human Nutrition. Field experience required.

- 899. Master's Thesis Research**
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 20 credits in all enrollments for this course.
R: Open only to masters students in Human Nutrition and Foods.
- 935. Nutrition: Lipid and Carbohydrate Metabolism**
Fall of even-numbered years. 3(3-0) Interdepartmental with Animal Science.
R: Open only to graduate students in Food Science, Human Nutrition, Animal Science, and Nursing, and to graduate-professional students.
 Regulatory aspects of lipid and carbohydrate metabolism as influenced by nutritional status.
- 936. Protein Nutrition and Metabolism**
Spring of even-numbered years. 3(3-0) Interdepartmental with Animal Science. Administered by Animal Science.
 Nutritional and endocrine regulation of protein synthesis and degradation, protein quality assessment, protein status, protein-energy malnutrition. Protein metabolism during exercise. Metabolism, digestion, and absorption of amino acids and proteins.
- 937. Mineral Nutrition and Metabolism**
Fall of even-numbered years. 3(3-0) Interdepartmental with Animal Science. Administered by Animal Science.
 Forms and locations of mineral elements in the body, metabolic functions, deficiencies, and toxicities, interrelationships and quantitative requirements.
- 938. Nutrition: Metabolism and Function of Vitamins**
Spring of odd-numbered years. 3(3-0) Interdepartmental with Animal Science.
R: Open only to graduate students in Food Science, Human Nutrition, Animal Science, and Nursing, and to graduate-professional students.
 Regulatory roles of vitamins at cellular and molecular levels.
- 999. Doctoral Dissertation Research**
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
R: Open only to doctoral students in Human Nutrition and Foods.

INTEGRATIVE MANAGEMENT PIM

The Eli Broad College of Business and The Eli Broad Graduate School of Management

- 800. Managerial Skills**
Summer. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 Approaches to effective group management in business organizations. Creating, maintaining, and leading work groups.
- 801. Firm Analysis**
Fall. 1 credit.
R: Open only to MBA students in the Program in Integrative Management.
 Faculty supervised analysis of the student's employing organization. Organization and financial structure. Information, accounting, operating, and marketing systems.