

**Descriptions —Human Medicine
of
Courses**

635. Core Competencies I
Fall. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Medicine, Family Practice, and Pediatrics and Human Development. P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine. A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

636. Core Competencies II
Spring. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Medicine and Family Practice. P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine. A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

637. Core Competencies III
Spring, Summer. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Medicine, Pediatrics and Human Development, Family Practice, Surgery, and Obstetrics, Gynecology and Reproductive Biology. P: FMP 602. R: Open only to graduate-professional students in College of Human Medicine. A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

640. Advanced Comprehensive Care
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. Interdepartmental with Pediatrics and Human Development, Medicine, Family Practice, and Obstetrics, Gynecology and Reproductive Biology. P: FMP 608, PHD 600, MED 608. R: Open only to graduate-professional students in College of Human Medicine. Clinical experience in community-oriented primary care. Emphasis on urban and rural underserved populations.

691. Research Clerkship
Fall, Spring, Summer. 2 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P: HM 690 or approval of community research director. R: Open only to graduate-professional students in College of Human Medicine. Biological, behavioral, or clinical research project.

810. Introduction to Descriptive and Analytical Epidemiology
Fall. 3(3-0)
R: Open only to master's students in Epidemiology or approval of college. Study of disease from a population perspective as the interaction of host, agent, and environment. Fundamental concepts include case definition, measuring frequency of disease, mortality and morbidity data, and major study designs.

812. Causal Inference in Epidemiology
Fall. 3(3-0)
P: HM 810, LCS 829. R: Open only to master's students in the Epidemiology major or approval of college. Causal models, criteria, and causality related to study design and analysis in epidemiology. Application of the theoretical concepts to the design, analysis, and assessment of epidemiologic research.

813. Investigation of Disease Outbreaks
Fall, Spring, Summer. 3 credits.
P: HM 810 or concurrently. R: Open only to master's students in Epidemiology or approval of college. Principles of and practice in investigating disease outbreaks. Field trips required.

814. Nutritional Epidemiology
Fall of odd-numbered years. 3(3-0)
P: HM 810 or concurrently. R: Open only to master's students in the Epidemiology major or approval of college. Methodologies used in epidemiologic studies of diet and health in the context of U.S. and international dietary patterns. Relationship between diet and specific diseases.

815. Epidemiology of Cardiovascular Disease
Summer of even-numbered years. 3(3-0)
P: HM 810. R: Open only to master's students in the Epidemiology major or approval of college. Survey of methodologies used in epidemiologic studies of cardiovascular diseases. Review of evidence of genetic, environmental, and behavioral causes of cardiovascular disease.

816. Reproductive and Perinatal Epidemiology
Summer of odd-numbered years. 3(3-0)
P: HM 810 or concurrently. R: Open only to master's students in the Epidemiology major 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.

821. Epidemiology of the Health and Cognitive Status of the Elderly
Fall of odd-numbered years. 3(3-0)
P: HM 810 or concurrently. Interpretation of research on the health and cognitive status of elderly. Interpretation of statistical tests of hypotheses. Conclusions based on data. SA: FMP 821

823. Cancer Epidemiology
Fall of even-numbered years. 3(3-0)
P: STT 421, HM 810. R: Open only to master's students in the Epidemiology major 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
Spring of odd-numbered years. 3(3-0) Interdepartmental with Physics.
P: HM 810, STT 422. R: Approval of college. Mathematical modeling of epidemics. Stochastic and chaotic systems approaches. Applications through personal computer software.

826. Research Methods in Epidemiology
Fall. 3(3-0)
P: STT 422 R: Open only to master's students in Epidemiology. Approval of college. Analyses of epidemiologic and clinical data applying statistical methods, based on logistic and survival models, using standard 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 juniors or seniors or graduate students in the Department of Food Science and Human Nutrition. 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 101 or CPS 131; HNF 150 or HNF 311 R: Open only to sophomores or juniors or seniors in the Dietetics major.
Evaluation and communication of scientific and consumer information. Sources of reliable food and nutrition information. Statistical interpretations. 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; MSC 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; HNF 320. R: Open only to juniors or seniors in the Dietetics major or to graduate students in the Human Nutrition majors.
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 300 or concurrently. R: Open only to juniors or seniors in the Dietetics major or to graduate students in the Human Nutrition majors.
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; 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, 4(4-0)
P: HNF 150 or HNF 311 R: Open only to juniors or seniors in the Dietetics major or to graduate students in the Human Nutrition majors.
Principles, processes and control strategies in foodservice operations: menu planning, procurement, and on-premise storage and issuance. Purchasing, budgets, human resources, control management, ethics, marketing, production, safety and sanitation.
SA: HNF 441
- 444. Computerized Foodservice Management Laboratory**
Spring, 1 credit.
P: CPS 101 or CPS 131; HNF 440 or concurrently. R: Open only to juniors or seniors in the Dietetics major or to graduate students in the Human Nutrition majors.
Use of prototype foodservice management software for inventory management, recipe adjustment, recipe and menu pre-costing, nutrient analysis, cost analysis, and other foodservice applications.
- 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.
- 461. Advanced Human Nutrition: Carbohydrates, Lipids and Proteins**
Fall, 3(3-0)
P: BCH 200 or BCH 401; HNF 150 or HNF 311; PSL 250 or PSL 432
Energetics and metabolism of carbohydrates, proteins, and lipids as related to dietary requirements and disease processes in humans. Recommended dietary allowances. Food sources of nutrients.
SA: HNF 460
- 462. Advanced Human Nutrition: Vitamins and Minerals**
Fall, 3(3-0)
P: BCH 200 or BCH 401; HNF 150 or HNF 311; PSL 250 or PSL 432; HNF 461 or concurrently.
Metabolism of vitamins and minerals in relation to dietary requirements and disease processes in humans. Food sources of nutrients. Nutrient interrelationships. Factors affecting bioavailability and stability of nutrients.
SA: HNF 460
- 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. Medical Nutrition Therapy**
Spring, 4(3-2)
P: BCH 200 or BCH 401; HNF 461 or HNF 462; PSL 250 or PSL 431. R: Not open to freshmen or 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.
- 475. Community Nutrition Applications**
Spring, 1 credit.
P: HNF 375 R: Open only to juniors or seniors or graduate students.
Practice and evaluation of dietary and anthropometric assessment. Problem solving and communication methods.
- 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 of odd-numbered years, 3(2-2)
Nutritional assessment of population groups in community settings. Interpretation of national and international health data.

Descriptions — Human Nutrition and Foods of Courses

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.

802. Environmental Analysts
Spring. 1 credit.
R: Open only to MBA students in the Program in Integrative Management.
 Faculty supervised analysis of the student's employing organization. Customer and competitor analysis. Legal and financial environment. Human resource issues.

803. Strategic 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. Strategy formulation and policy integration.

811. Financial Accounting Concepts
Summer. 2(2-0)
R: Open only to MBA students in the Program in Integrative Management.
 Financial reporting issues from a user's perspective. Measurement, valuation, and reporting concepts and issues. Analysis and use of financial accounting information for decision making.

812. Managerial Accounting Concepts
Fall. 1.5(1.5-0)
P: PIM 811. R: Open only to MBA students in the Program in Integrative Management.
 Accounting information for decision making and control: cost behavior patterns, activity-based costing, cost allocations, budgeting, transfer pricing, and accounting controls. Application of course concepts to work environment.

813. Information Systems
Fall. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 Information, process, and technology architectures of corporate information systems. Role of information in organizational control and decision making. Methods for evaluating effectiveness of information systems. Application of course concepts to the work environment.

821. Managerial Economics
Summer. 2(2-0)
R: Open only to MBA students in the Program in Integrative Management.
 Analysis of the firm: demand and revenues, optimal production, cost minimization, profitability and pricing, and market structures.

831. Managerial Legal Environment
Spring. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 The U.S. legal system. The interrelationship of law and ethics. Regulation of business by courts, state and federal statutes, and governments. Applications of course concepts to work environment.

841. Corporate Finance
Fall. 1.5(1.5-0)
P: PIM 811. R: Open only to MBA students in the Program in Integrative Management.
 Valuation techniques for bonds and stocks. Investment decisions by firms. The relation between risk and return. Pricing models for risk. U.S. capital markets. Application of course concepts to work environment.

842. Managerial Finance
Spring. 1.5(1.5-0)
P: PIM 811, PIM 841. R: Open only to MBA students in the Program in Integrative Management.
 Market efficiency, capital budgeting, security issues, dividend policy, capital structure, and bankruptcy costs. Agency problems between different stakeholders and option pricing. Application of course concepts to work environment.

850. Analysis and Decision Models
Summer. 2.0(1.8-0.4)
P: STT 315. R: Open only to MBA students in the Program in Integrative Management.
 Models to support decision making: applications of regression analysis, decision analysis, simulation, forecasting, and project management.

852. Organization Design
Fall. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 Assessing tasks, environments, and technology to organize and implement corporate and business unit strategies. Assessing distinctive competencies in organizations to deal with dynamic environments. Application of course concepts to work environment.

853. Human Resource Management
Spring. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 Strategic organizational issues associated with managing the labor market to acquire, develop, and compensate human resources. Application of course concepts to work environment.

861. Marketing Systems
Fall. 1.5(1.5-0)
R: Open only to MBA students in the Program in Integrative Management.
 Marketing decision making within global, customer, economic, ecological, and competitive environments. Gathering and analyzing information. Developing strategies as guides for the organization. Developing operational marketing plans. Application of course concepts to work environment.