A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

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.
R: Open only to graduate-professional students in College of Human Medicine.

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.
R: Open only to graduate-professional students in College of Human Medicine.

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.
R: Open only to graduate-professional students in College of Human Medicine.

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.
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.

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

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 and 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.

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

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

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

Epidemiology of Cardiovascular Disease
Summer of even-numbered years. 3(3-0)
R: Open only to master's students in the Epidemiology major or approval of college.

Reproductive and Perinatal Epidemiology
Summer of odd-numbered years. 3(3-0)
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 those health states on subsequent child development.

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

The Epidemiology of Zoonotic Diseases
Spring of odd-numbered years. 3(3-0) Interdepartmental with Veterinary Medicine.
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.

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

Epidemiology of the Health and Cognitive Status of the Elderly
Fall of odd-numbered years. 3(3-0)
R: Open only to master's students in Epidemiology or approval of college.
Interpretation of research on the health and cognitive status of the elderly. Interpretation of statistical tests of hypotheses. Conclusions based on data.

Cancer Epidemiology
Fall of even-numbered years. 3(3-0)
R: Open only to master's students in the Epidemiology major or approval of college.

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

Epidemiologic Modeling
Spring of odd-numbered years. 3(3-0) Interdepartmental with Physics.
R: Approval of college.
Mathematical modeling of epidemics. Stochastic and chaotic systems approaches. Applications through personal computer software.

Research Methods in Epidemiology
Fall. 3(3-0)
R: Open only to master's students in Epidemiology. Approval of college.
Analysis of epidemiologic and clinical data applying statistical methods, based on logistic and survival models, using standard software.

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.
R: Open only to graduate students in the College of Human Medicine, Osteopathic Medicine, or Veterinary Medicine.

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.
R: Open only to master's students in Epidemiology or approval of college.
Independent study in areas relevant to epidemiology such as population genetics.

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

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

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.

Experimental Approaches to Foods
Fall. 4(2-4)
R: Open only to juniors or seniors or graduate students in the Department of Food Science and Human Nutrition. Completion of Tier 1 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.

Principles of Human Nutrition
Spring. 3(3-0)
R: Open only to seniors.
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.
Human Nutrition and Foods—Descriptions of Courses

390. 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.
SA: HNF 260

395. 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(3-0)
P: HNF 150 or HNF 311; HNF 220. R: Open only to juniors or seniors in the Dietetics major or to graduate students in the Human Nutrition majors.

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.

410. Sensory Assessment of Foods
Spring. 2(1-2)
P: STT 201 or STT 201 or STT 315 or STT 421 or STT 461; 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(0-0)
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 preparation, equipment management, cost analysis, nutritional analysis, production, safety and sanitation.
SA: HNF 411

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, menu 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.

450. Contemporary Cases from the Food Industry
Fall. 3(3-0)
P: HNF 320. 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(0-0)
P: BCH 200 or BCH 401; HNF 150 or HNF 311; FSC 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(0-0)
P: BCH 200 or EHS 401; HNF 150 or HNF 311; FSC 250 or PSL 432; HNF 461 or concurrently.
SA: HNF 460

463. Nutrition and Human Development
Fall. 3(3-0)
P: HNF 460 or concurrently.

470. Medical Nutrition Therapy
Spring. 4(0-2)
P: BCH 200 or BCH 401; HNF 461 or HNF 462; PSL 430 or PSL 432.
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.

475. Interpretation of Clinical Laboratory Tests in Dietetics
Fall. 3(0-0)
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.

476. Drug-Nutrient Interactions
Spring. 3(0-0)
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.

477. 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 juniors and seniors. Approval of department.
Professional experience in selected settings and organizations under faculty supervision.

540. Human Nutrition and Chronic Diseases
Fall of odd-numbered years. 3(0-0)
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.

845. 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.
989. Supervised Individual Study
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. Faculty supervised study of nutrition areas of individual interest.

991. 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. Open only to graduate students. Current topics in applied and basic human nutrition.

992. 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 20 credits in all enrollments for this course. Open only to masters students in Human Nutrition and Foods.

935. Nutrition: Lipid and Carbohydrate Metabolism
Spring of even-numbered years. 3(3-0) Interdepartmental with Animal Science. Open 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

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. 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 90 credits in all enrollments for this course. Open only to doctoral students in Human Nutrition and Foods.

INTEGRATIVE MANAGEMENT

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

900. 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 Analysis
Spring. 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.

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. 3(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
Fall. 3(3-0) 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. Organisation 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 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.