

Human Medicine—HM

- 533 Clinical Skills III**
Summer. 1(1-2) RB: (HM 532) R: Graduate-professional students in College of Human Medicine.
Age specific screening examinations and integration with data-gathering skills.
- 534 Clinical Skills IV**
Fall. 2(1-2) RB: (HM 533) R: Open only to graduate-professional students in College of Human Medicine.
Advanced interviewing and physical examination skills. Communication of patient-related data with the patient and other health professionals, orally and in writing. Problem solving.
- 535 Clinical Skills V**
Spring, Summer. 2(1-2) RB: (HM 535) R: Open only to graduate-professional students in College of Human Medicine.
Advanced interviewing and physical examination skills. Oral case presentations and written medical records. Introductory problem solving skills.
- 536 Comprehensive Domain**
Spring. 2 credits. R: Not open to first year students. Open only to graduate-professional students in College of Human Medicine.
Basic sciences applied to clinically relevant situations. Problem-based small group experiences.
- 537 Topics in Reproductive Health**
Fall. 1(1-0) R: Open only to graduate-professional students in the College of Human Medicine, the College of Osteopathic Medicine, and to graduate students in the College of Nursing.
Pre-clinical focus on topics of reproductive health.
- 539 Hematopoietic/Neoplasia**
Spring. 3 credits. RB: Block I. R: Open only to graduate-professional students in College of Human Medicine.
Learn/apply advanced concepts of the basic sciences to clinically relevant situations. Done in integrated, problem-based small group experiences and other experiences.
- 543 Human Development and Behavior in Society**
Summer. 5(4-2) R: Graduate-professional students in College of Human Medicine.
Social science basis of medicine including social and cultural influences on health and behavior. Overview of normal growth and development throughout the life span.
- 546 The Social Context of Clinical Decisions**
Fall. 2(2-0) RB: Completion of Block I requirements. R: Open only to graduate-professional students in College of Human Medicine.
Social perspectives on medicine and medical care.
- 547 The Social Context of Clinical Decisions II**
Spring. 2(2-0) RB: (HM 546) R: Open only to graduate-professional students in College of Human Medicine.
Issues and concepts related to social and professional responsibilities of physicians.
- 548 Medical Humanities Seminar**
Spring. 2(2-0) RB: (HM 547) R: Open only to graduate-professional students in College of Human Medicine.
Issues related to the humanities and human values pertinent to medical practice.
- 571 Integrative Clinical Correlations I**
Fall. 2(2-0) RB: (ANT 551 or concurrently and BMB 521 or concurrently and PSL 501 or concurrently) R: Graduate-professional students in College of Human Medicine.
Correlation of the principles of the basic biological and behavioral sciences with disciplines of clinical medicine using case presentations.
- 572 Integrative Clinical Correlations II**
Spring. 2(2-0) RB: (HM 571 or concurrently and ANT 552 or concurrently and ANT 562 or concurrently and MMG 552 or concurrently and PTH 542 or concurrently) R: Graduate-professional students in College of Human Medicine.
Correlation of the principles of the basic biological and behavioral sciences within the disciplines of clinical medicine using case presentations.
- 573 Integrative Clinical Correlations III**
Summer. 1(2-0) RB: (HM 543 or concurrently and HM 572 or concurrently and PHD 523 or concurrently and PHM 563 or concurrently and RAD 553 or concurrently) R: Graduate-professional students in College of Human Medicine.
Correlation of the principles of the basic biological and behavioral sciences with the disciplines of clinical medicine using case presentations.
- 581 Mentor Program**
Fall, Spring, Summer. 1(0-2) A student may earn a maximum of 3 credits in all enrollments for this course. R: Graduate-professional students in College of Human Medicine.
Dimensions of being a physician: skills needed to perform the job with patients and other medical workers. Current trends in the fields.
- 591 Special Problems in Human Medicine**
Fall, Spring, Summer. 1 to 34 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Graduate-professional students in College of Human Medicine.
Work under the direction of a faculty member on an experimental, theoretical, or applied problem that requires a broad, interdisciplinary approach.
- 605 Comprehensive Care Clerkship**
Fall, Spring, Summer. 4 to 20 credits. A student may earn a maximum of 20 credits in all enrollments for this course. Interdepartmental with Family Practice. RB: (FMP 602) R: Open only to graduate-professional students in College of Human Medicine.
Comprehensive and longitudinal management of patients in ambulatory care settings.
- 608 Sub-Specialty Clerkships**
Fall, Spring, Summer. 4 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: (FMP 602) R: Open only to graduate-professional students in College of Human Medicine.
Hospital- and office-based clinical experiences in sub-specialties in medicine and surgery.
- 630 Emergency Medicine Clerkship**
Fall, Spring, Summer. 2 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: (MED 608) R: Open only to graduate-professional students in the College of Human Medicine.
Clinical diagnosis and treatment of emergencies seen in community emergency departments.
- 635 Core Competencies I**
Fall. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Family Practice; Medicine; Pediatrics and Human Development. RB: (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 Family Practice; Medicine. RB: (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 Family Practice; Medicine; Obstetrics, Gynecology and Reproductive Biology; Pediatrics and Human Development; Surgery. RB: (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.
- 691 Research Clerkship**
Fall, Spring, Summer. 2 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: (HM 690) or approval of community research director. R: Open only to graduate-professional students in the College of Human Medicine.
Biological, behavioral, or clinical research project.

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 Human Nutrition**
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.
- 180 Preview of Nutritional Sciences**
Spring. 1(1-1) R: Open only to freshmen or sophomores.
Overview of nutritional sciences as a preprofessional major. Introduces students to faculty nutrition research projects, enables students to participate in a directed research experience, and exposes students to various career opportunities.

300 Experimental Approaches to Foods
 Fall, Spring. 4(2-4) P:M: Completion of Tier I writing requirement. RB: (CEM 143) R: Open to only to juniors or seniors in the Department of Food Science and Human Nutrition.

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) RB: (BMB 200)

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, Summer. 3(2-2) P:M: (HNF 150 or HNF 311) R: Open to sophomores or juniors or seniors in the Dietetics, Nutritional Sciences or Food Science majors. SA: HNF 220

Nutrient composition of foods to meet nutritional needs for meal planning. Sources of reliable food and nutrition information. Evaluation and communication of scientific and consumer information. Concepts in nutritional epidemiology.

375 Community Nutrition
 Fall, Summer. 3(3-0) RB: (HNF 150 or HNF 311)

A human ecological approach to dietary and anthropometric assessment of population groups and policies, programs and resources available to address community nutritional needs.

400 Art and Science of Food Preparation
 Spring. 2(1-3) RB: (HNF 300 or concurrently) R: Open only to seniors in the Dietetics or Nutritional Sciences major or to graduate students in the Human Nutrition major.

Art and science of food preparation in relation to cost, health, and historical, regional, ethnic, and religious customs. Product evaluation using sensory techniques. Lecture offered full semester; laboratory offered half of semester.

406 Sociocultural Aspects of Food
 Fall, Spring. 3(3-0) RB: ISS course or concurrently R: Open only to juniors or seniors.

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) RB: (HNF 300 or FSC 401) and (STT 200 or STT 201 or STT 315 or STT 421 or STT 464) R: Open only to majors in the 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) RB: (HNF 150) R: Open only to juniors or seniors in the Dietetics or Nutritional Sciences major or to graduate students in the Human Nutrition major. SA: HNF 441

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.

444 Computerized Foodservice Management Laboratory
 Fall, Spring. 2(1-2) P:M: (HNF 440 or concurrently) RB: Competency in computer spreadsheet applications. R: Open only to juniors or seniors in the Dietetics or Nutritional Sciences major or to graduate students in the Human Nutrition major.

Use of prototype management computer software for inventory management, recipe adjustment, recipe and menu precosting, nutrient analysis, cost analysis, accounting procedures, and other foodservice applications.

445 Foodservice Management Experience
 Fall, Spring. 2 credits. P:M: (HNF 440 or concurrently) RB: (MMG 205) R: Open only to seniors in the Dietetics or Nutritional Sciences major or graduate students in the Human Nutrition major. 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.

453 Nutrition and Human Development
 Spring. 3(3-0) P:M: (HNF 150) and (PSL 250 or concurrently or PSL 431 or concurrently) SA: HNF 463, HNF 376

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.

461 Advanced Human Nutrition: Carbohydrates, Lipids and Proteins
 Fall. 3(3-0) RB: (BMB 200 or BMB 401 or concurrently) and (PSL 250 or PSL 432) SA: HNF 460

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.

462 Advanced Human Nutrition: Vitamins and Minerals
 Fall. 3(3-0) P:M: (HNF 461 or concurrently) SA: HNF 460

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.

465 Nutritional Pathophysiology
 Fall. 4(4-0) P:M: (HNF 461 or concurrently and ANT 316) SA: HNF 473

Effects of specific pathophysiological states on the function of target organs. Assessment of nutritional and medical status using laboratory tests. Putative mechanisms of action, efficacy, and safety of relevant alternative and complementary therapies will be addressed.

466 Medical Nutrition Therapy
 Spring. 4(3-2) P:M: (HNF 461 and HNF 462 and HNF 465) and completion of Tier I writing requirement. R: Open to juniors or seniors. SA: HNF 470 C: HNF 467 concurrently.

Anatomical, physiological and biochemical changes associated with diseases. Nutritional assessment. Use of modified diets as adjuncts to other therapies.

467 Outcome Measurement and Documentation in Medical Nutrition Therapy
 Spring. 1(0-2) P:M: (HNF 461 and HNF 462 and HNF 465) RB: Senior dietetic majors. SA: HNF 379 C: HNF 466 concurrently.

Planning, implementation, outcome measurement, and documentation in medical nutrition therapy (MNT). Clinical, behavioral and functional outcomes resulting from interventions in clinical and outpatient settings.

474 Drug-Nutrient Interactions
 Spring. 2(2-0) RB: (HNF 461 and HNF 462) R: Open to juniors or seniors 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(0-2) P:M: (HNF 375) R: Open to juniors or seniors.

Practice and evaluation of dietary and anthropometric nutritional assessment. Apply communication, advocacy and problem solving skills by identifying and addressing the nutrition needs and wants of a target population.

480 Concepts of Human Nutrition Research Methods
 Spring. 2(1-3) P:M: (BMB 401 and PSL 432) and completion of Tier I writing requirement. RB: (HNF 311 or HNF 461 or HNF 462 or FSC 455) R: Open only to seniors or graduate students in the Department of Food Science and Human Nutrition. 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 or 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: Open to juniors or seniors. Open only to honors students. Approval of department.

Individual study of selected topics in foods, foodservice management or nutrition.

Human Nutrition and Foods—HNF

- 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 the Department of Food Science and Human Nutrition. Approval of department.
Professional experience in selected settings and organizations under faculty supervision.
- 807 Advanced Food Toxicology**
Fall of even years. 3(3-0) Interdepartmental with Food Science; Animal Science. Administered by Department of Food Science and Human Nutrition. R: Approval of department.
Toxicology related to food safety. Metabolism of toxicants as influenced by food constituents, mutagenesis, and chemical carcinogenesis. Risk assessment.
- 811 Integrated Nutrient Metabolism**
Fall of odd years. 3(3-0) Interdepartmental with Animal Science. Administered by Department of Animal Science. RB: (BMB 200 or BMB 401) or approval of department.
Comparative physiology of the absorption and metabolism of carbohydrates, lipids, protein, minerals, and vitamins and their regulation and integration. Basis for applied nutrition of humans, livestock and companion animals.
- 840 Human Nutrition and Chronic Diseases**
Fall of odd years. 3(3-0)
Dietary intervention and treatment of chronic diseases: obesity, cardiovascular disease, diabetes, gastrointestinal disorders and cancer.
- 843 Community Nutritional Assessment**
Spring of odd years. 3(2-2)
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.
- 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.
Master's thesis research.

- 935 Nutrition: Lipid and Carbohydrate Metabolism**
Fall of even years. 3(3-0) Interdepartmental with Animal Science.
Regulatory aspects of lipid and carbohydrate metabolism as influenced by nutritional status.
- 936 Protein Nutrition and Metabolism**
Spring of even years. 3(3-0) Interdepartmental with Animal Science. Administered by Department of 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.
- 938 Nutrition: Metabolism and Function of Vitamins**
Spring of odd years. 3(3-0) Interdepartmental with Animal Science.
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.
Doctoral dissertation research.

INFORMATION TECHNOLOGY MANAGEMENT ITM

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

- 311 Systems Analysis and Design**
Spring. 3(3-0) P:M: (BUS 309) R: Open only to students in The Eli Broad College of Business.
Structured analysis and design of information systems. Use of computer aided software engineering tools. Consulting issues associated with the design and implementation of information systems.
- 414 Enterprise Resource Planning Systems**
Spring. 3(3-0) P:M: (ITM 311 and BUS 309) R: Open only to students in The Eli Broad College of Business.
Analysis, design and use of enterprise systems. Importance of enterprise system fit and re-engineering of the enterprise. Implementation risks and organizational returns. Use of enterprise software.
- 490 Independent Study in Information Technology**
Fall, Spring, Summer. 1 to 4 credits. P:M: (BUS 309) R: Open only to students in The Eli Broad College of Business.
Directed study in information technology under faculty supervision.
- 491 Special Topics in Information Technology**
Fall, Spring. 1 to 4 credits. P:M: (BUS 309) R: Open only to students in The Eli Broad College of Business.
Current topics in information technology.
- 821 Enterprise Database Systems**
Fall. 3(3-0) Interdepartmental with Accounting. Administered by Department of Accounting and Information Systems. R: Open only to MBA students and MS in Professional Accounting students. Not open to students with credit in ACC 321.
Management of information in business organizations. Conceptual modeling of transaction processing systems, workflow systems, and enterprise-wide networks of value-added activities. Integration of decision support and policy level systems with economic event processing systems. Information system implementation.
- 822 Analysis and Design of Enterprise Systems**
Fall. 3(3-0) Interdepartmental with Accounting. Administered by Department of Accounting and Information Systems. P:M: (ACC 321 or MBA 823) R: Open only to MBA students and Master of Science students in Professional Accounting or approval of department.
Structured analysis and design of enterprise information systems. Use of computer-aided software design tools. Consulting issues associated with the design and implementation of information systems.
- 823 Advanced Enterprise Database Systems**
Fall. 3(3-0) Interdepartmental with Accounting. Administered by Department of Accounting and Information Systems. P:M: (ACC 321 or ACC 821 or ITM 821) R: Open only to MBA students and Master of Science students in Professional Accounting or approval of department.
Enterprise information architectures. Semantic and syntactic modeling of enterprise economic phenomena. Relational database technology and database design for business systems. Business process analysis patterns and implementation compromises.
- 824 Business Data Communications**
Spring. 3(3-0) Interdepartmental with Accounting. Administered by Department of Accounting and Information Systems. P:M: (MBA 823 or ACC 321) R: Open only to MBA students and Master of Science students in Professional Accounting or approval of department.
Methods of enterprise data communications. Local and wide area networks. Network control and security. Groupware and electronic commerce applications. Design and implementation of local area networks and internet commerce servers for businesses.
- 825 Object Oriented Business Information Systems**
Spring. 3(3-0) Interdepartmental with Accounting. Administered by Department of Accounting and Information Systems. P:M: (ACC 823 or ITM823) R: Open only to MBA students and Master of Science students in Professional Accounting or approval of department.
Analysis and design of object-oriented business systems. Unified modeling language of business phenomena and rules. Object-oriented programming. Use-case analysis and specification.