

Course Catalog - Fall 2008

Food Science and Human Nutrition

101 **Intro Food Science & Nutrition** credit: 3 hours.

Discusses the evolution of the food system to meet the needs and desires of a complex, heterogeneous society. Provides an overview of food in relation to nutrition and health, composition and chemistry, microbiology, safety, processing, preservation, laws and regulations, quality, and the consumer. Enrollment by non-majors is permitted in spring semesters only.

This course satisfies the General Education Criteria for a Physical Sciences course.

120 **Contemporary Nutrition** credit: 3 hours.

Fundamental principles of human nutrition and their application to the selection of adequate diets; current topics of nutritional importance. Prerequisite: CHEM 101 or equivalent.

This course satisfies the General Education Criteria for a Life Sciences course.

131 **Introductory Food Laboratory** credit: 3 hours.

Application of food preparation principles and techniques in the preparation of standard food products; principles of food management and their application in the planning and preparation of meals. Prerequisite: FSHN 101 or concurrent registration.

140 **Introduction to Hospitality** credit: 3 hours.

Overview of the hospitality industry with emphasis on organizational and operational structures of the major segments of the industry and career opportunities within each. Field trips required.

145 **Intro Hospitality Management** credit: 3 hours.

Explore the foodservice aspect of the hospitality industry by assisting Hospitality Management seniors in the Bevier Cafe/Spice Box taking either FSHN 441 or FSHN 443. Course covers the planning, production, and service of meals in specialized settings.

199 **Undergraduate Open Seminar** credit: 1 to 5 hours.

Experimental course on a special topic in food science and human nutrition. Topic may not be repeated except in accordance with the Code. Approved for both letter and S/U grading. May be repeated in the same or subsequent terms. No more than 12 hours may be counted toward graduation.

220 **Principles of Nutrition** credit: 4 hours.

Course focuses on the nutritive value of foods and metabolism of essential nutrients, as well as the application of principles of nutrition to the requirements of normal individuals throughout the life cycle. Prerequisite: CHEM 102; MCB 103.

260 **Raw Materials for Processing** credit: 4 hours.

Problems involved with procurement, harvesting, handling, and storage of fruits, vegetables, cereal grains, dairy products, red meat, poultry, fish, and eggs for the food-processing industry. Field trips to specialized operations. Prerequisite: One high school course in biological science and FSHN 101.

274 **NonMajors Food Microbiology** credit: 1 hours.

Introduction to food plant sanitation and the role of microorganisms in food manufacture. Students may not receive credit for both FSHN 101 and FSHN 274. Prerequisite: Sophomore standing or higher.

293 **Off Campus Internship** credit: 2 to 4 hours.

Supervised, off-campus experience in a field directly pertaining to the subject matter. Approved for both letter and S/U grading. May be repeated to a maximum of 10 hours.

294 **On Campus Internship** credit: 1 to 4 hours.

Supervised, on-campus, learning experience with faculty engaged in research. Approved for both letter and S/U

grading. May be repeated in the same or subsequent terms to a maximum of 10 hours. Prerequisite: Sophomore standing, 2.0 GPA, consent of the advisor, and consent of the Department Teaching Coordinator.

295 **UG Research or Thesis** credit: 1 to 4 hours.

Individual research, special problems, thesis, development and/or design work under the supervision of an appropriate member of the faculty. May be repeated in the same or subsequent terms. No more than 12 hours of special problems, research, thesis and/or individual studies may be counted toward degree. Prerequisites: Cumulative GPA of 2.5 or above at the time the activity is arranged and consent of instructor.

302 **Sensory Evaluation of Foods** credit: 3 hours.

The physiology, psychology, and chemistry of flavor and flavor perception; tactual, visual, and auditory components affecting food acceptability; principles and application of preference and discrimination testing; and interpretation of panel evaluation data.

322 **Nutrition and the Life Cycle** credit: 3 hours.

Examines physiological changes that occur during gestation, postnatal growth, and aging and the influence of these changes on nutritional requirements. Prerequisite: FSHN 220 or consent of instructor.

329 **Communication in Nutrition** credit: 3 hours.

Application and integration of the principles of nutrition and their transmission to groups and individuals. Students will learn individual counseling techniques as well as how to present nutrition information to groups. Open to Dietetics and Human Nutrition juniors and seniors only. Prerequisite: FSHN 220 or equivalent.

332 **Science of Food Systems** credit: 3 hours.

Application of chemical principles and physical behavior of ingredients in food systems and the effects processing and storage have on finished food products. Prerequisite: CHEM 102 and 103 or equivalent; CHEM 104 and 105 or equivalent; FSHN 131.

340 **Food Production and Service** credit: 4 hours.

Introduction to the management of commercial and noncommercial foodservice systems through the operation of Bevier Cafe. Students experience managing the procurement, production and service of food, as well as the sanitation and maintenance of equipment and facilities. Prerequisite: FSHN 332, credit or concurrent registration in FSHN 349 and FSHN 345.

345 **Hospitality Purchasing** credit: 3 hours.

Introduction to the principles and procedures for the purchasing, selection and procurement of food and non-food items in the hospitality industry. Field Trips. Prerequisite: FSHN 131 or consent of instructor.

349 **Food Service Sanitation** credit: 1 hours.

Examines the dangers, costs and prevention of foodborne illness as well as the training and motivation of food service employees in sanitary food handling and quality assurance practices. Upon completion of this course, student will be eligible to apply for the food service sanitation certificate issued by the State of Illinois. Prerequisites: FSHN 101 and FSHN 131, MCB 100 and MCB 101, or consent of instructor.

396 **UG Honors Research or Thesis** credit: 1 to 4 hours.

Individual research, special problems, thesis, development and/or design work under the direction of the Honors advisor. May be repeated in the same or subsequent terms. No more than 12 hours of special problems, research, thesis and/or individual studies may be counted toward the degree. Prerequisite: Junior standing, admission to the ACES Honors Program, and consent of instructor.

398 **Undergraduate Seminar** credit: 1 to 3 hours.

Group discussion on a special topic in a field of study directly pertaining to subject matter in food science and human nutrition. Approved for both letter and S/U grading. May be repeated in the same or subsequent terms to a maximum of 12 hours. Prerequisite: Sophomore standing.

414 **Food Chemistry** credit: 3 hours.

Examines the chemical aspects of major food components; water, carbohydrates, proteins, and lipids; properties of pigments, salts, and food dispersions. Undergraduate Food Science majors must enroll concurrently in FSHN 416. Prerequisite: CHEM 232 and CHEM 233.

416 **Food Chemistry Laboratory** credit: 2 hours.

Chemical and physical properties of water, proteins, lipids, carbohydrates, and other food components/additives are discovered in the context of their interactions and functional roles in foods. Prerequisite: CHEM 232 and CHEM 233 and concurrent enrollment in FSHN 414.

418 **Food Analysis** credit: 4 hours.

Principles and application of the chemical, physical, and instrumental methods used to determine the constituents of foods; special considerations applicable to the analysis of certain foods. Lecture and lab. Prerequisite: CHEM 232; FSHN 414; FSHN 416 or consent of instructor.

420 **Nutritional Aspects of Disease** credit: 3 hours.

Examines nutritional, biochemical, and physiological aspects of disease processes and studies the role of nutrition in prevention, management, and treatment of disease. Same as NUTR 420. Prerequisite: FSHN 220 or comparable course with a physiology prerequisite; MCB 450 or equivalent.

421 **Pediatric Clinical Nutrition** credit: 2 hours.

Examines physiological, biochemical and nutritional aspects of disease processes relevant to infants, children and adolescents. Topics covered include prematurity, developmental disabilities, inborn errors of metabolism, food allergy, obesity and eating disorders. The role of nutrition in prevention, management and treatment of disease is also covered. Prerequisite: FSHN 420; FSHN 322 is highly recommended.

423 **Advances in Foods & Nutrition** credit: 2 hours.

New developments in foods and nutrition; readings, lectures, and discussions. Prerequisite: FSHN 220 and FSHN 332, or equivalent.

425 **Food Marketing** credit: 3 hours.

Same as ACE 430. See ACE 430.

426 **Biochemical Nutrition I** credit: 3 hours.

The dietary and hormonal regulation of carbohydrate, lipid and amino acid metabolism. Emphasizes the regulation of enzyme activity and the different roles the major organs have in whole animal energy balance. Same as NUTR 426. Prerequisite: FSHN 220, or FSHN 120 and FSHN 414, and MCB 450 or concurrent enrollment.

427 **Biochemical Nutrition II** credit: 2 hours.

Biochemistry and metabolism of the fat soluble vitamins, and the biochemical role of minerals in animal biology. Emphasizes the digestion, transport, metabolism and intercellular function of these nutrients and how nutrient/food intake and physiological state affect these processes. Same as NUTR 427. Prerequisite: FSHN 426.

428 **Community Nutrition** credit: 3 hours.

Application and integration of the principles of nutrition and their delivery in the context of social, political, and economic environments in local, national, and international settings. Offered in alternate fall semesters (even years). Same as NUTR 428. Prerequisite: FSHN 220 or equivalent, one introductory statistics course, and one course in the social or behavioral sciences.

429 **Nutrition Assessment & Therapy** credit: 3 hours.

Application of the principles of normal and therapeutic nutrition, nutrition assessment, nutrition intervention and evaluation as related to the management and treatment of disease states. Laboratories will allow for the development of skills in each of these areas. This course is the clinical capstone course for the dietetics curriculum. Prerequisite: FSHN 320 and MCB 350, or concurrent enrollment.

440 **Applied Statistical Methods I** credit: 4 hours.

Same as ABE 440, ANSC 440, CPSC 440, and NRES 440. See CPSC 440.

442 **HM Skills and Applications** credit: 3 hours.

Application of behavioral science and management techniques, methods and strategies to the hospitality industry. Applied management techniques will focus on those managerial behaviors needed to develop and maintain positive and productive relationships with subordinates, peers, supervisors and individuals external to the hospitality organization. 3 undergraduate hours. Prerequisite: FSHN 340 and FSHN 441, or consent of instructor.

443 **Management of Fine Dining** credit: 4 hours.

Advanced application of food production and management principles to specific food service demands; emphasis on artistry in preparation, serving, and merchandising high quality food in quantity. 4 undergraduate hours. Prerequisite: FSHN 340 and FSHN 441, and credit or concurrent registration in FSHN 442.

460 **Food Processing Engineering** credit: 3 hours.

Examines application of process engineering principles to the conversion of raw agricultural materials into finished food products. Topics include basics of engineering analysis, units and dimensions, materials balances, energy balances, thermodynamics, heat transfer, psychrometry, refrigeration and mechanical separations. Prerequisite: PHYS 101 and MATH 120; or consent of instructor.

461 **Food Processing I** credit: 3 hours.

Principles, unit operations, and applications of food preservation and processing by high temperature, refrigeration, and freezing processes; includes heat transfer, kinetics, chemical and microbial changes in food as a result of processing; lecture and laboratory. Prerequisite: FSHN 418 and FSHN 460; and FSHN 414 or equivalent; FSHN 260 is recommended.

462 **Food Processing II** credit: 3 hours.

Principles and applications of food preservation and processing technologies including evaporation, dehydration, freeze-concentration, membrane processing, extrusion and water activity control; lectures, laboratories, and field trips. Prerequisite: FSHN 461 or consent of instructor.

465 **Principles of Food Technology** credit: 3 hours.

Overview of processing techniques in the food industry, including thermo-processing, refrigeration, freezing, moisture removal, moisture control nonthermal processing, and intermediate moisture food formulation. Lecture and field trips. FSHN 465 is not offered to undergraduate food science majors or graduate students specializing in food processing/engineering. Students may not receive credit for both FSHN 465 and the FSHN 461- FSHN 462 sequence. Prerequisite: FSHN 332 or food chemistry equivalent, or consent of instructor.

466 **Food Product Development** credit: 3 hours.

Principles of food product development: target market evaluation, concept development and presentation, formulation, manufacturing, packaging, product costs, pricing, safety, and marketing. May include a product in accordance with Institute of Food Technologists national competition guidelines. Products will be unveiled and presented for faculty evaluation. This capstone course is limited to seniors in the Food Science or Foods Industry and Business options in FSHN. Graduate students will be allowed to register pending sufficient space in the class. May be repeated to a maximum of 6 hours. Prerequisite: FSHN 332 or FSHN 414; FSHN 471 or FSHN 472; concurrent registration or completion of FSHN 461 and FSHN 462, or FSHN 465.

469 **Package Engineering** credit: 3 hours.

Cross-disciplinary study of the materials, machinery, research, design, techniques, environmental considerations, ethics and economics used in the global packaging industry with emphasis on the implementation of improved technologies for the problems unique to food packaging. An emphasis on the broad, systems-based nature of packaging will be maintained throughout the course. Same as ABE 482. Prerequisite: MATH 120; one each of 100-level Chemistry and Physics courses or their equivalent; junior-senior standing or higher, or consent of instructor.

471 **Food & Industrial Microbiology** credit: 3 hours.

Relationship of microorganisms to food manufacture and preservation, to industrial fermentation and processing, and to sanitation. Same as MCB 434. Prerequisite: MCB 101 or MCB 301 or equivalent; credit or concurrent registration in organic chemistry laboratory.

472 **Sanitation in Food Processing** credit: 2 hours.

Studies the principles of sanitation with emphasis on practical considerations as they apply to various food-processing industries; control of insects, rodents, and micro organisms; fundamentals of detergency; sanitation of water supplies; waste disposal methods; and government and public health regulations. Prerequisite: CHEM 104 and MCB 101.

480 **Basic Toxicology** credit: 3 hours.

Emphasizes the physiology, biochemistry and pharmacokinetics of absorption, distribution, metabolism and excretion of toxic compounds, drugs, non-nutrient dietary supplements and other compounds foreign to the body. An introduction to the process of cancer, how foreign compounds can initiate, enhance or prevent the process is also included. Same as CPSC 433, ENVS 480, and VB 549. Prerequisite: MCB 350 or MCB 406, or consent of instructor.

499 **Cur Topics in FS & Human Nutr** credit: 0 to 3 hours.

Group discussion or an experimental course on a special topic in food science and human nutrition. 1 to 3 undergraduate hours. May be repeated in the same or subsequent terms to a maximum of 12 hours as topics vary.

510 **Topics in Nutrition Research** credit: 1 hours.

Same as ANSC 525 and NUTR 510. See NUTR 510.

511 **Regulation of Metabolism** credit: 4 hours.

Same as ANSC 521 and NUTR 511. See NUTR 511.

512 **Physical Chemistry of Food** credit: 4 hours.

Studies physicochemical processes in foods during food processing; places special emphasis on methodological and experimental aspects of food processes, such as water activity, rheology of foods, food extrusion, protein hydration, gelatin, aggregation, and food process analyses. Prerequisite: FSHN 414 or MCB 350.

517 **Fermented & Distilled Beverages** credit: 2 hours.

The production technology, microbiology and chemistry (including the compositional chemistry, flavor chemistry, and chemistry of aging) of fermented and distilled beverages. Prerequisite: Graduate student status, or a food microbiology course and a food chemistry or biochemistry course.

518 **Chemistry of Lipids in Foods** credit: 3 hours.

Detailed examination of the chemical and physical properties of lipids in foods. Prerequisite: A food chemistry or biochemistry course is highly recommended.

520 **Advanced Clinical Nutrition** credit: 2 hours.

Same as NUTR 561. See NUTR 561.

560 **Membrane Separations Tech** credit: 2 hours.

Examines theory and applications of synthetic semipermeable membranes in reverse osmosis, ultrafiltration, microfiltration, and electrodialysis processes; thermodynamics of bioseparations, membrane chemistry and properties, process engineering, equipment design, fouling of membranes, selected applications. Prerequisite: FSHN 460 or consent of instructor.

573 **Advanced Food Microbiology** credit: 3 hours.

Detailed examination of food and industrial processes dependent on fermentation and other microbial activities. Prerequisite: Organic chemistry, calculus, and MCB 434.

575 **Issues in Food Safety** credit: 3 hours.

Current issues affecting the safety of the food supply including emerging pathogens, food additives and pesticides, genetically modified organisms and new technologies will be evaluated in the context of current scientific knowledge, United States food law, and consumer opinions. Prerequisite: Graduate level status or consent of

instructor.

590 ***Dietetic Internship I*** credit: 5 hours.

Supervised learning experience in a variety of settings and locations related to clinical nutrition, community nutrition, and food service management within Urbana/Champaign and surrounding areas. Approved for both letter and S/U grading. Prerequisite: Enrollment in dietetic internship program.

591 ***Dietetic Internship II*** credit: 5 hours.

Supervised learning experience in a variety of settings and locations related to clinical nutrition, community nutrition and health promotion, and food service management within Urbana/Champaign and surrounding areas. Approved for both letter and S/U grading. Prerequisite: FSHN 590.

592 ***Graduate Internship Experience*** credit: 0 to 12 hours.

Supervised, off-campus experience in a field related to a students' option/concentration. May be repeated in separate terms to a maximum of 12 hours.

593 ***Seminar in Foods*** credit: 2 hours.

Discusses and evaluates current literature related to specialized topics in foods. Prerequisite: Undergraduate degree in foods, nutrition, or comparable background in chemistry, microbiology, physiology, or other biological science; consent of instructor.

595 ***Food Science Advanced Topics*** credit: 1 to 4 hours.

Studies of selected topics in Food Science. Study may be on specialized topics in any one of the following fields: food chemistry, food microbiology, nutrition, food processing/engineering. Lectures and/or laboratory. May be repeated if topics vary. Students may register only once for a given topic. Prerequisite: Graduate level status or consent of instructor.

596 ***Seminar in Nutrition*** credit: 2 hours.

Discusses and evaluates current literature related to topics in nutrition. Prerequisite: Undergraduate degree in foods, nutrition, or comparable undergraduate degree in biochemistry, microbiology, physiology, or other biological science; or consent of instructor.

597 ***Seminar in Food Science*** credit: 0 to 1 hours.

Discussions on specialized research topics and current literature relating to food science and technology. Required of all graduate students in food science. Approved for both letter and S/U grading.

598 ***Advanced Special Problems*** credit: 1 to 8 hours.

Supervised individual study on advanced special problems in food science and human nutrition. Approved for both letter and S/U grading. May be repeated in the same or subsequent semesters. Summer session, 1 to 4 graduate hours. Prerequisite: Written consent of instructor must be obtained prior to enrollment.

599 ***Thesis Research*** credit: 0 to 16 hours.

Original research designed and conducted under graduate faculty supervisor. Approved for S/U grading only. May be repeated.