FOOD SCIENCE & HUMAN NUTRITION (FSHN)

FSHN Class Schedule (https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/FSHN)

Courses

FSHN 101  Intro Food Science & Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/101)
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.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Phys Sciences

FSHN 120  Contemporary Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/120)
Fundamental principles of human nutrition and their application to the selection of an adequate diet for health and wellness; current nutrition topics of importance. Credit is not given for FSHN 120 if credit has been given for FSHN 220. Prerequisite: CHEM 101 or equivalent.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Life Sciences

FSHN 125  Intro to Human Nutrition  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/125)
Introductory course for students in Human Nutrition. Explore department, college and campus resources. Learn about current issues, opportunities, and careers in the nutrition field. Prerequisite: FSHN major with a concentration in Human Nutrition only.

FSHN 130  Introduction to Food Science  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/130)
Introductory course for students in Food Science (FS) focused on student learning and success, current issues, and opportunities and careers in the field of food science. In addition, students will learn about how to enhance their learning strategies. Approved for S/U grading only. Prerequisite: For freshman majoring in FSHN with a concentration in Food Science only.

FSHN 140  Introduction to Hospitality  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/140)
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.

FSHN 145  Intro Hospitality Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/145)
Explore the foodservice aspect of the hospitality industry by assisting Hospitality Management seniors taking FSHN 443 in the operation of the Spice Box. Course covers the planning, production, and service of meals in specialized settings. Additional fees may apply. See Class Schedule.

FSHN 150  Introduction to Dietetics  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/150)
Introductory course for students in dietetics. Addresses current issues, opportunities and careers in the dietetics profession. Freshmen or transfer student into dietetics given priority.

FSHN 195  Intro to Undergrad Research  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/195)
Learn about research opportunities available to undergraduate students in the FSHN department, and find a laboratory that fits a student’s interests and education goals. Guest faculty members present research opportunities in their laboratory, and then give a laboratory tour for students to learn more about the research activities there. Approved for S/U grading only. Prerequisite: For FSHN majors only.

FSHN 199  Undergraduate Open Seminar  credit: 1 to 5 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/199)
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 letter and S/U grading. May be repeated in the same or subsequent terms. No more than 12 hours may be counted toward graduation.

FSHN 220  Principles of Nutrition  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/220)
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 244 and 246.

FSHN 230  Food Sci Professional Issues  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/230)
Discussion of current topics in food science and professional issues, including ethics, undergraduate research, study abroad, graduate school options and internships. Approved for S/U grading only. Prerequisite: Sophomore and Junior transfer students with a Food Science concentration only.

FSHN 232  Science of Food Preparation  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/232)
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. Additional course fees may apply. See Class Schedule. Prerequisite: FSHN 101 or concurrent registration.

FSHN 260  Raw Materials for Processing  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/260)
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. Additional fees may apply. See Class Schedule. Prerequisite: One high school course in biological science and FSHN 101.

FSHN 274  NonMajors Food Microbiology  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/274)
Introduction to food microbiology and the role of microorganisms in foodborne illness and food manufacture. Credit is not given for both FSHN 274 and FSHN 101. Prerequisite: Sophomore standing or higher.

FSHN 293  Off Campus Internship  credit: 2 to 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/293)
Supervised, off-campus experience in a field directly pertaining to the subject matter. Approved for letter and S/U grading. May be repeated to a maximum of 10 hours.
FSHN 294  On Campus Internship  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/294](https://courses.illinois.edu/schedule/terms/FSHN/294))
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.

FSHN 295  UG Research or Thesis  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/295](https://courses.illinois.edu/schedule/terms/FSHN/295))
Individual research, special problems, thesis, development and/or design work under the supervision of an appropriate member of the faculty. Approved for letter and S/U grading. 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.

FSHN 302  Sensory Evaluation of Foods  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/302](https://courses.illinois.edu/schedule/terms/FSHN/302))
This course is devoted to learning the 1) physiological and psychological basis of human subjects, 2) chemistry of aroma and taste, 3) basic sensory methodologies in food evaluation, and 4) analysis and interpretation of sensory data. Additional fees may apply. See Class Schedule. Prerequisite: Recommended to students in junior and senior levels. Recommended to have taken foundational statistics course, i.e., STAT 100, STAT 200 or FSHN 440.

FSHN 312  Applied Microbiology Methods  credit: 2 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/312](https://courses.illinois.edu/schedule/terms/FSHN/312))
Consideration, through experimentation, of properties of bacteria, yeasts, molds, and actinomycetes important to industrial processes; exploration of methods of control of microbial processes in industry and sanitation. Prerequisite: MCB 100 and MCB 101 or consent of instructor.

FSHN 322  Nutrition and the Life Cycle  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/322](https://courses.illinois.edu/schedule/terms/FSHN/322))
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.

FSHN 329  Communication in Nutrition  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/329](https://courses.illinois.edu/schedule/terms/FSHN/329))
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: RHET 105, CMN 101, and FSHN 220 or equivalents.

FSHN 340  Food Production and Service  credit: 4 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/340](https://courses.illinois.edu/schedule/terms/FSHN/340))
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.

FSHN 343  Foundations in Beverage Management: Introduction to Wine, Beer and Spirits  credit: 2 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/343](https://courses.illinois.edu/schedule/terms/FSHN/343))
The course will focus on the application of principles and practices related to preparation and service of alcohol and specialty beverages in the hospitality industry. The course includes a study of management principles, study of bar operations, human resources and liability protection. Intrinsic to excellent service is having an understanding of proper tasting skills and knowledge to be able to verbalize nuances within the wine or spirit. Structured tastings will be utilized to discover, identify and describe attributes of the beverage. Successful completion of alcohol handler training required to maintain course enrollment. Additional fees may apply. See Class Schedule. Prerequisite: All registrants must be 21 years of age or older.

FSHN 344  Business Etiquette  credit: 1 Hour. ([https://courses.illinois.edu/schedule/terms/FSHN/344](https://courses.illinois.edu/schedule/terms/FSHN/344))
The fundamentals of business etiquette as they are applied to the modern multicultural and global business environments. Content includes the importance of the first impression, polite conversation, personal appearance, office politics, diplomacy, telephone and cell phone etiquette, high-tech etiquette, proper oral and written communication, and the protocol of meetings both in the United States and abroad. Students will also participate in a formal dining experience. Offered every other year. Prerequisite: Junior standing.

FSHN 345  Strategic Operations Management  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/345](https://courses.illinois.edu/schedule/terms/FSHN/345))
This course is intended to promote an understanding of the managerial aspects of strategic operations. Strategic operations management examines facilities, capacity, process/work-force planning, organization, people, systems integration, and coordination between operations. An introduction to the principles and procedures for the purchasing, selection and procurement of food and non-food items in the hospitality industry is also included. This course provides students with the management information needed to make operational decisions based on sound criteria. Prerequisite: FSHN 232.

FSHN 349  Food Service Sanitation  credit: 1 Hour. ([https://courses.illinois.edu/schedule/terms/FSHN/349](https://courses.illinois.edu/schedule/terms/FSHN/349))
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. Prerequisite: FSHN 101 and FSHN 232, or consent of instructor; MCB 100 and MCB 101 recommended. Course should be taken concurrently with or prior to FSHN 340.

FSHN 396  UG Honors Research or Thesis  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/396](https://courses.illinois.edu/schedule/terms/FSHN/396))
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.

FSHN 398  Undergraduate Seminar  credit: 1 to 3 Hours. ([https://courses.illinois.edu/schedule/terms/FSHN/398](https://courses.illinois.edu/schedule/terms/FSHN/398))
Group discussion on a special topic in a field of study directly pertaining to subject matter in food science and human nutrition. Approved for Letter and S/U grading. May be repeated in the same or subsequent terms to a maximum of 12 hours. Prerequisite: Sophomore standing.
FSHN 414 Food Chemistry credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/414)
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. 3 undergraduate hours. 3 graduate hours. Prerequisite: CHEM 232 and CHEM 233.

FSHN 416 Food Chemistry Laboratory credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/416)
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. 2 undergraduate hours. 2 graduate hours. Prerequisite: CHEM 232 and CHEM 233 and concurrent enrollment in FSHN 414.

FSHN 417 Neuroscience of Eating & Drinking credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/417)
Same as NEUR 417 and PSYC 417. PSYC 417.

FSHN 418 Food Analysis credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/418)
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. 4 undergraduate hours. 4 graduate hours. Prerequisite: CHEM 232; FSHN 414; FSHN 416 or consent of instructor.

FSHN 419 Food Ingredient Technology credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/419)
Explores the research, science and technology of the production of safe, high quality food ingredients through the application of food chemistry, food microbiology, and food processing principles. 2 undergraduate hours. 2 graduate hours. Prerequisite: FSHN 414 or consent of the instructor. FSHN majors only, junior standing required.

FSHN 420 Nutritional Aspects of Disease credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/420)
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. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 220 or comparable course with a physiology prerequisite; MCB 450 or equivalent.

FSHN 421 Pediatric Clinical Nutrition credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/421)
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. Offered every other year. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 420; FSHN 322 is highly recommended.

FSHN 423 Advances in Foods & Nutrition credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/423)
New developments in foods and nutrition; readings, lectures, and discussions. 2 undergraduate hours. 2 graduate hours. Prerequisite: FSHN 220 and FSHN 332, or equivalent.

FSHN 425 Food Marketing credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/425)
Same as ACE 430. See ACE 430.

FSHN 426 Biochemical Nutrition I credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/426)
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. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 220, or FSHN 120 and FSHN 414, and MCB 450 or concurrent enrollment.

FSHN 427 Biochemical Nutrition II credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/427)
Biochemistry and metabolism of the water and fat soluble vitamins and minerals. Emphasizes the digestion, transport, metabolism and intercellular functions of these nutrients and how diet/food intake and physiological states affect these processes. Same as NUTR 427. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 220 or equivalent, one introductory statistics course, and one course in the social or behavioral sciences.

FSHN 428 Community Nutrition credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/428)
Application of nutrition principles to needs assessments, program planning, delivery and evaluation in local, national, and international settings using behavioral theory frameworks. Same as NUTR 428. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 220 or equivalent, one introductory statistics course, and one course in the social or behavioral sciences.

FSHN 429 Nutrition Assessment & Therapy credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/429)
Problem-based learning application (via cases) of the nutrition care process with emphasis on nutrition assessment, diagnosis, intervention, monitoring and evaluation, as related to the management and treatment of disease states. This course is the clinical capstone course for the dietetics curriculum. 3 undergraduate hours. 3 graduate hours. Prerequisite: FSHN 420, or concurrent enrollment required.

FSHN 440 Applied Statistical Methods I credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/440)
Same as ABE 440, ANSC 440, CPSC 440, and NRES 440. See CPSC 440.

FSHN 442 Hospitality Management & Leadership Skills credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/442)
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. No graduate credit. Prerequisite: FSHN 340 or consent of instructor.

FSHN 443 Management of Fine Dining credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/443)
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. No graduate credit. Prerequisite: FSHN 340 and credit or concurrent registration in FSHN 442.

FSHN 450 Dietetics: Professional Issues credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/450)
Discussion of current topics in dietetics, professional issues (ethics, outcomes research, marketing, legislation, registered dietitian exam) and preparing for dietetic internships. Required of all dietetics students. 2 undergraduate hours. 2 graduate hours. Prerequisite: Senior standing in dietetics.
FSHN 453 Nutrition for Performance credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/453)
Same as KIN 453. See KIN 453.

FSHN 460 Food Processing Engineering credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/460)
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. 3 undergraduate hours. 3 graduate hours. Prerequisite: PHYS 101 and MATH 220; or consent of instructor.

FSHN 461 Food Processing I credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/461)
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. Also, principles and applications of food processing unit operations based upon the combination of heat and/or mass transfer, including such unit operations as evaporation, freeze-concentration, membrane separation, dehydration, centrifugation, extrusion, as well as water activity control. Lecture-based course. 4 undergraduate hours. 4 graduate hours. Prerequisite: FSHN 414 or equivalent; FSHN 460 or equivalent, and FSHN 418. FSHN 260 is recommended.

FSHN 462 Food Processing II credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/462)
Laboratory course for FSHN 461. Includes labs on blanching, pasteurization, sterilization, freezing, freeze drying, dehydration (tray drying, drum drying and spray drying), evaporation, and extrusion; discussion and labs. Additional fees may apply. See Class Schedule. 2 undergraduate hours. 2 graduate hours. Prerequisite: FSHN 461.

FSHN 464 Beverage Science & Technology credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/464)
Explores the research, science and technology of the production of safe, high quality beverages through the application of food chemistry, food microbiology, and food processing principles. 2 undergraduate hours. 2 graduate hours. Prerequisite: FSHN 414 or FSHN 332 or consent of instructor. FSHN majors only, junior or senior standing required.

FSHN 465 Principles of Food Technology credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/465)
Overview of processing techniques in the food industry, including thermal/non-thermal processing, refrigeration, freezing, moisture removal, and separation. Presentations cover basic principles of each technology with examples of processing equipment. The changes of food components and nutrients caused by processing is also discussed. Lecture and field trips. 3 undergraduate hours. 3 graduate hours. Credit is not given for both FSHN 465 and the FSHN 461 - FSHN 462 sequence. Undergraduate food science majors or graduate students specializing in food processing/engineering may not enroll in FSHN 465. Recommended: FSHN 332 or food chemistry equivalent.

FSHN 466 Food Product Development credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/466)
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. Additional fees may apply. See Class Schedule. 3 undergraduate hours. 3 graduate hours. May be repeated to a maximum of 6 hours in separate terms if topics vary. Prerequisite: FSHN 332 or FSHN 414; FSHN 471 or FSHN 472; concurrent registration or completion of FSHN 461 and FSHN 462, or FSHN 465. 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.

FSHN 469 Package Engineering credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/469)
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. 3 undergraduate hours. 3 graduate hours. Prerequisite: MATH 220; one each of 100-level Chemistry and Physics courses or their equivalent; junior-senior standing or higher, or consent of instructor.

FSHN 471 Food & Industrial Microbiology credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/471)
Relationship of microorganisms to food manufacture and preservation, to food and industrial fermentation and processing, and to food-borne illness. Same as MCB 434. 3 undergraduate hours. 3 graduate hours. Prerequisite: MCB 101 or MCB 301 or equivalent.

FSHN 480 Basic Toxicology credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/480)
Emphasizes basic toxicology principles and the pharmacokinetics, absorption, distribution, metabolism and excretion of drugs, non-nutrient dietary supplements and other compounds foreign to the body. Toxic effects on major target organ systems are discussed, including an introduction to how foreign compounds can initiate, enhance or prevent the carcinogenic process. Briefly surveys diverse areas of toxicology such as eco-, nano-, forensic, genetic, nutritional, clinical and reproductive toxicology; review the federal regulatory aspects of safety assessment and consumer protection. Same as CB 449, CPSC 433, and ENV 480. 3 undergraduate hours. 3 graduate hours. Prerequisite: Biochemistry - MCB 450 or equivalent, or consent of instructor.

FSHN 499 Cur Topics in FS & Human Nutr credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/499)
Group discussion or an experimental course on a special topic in food science and human nutrition. 1 to 3 undergraduate hours. 1 to 3 graduate hours. May be repeated in the same or subsequent terms to a maximum of 12 hours as topics vary.

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FSHN 502 Advanced Sensory Science  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/502)
In-depth and current topics in sensory science beyond the scope of undergraduate sensory course, FSHN 302. The main course objectives are 1) to discuss the physiological and psychological basis for sensory evaluation, 2) discuss Thurstonian Modeling in Difference Tests, 3) utilize multivariate statistical methods in sensory studies, 4) critique current research papers and articles in the sensory science discipline, and 5) develop a proposal for research utilizing sensory methods. Prerequisite: Undergraduate sensory science course, such as FSHN 302. Graduate students only.

FSHN 510 Topics in Nutrition Research  credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/FSHN/510)
Same as ANSC 525 and NUTR 510. See NUTR 510.

FSHN 511 Regulation of Metabolism  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/511)
Same as ANSC 521 and NUTR 511. See NUTR 511.

FSHN 514 Advanced Food Chemistry  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/514)
Emerging issues related to the chemistry of water, carbohydrates, lipids and proteins, as well as postharvest physiology and impact of processing on chemical reactions in foods. Prerequisite: Organic CHEM 232, or equivalent.

FSHN 517 Fermented & Distilled Beverages  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/517)
The production technology, microbiology and chemistry (including the compositional chemistry, flavor chemistry, and chemistry of aging) of fermented and distilled beverages. Additional fees may apply. See Class Schedule. Prerequisite: Graduate student status, or a food microbiology course and a food chemistry or biochemistry course.

FSHN 518 Chemistry of Lipids in Foods  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/518)
Detailed examination of the chemical and physical properties of lipids in foods. Offered every other year. Prerequisite: A food chemistry or biochemistry course is highly recommended.

FSHN 519 Flavor Chemistry and Analysis  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/519)
Provides graduate students with the tools and understanding necessary for the study of complex food flavor systems. Students will learn: 1) modern techniques of analysis used in the chemical evaluation of food flavor systems, 2) accepted techniques for the sensory evaluation of food flavor, 3) approaches for combined sensory-analytical evaluation of food flavor and 4) principles of food flavor chemistry with emphasis placed on some well-understood flavor systems. Offered every other year. Prerequisite: FSHN 414 and FSHN 418 or equivalent.

FSHN 520 Advanced Clinical Nutrition  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/520)
Same as NUTR 561. See NUTR 561.

FSHN 530 Childhood Obesity I  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/530)
Same as CHLH 530, HDFS 551, KIN 530, NUTR 530, SOCW 570. See NUTR 530.

FSHN 531 Childhood Obesity II  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/531)
Same as CHLH 531, HDFS 552, KIN 531, NUTR 531, SOCW 571. See NUTR 531.

FSHN 550 Grantsmanship and Ethics  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/550)
Same as NUTR 550. See NUTR 550.

FSHN 553 Food Materials Science  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/553)
Study of the structure of foods that confer attributes such as soft, crunchy, juicy, creamy, and many others. Foods will be probed at the micro and nano scales. The goal is to better understand, predict, and design food properties and functionalities. 2 graduate hours.
No professional credit. Prerequisite: FSHN 414 (Food Chemistry) or equivalent.

FSHN 573 Advanced Food Microbiology  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/573)
Detailed examination of food microbiology topics including food-borne pathogens, food fermentation and microbial spoilage. Prerequisite: Graduate student standing or consent of instructor.

FSHN 574 Value Added Biotransformation  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/574)
Crop residues, renewable biomass, and agricultural wastes as sustainable and inexpensive substrates for producing value added products through enzymatic and microbial conversion processes. Concepts and applications of metabolic engineering. 3 graduate hours.
No professional credit. Prerequisite: FSHN 471.

FSHN 575 Issues in Food Safety  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/575)
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. Offered every other year. Prerequisite: Graduate standing.

FSHN 590 Dietetic Internship I  credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/590)
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. Additional fees may apply. See Class Schedule. Approved for letter and S/U grading. Prerequisite: Enrollment in dietetic internship program.

FSHN 591 Dietetic Internship II  credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/591)
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. Additional fees may apply. See Class Schedule. Approved for letter and S/U grading. Prerequisite: FSHN 590.

FSHN 592 Graduate Internship Experience  credit: 0 to 12 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/592)
Supervised, off-campus experience in a field related to a students' option/concentration. Approved for letter and S/U grading. May be repeated in separate terms to a maximum of 12 hours.

FSHN 593 Seminar in Foods and Nutrition  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/FSHN/593)
Communication-based course that focuses on enhancing professional oral presentation skills, particularly with regard to communicating current food science and/or human nutrition topics. 2 graduate hours.
No professional credit. Prerequisite: Undergraduate degree in foods, nutrition, or comparable background in chemistry, microbiology, physiology, or other biological science; consent of instructor.

Information listed in this catalog is current as of 09/2018
FSHN 595  
**Advanced Topics in Food Science and Human Nutrition**

*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. 1 to 4 graduate hours. No professional credit. May be repeated if topics vary. Students may register only once for a given topic. Prerequisite: Graduate level status or consent of instructor.

FSHN 597  
**Graduate Seminar**

*credit: 0 to 1 Hours.*

Discussions on specialized research topics and current literature relating to food science and human nutrition. Required of all graduate students. 0 or 1 graduate hour. No professional credit. Approved for letter and S/U grading.

FSHN 598  
**Advanced Special Problems**

*credit: 1 to 8 Hours.*

Supervised individual study on advanced special problems in food science and human nutrition. Approved for 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.

FSHN 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.