410 Sensory Analysis and Consumer Research
Spring. 3(2-2) P: (FSC 211 or HNF 150) and (STT 200 or STT 201 or STT 315 or STT 421 or STT 464) RB: HNF 300 or FSC 401 R: Open to students in the College of Agriculture and Natural Resources or in the Department of Food Science and Human Nutrition. SA: HNF 410

420 Quality Assurance
Fall. 2(2-0) P: (STT 200 or STT 201 or STT 231 or STT 315 or STT 351) and (FSC 211 or concurrently) or (ANS 210 or concurrent-ly) or (HRT 204 or concurrently)) R: Open only to juniors or seniors or graduate students in the Department of Food Science and Human Nutrition or in the Food Processing and Technology Specialization. Theory and application of quality assurance programs for food processing industries.

421 Food Laws and Regulations
Spring. 3(3-0) P: HNF 150 or HNF 311 or FSC 211 or FIM 100
Adoption, interpretation, and enforcement of laws and regulations governing food processing and foodservice systems. Impact of regulation on food production, availability, marketing, and safety.

423 Functional Foods and Human Health
Spring of even years. 3(3-0) P: (HNF 150 or (HNF 311 or concurrently)) and (MGM 205 or MGM 301 or FSC 342) and (BMB 200 or concurrently) or (BMB 401 or concurrently)) Concept, nature and classification of functional foods. Spectrum of biological activity. Positive and negative impacts on health, and regulatory aspects.

429 Fundamentals of Food Engineering
Spring. 3(3-0) Interdepartmental with Bio-systems Engineering. P: FSC 325 and MTH 126 and PHY 231 RB: FSC 211 R: Not open to students in the College of Engineering. SA: BE 325

Sources of microbiological, chemical and physical hazards; minimizing microbial growth and survival; good manufacturing, cleaning and sanitation practices; Hazard Analysis Critical Control Point Programs in food processing and food service.

432 Food Processing: Dairy Foods
Spring. 3(2-2) P: FSC 211 or ANS 210 R: Not open to freshmen or sophomores. SA: FSC 332

Principles for production and processing of safe and wholesome dairy foods. Practical experience in safety and quality assurance systems and in the processing of fluid milk, cultured products, cheese, and frozen desserts.

440 Food Microbiology
Spring. 3(3-0) Interdepartmental with Microbiology and Molecular Genetics. Administered by Food Science. SA: MPH 440

Methods for studying major groups of microorganisms important to the food industry. Isolation, enumeration, characterization, identification, and use of microorganisms.

455 Food Analysis
Fall. 3(2-3) P: (BMB 200 or (BMB 401 or concurrently)) and completion of Tier I writing requirement. Principles and application of analytical techniques.

Analysis for fats, proteins, carbohydrates, minerals, vitamins, and additives. Techniques include spectrophotometry, fluorimetry, chromatography, electrophoresis, and proximate composition.

470 Integrated Approaches to Food Product Development
Fall. 3(2-3) P: (FSC 402 or concurrently) or (FSC 441 or concurrently) or (FSC 445 or concurrently) or (FSC 455 or concurrently) RB: FSC 325 and BE 329 R: Open only to seniors or graduate students.

Food product development including obtaining, screening, and selecting ideas. Integration of food processing, chemistry, analysis, and microbiology for the design, production, and evaluation of a food product.

490 Special Problems in Food Science
Fall. Spring. Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Not open to freshmen or sophomores. Approval of department; application required.

Individual study of selected topics in food science. Supervised independent study.
493  Professional Internship in Food Science
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CMP 493, CSS 493, EEP 493, ESA 493, FSC 493, FIM 493, FW 493, HRT 493, PKG 493, PLP 493, and PRR 493. R: Open to juniors or seniors in the Food Science major. Approval of department; application required. Supervised professional experiences in agencies and businesses related to food science.

807  Advanced Food Toxicology
Fall of even years. 3(3-0) R: Approval of department.
Toxicology related to food safety. Metabolism of toxicants as influenced by food constituents, mutagenesis, and chemical carcinogenesis. Risk assessment.

823  Diet and Immune Function
Spring of odd years. 3(3-0) RB: Biochemistry and Microbiology.
Influence of diet on the immune system and relationship to infectious and non-infectious diseases, adverse reactions such as food allergy, and alcohol and substance abuse. Methods to evaluate immune function.

831  Advanced Cereal Science
Fall of even years. 3(3-0) RB: (BMB 401 and FSC 331 and FSC 401) or approval of department.
Physico-chemical properties of major constituents in cereal grains. Relationship of constituent structures to functionality in the processing of cereal grains into food products, with emphasis on wheat.

840  Advanced Food Microbiology
Spring of even years. 4(4-0) Interdepartmental with Microbiology and Molecular Genetics. Administered by Food Science. RB: MMG 201 or MMG 301 Not open to students with credit in FSC 440.
In-depth discussion of major groups of microorganisms relevant to the food industry. Ecological, physiological and public health aspects.

842  Foodborne Diseases
Spring of odd years. 3(3-0) RB: FSC 440 or FSC 540
Epidemiology, isolation, characterization, clinical manifestations, pathogenicity, incidence and control of bacterial, parasitic and viral foodborne pathogens and associated toxins.

890  Special Problems in Food Science
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. Approval of department; application required. Individual investigation of an area of food science.

891  Selected Topics in Food Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in the Food Science major or Human Nutrition major.
Topics of current interest and importance in basic and applied areas of food science.