ENVIROMENTAL TOXICOLOGY


ETOX 4000* Wildlife Toxicology 3(3) Aessment of impacts of toxic substances on reproduction, health, and well-being of wildlife species; acute and chronic effects of agricultural chemicals, pesticides, hazardous waste, industrial waste, and oil releases are discussed. Preq: [BCH M 3010 or BCH M 3050; or both CH 2230 and CH 2270] and [BIOI 1040 and BIOI 1060; or BIOI 1110] and WFB 3500.

ETOX 4210* Chemical Sources and Fate in Environmental Systems 3(3) Discusses chemical cycles in the environment on global and microcosm scales. Examines the dependence of fate processes on physical and chemical properties and environmental conditions. Addresses breakdown, movement, and transport of selected toxicants to illustrate the mechanisms that govern chemical fate.

ETOX 4300 Toxicology 3(3) Basic principles of toxicology, including quantitation of toxicity, toxicokinetics, biochemical action of poisons, and environmental toxicology, are studied. Acute and chronic effects of various classes of poisons (e.g., pesticides, drugs, metals, and industrial pollutants) are discussed in relation to typical routes of exposure and regulatory testing methods.

ETOX 4370 Ecotoxicology 3(3) Study of the effects of stressors on the ecosystem. Explores the integrative relationships that comprise the field of ecotoxicology in a hierarchical format that focuses on the various levels of ecological organization.

ETOX 4460 Soil and Water Quality: Fundamentals 3(3) Studies those aspects of water quality that are influenced by soil systems. Many water quality concerns arise from land-applied chemicals, natural or manufactured. Basic soil and water chemistry principles including sorption, solution chemistry, and soil chemical transport are studied.

ETOX 4470 Soil and Water Quality: Applications 3(3) Potential for water quality concerns arising from land application of natural or manufactured chemicals is varied. Case studies of potential water quality concerns related to fertilizers, pesticides, biosolids, manures, and other sources are presented. Practices that can improve water quality are also studied and evaluated.

ETOX (GEOL, PES) 4850 Environmental Soil Chemistry 3(3) Study of soil chemical processes (sequestration, desorption, ion exchange, precipitation, dissolution, and redox reactions) of nutrients and inorganic and organic contaminants in soils and organic matter. Chemical complex equilibria and adsorption phenomena at the solid (soil, sediment, and mineral) water interface are emphasized.

FOOD SCIENCE


FDSC 1010 Introduction to Food Science and Human Nutrition 1(1) Introductory course providing an overview of career opportunities in both food science and human nutrition disciplines. Provides an orientation to principles related to food and human nutrition.

FDSC 1020 Perspectives in Food and Nutrition Sciences 1(1) Discourse covering topics related to food science and human nutrition. Subjects include topics of current interest and involve familiarization with scientific literature in nutrition and food sciences.

FDSC 2140 Food Resources and Society 3(3) Introduces the basics of food science (food chemistry, food microbiology, and food processing principles) and relates how advances in food science have paralleled societal advances and created social controversy.

FDSC 2150 Culinary Fundamentals 2(1) Emphasizes the safe handling of food utilizing recognized procedures in equipment safety and sanitation. Cooking methods are investigated, along with ingredient functionality and flavor development. Organizational skills utilized in a real-world environment assist students in preparing, presenting, and evaluating their finished products.

FDSC 2151 Culinary Fundamentals Laboratory 0(3) Non-credit laboratory to accompany FDSC 2150. Preq: Food Science and Human Nutrition major.

FDSC 2160 Fundamentals of Baking Science 2(1) Emphasizes the science of baking, ingredient functionality, formulas and Bakers Percentages, and various mixing methods used to produce an array of baked products. Organizational skills utilized in a real-world environment assist students in preparing, presenting, and evaluating their finished products.

FDSC 2161 Fundamentals of Baking Science Laboratory 0(3) Non-credit laboratory to accompany FDSC 2160. Preq: Food Science and Human Nutrition major.

FDSC 2500 Culinary Science Internship 0(0) Students experience the science and art of food preparation, with the ultimate objective of improving the ease of manufacture as well as the overall quality and nutrition of the food produced. Students are able to observe, interact, and practice principles of culinary sciences. To be taken Pass/No Pass only. Preq: FDSC 2150.

FDSC 3010 Food Regulation and Policy 3(3) Introduction to the origin and practice of food laws and regulations in the United States and other countries. Regulatory agencies (FSIS, FDA, EPA, etc.) are covered, as well as globalization and the impact of the Food Safety Modernization Act (FSMA) on the import and export of food products.

FDSC 3040 Evaluation of Dairy Products 2(1) Emphasizes sensory evaluation of dairy products. Discusses basic principles of organoleptic evaluation, fundamental rules for scoring and grading dairy products; evaluation of all classes of dairy products based on established grades and score cards. Preq: Food Science and Human Nutrition major or Food Science minor; and STAT 2300. Coreq: FDSC 3041.

FDSC 3041 Evaluation of Dairy Products Laboratory 0(2) Non-credit laboratory to accompany FDSC 3040. Coreq: FDSC 3040.

FDSC 3060 Institutional Food Service Management 3(3) Principles of management of resources in institutional food service systems. Emphasizes financial management, menu planning, principles of quantity food production, and sanitation. Preq: Food Science and Human Nutrition major.

FDSC 3070 Restaurant Food Service Management 3(3) Essentials of successful operation of restaurants, including menu design and pricing, marketing, customer satisfaction, purchasing, kitchen operations, and employment relationships.

FDSC 3500 Food Science Internship 0(0) Summer internship offered by the Food, Nutrition and Packaging Sciences Department and the Clemson Micro-Creamery and Food Manufacturing Industries. Students observe, interact, and practice principles of food science within the food industry. To be taken Pass/No Pass only. Preq: FDSC 2140.

FDSC 4010 Food Chemistry 1 3(3) Basic composition, structure, and properties of food and the chemistry of changes occurring during processing utilization. Includes Honors sections. Preq: BCH M 3050; and Food Science and Human Nutrition major or Food Science minor or Packaging Science major or minor.

FDSC 4020 Food Chemistry II 3(3) Application of theory and procedures for quantitative and qualitative analysis of food ingredients and food products. Methods for protein, moisture, lipid, carbohydrate, ash, fiber, rancidity, color, and vitamin analyses and tests for functional properties of ingredients are examined. Includes Honors sections. Preq: FDSC 4010 and Food Science and Human Nutrition major or Food Science minor.

FDSC 4030 Food Chemistry III 3(3) Study of the chemistry of food ingredients and food products. Methods for protein, moisture, lipid, carbohydrate, ash, fiber, rancidity, color, and vitamin analyses and tests for functional properties of ingredients are examined. Includes Honors sections. Preq: FDSC 4010 and Food Science and Human Nutrition major or Food Science minor.
FDSC 4030* Food Chemistry and Analysis 2(1)
Principles of analytical procedures and techniques used to quantitatively and qualitatively determine chemical composition of foods, and elucidate the physio-chemical properties of food materials. Laboratories provide experience in critical thinking, performing food analysis, and analyzing data. Preq: FDSC 4010 and Food Science and Human Nutrition major or Food Science minor. Coreq: FDSC 4031.

FDSC 4040* Food Preservation and Processing 3(3)
Principles of food preservation applied to flow processes, ingredient functions, and importance of composition and physical characteristics of foods related to their processing; product recalls and product development concepts. Preq: Food Science and Human Nutrition major or Food Science minor or Packaging Science major or minor; and FDSC 4010 and M ICR 3050; and one of PHYS 1220 or PHYS 2000 or PHYS 2070.

FDSC 4060* Food Preservation and Processing Laboratory I 1(3)
Laboratory exercises on preservation methods, equipment utilized, and processes followed in food manufacture. Preq or concurrent enrollment: FDSC 4040.

FDSC 4070* Quantity Food Production 2(1)
Principles of the production of food in quantity for use in food service systems. Emphasizes functions of components of foods and of ingredients in food, and focuses on the quality of the final product, on safe production of food, and on proper use of equipment. Preq: Food Science and Human Nutrition major or Food Science minor, or Packaging Science major or minor. Coreq: FDSC 407].

FDSC 4071* Quantity Food Production Laboratory 0(6)
Non-credit laboratory to accompany FDSC 4070. Coreq: FDSC 4070.

FDSC 4080* Food Process Engineering 4(3)
Study of basic engineering principles and their application in food processing operations. Emphasizes the relation between engineering principles and fundamentals of food processing. Preq: Food Science and Human Nutrition major or Food Science minor; and CH 1020 and FDSC 2140; and one of MATH 1020 or MATH 1060; and one of PHYS 1220 or PHYS 2000 or PHYS 2070. Coreq: FDSC 4081.

FDSC 4081* Food Process Engineering Laboratory 0(3)
Non-credit laboratory to accompany FDSC 4080. Coreq: FDSC 4080.

FDSC (PKSC) 4090* Total Quality Management for the Food and Packaging Industries 3(3)
Introduction to the principles of modern quality management emphasizing quality standards and issues and the practices necessary for food processing and packaging companies to survive in a customer-driven marketplace. May also be offered as PKSC 4090. Preq: STAT 2300.

FDSC 4100* Food Product Development 4(3)
A strategic and systems approach to integrated product development practices for developing new food products within a team setting. Focuses on the Stage-Gate process for moving from product idea to launch and application of sensory analysis techniques. Preq: Food Science and Human Nutrition major or Food Science minor; and Junior standing. Preq or concurrent enrollment: FDSC 4030. Coreq: FDSC 4101.

FDSC 4101* Food Product Development Laboratory 0(3)
Non-credit laboratory to accompany FDSC 4100. Coreq: FDSC 4100.

FDSC 4170 Seminar 1(1)
Literature research and oral presentation of a current food science topic. Preq: Food Science and Human Nutrition major.

FDSC 4180 Seminar 1(1)
Literature research and oral presentation of a current food science topic. Preq: Food Science and Human Nutrition major.

FDSC 4200 Special Topics in Food Science 1-3(1-3)
Special topics in food science not covered in other courses. May be repeated for a maximum of 12 credits, but only if different topics are covered. Includes Honors sections. Preq: Consent of instructor.

FDSC 4210 Special Problems in Food Science 1-4(1-4)
Independent research investigation in food science areas not conducted in other courses. May be repeated for a maximum of 12 credits. Includes Honors sections. Preq: Consent of instructor.

FDSC 4300* Dairy Processing and Sanitation 3(2)
Processing, manufacture and distribution of fluid, frozen, cultured and other dairy products. Emphasizes sanitation in a commercial food processing plant environment, chemical and microbiological aspects, processing procedures, equipment operation, ingredient applications, formulation and functional properties. Preq: CH 1020; and either both BIOL 1040 and BIOL 1060, or BIOL 1110. Coreq: FDSC 4301.

FDSC 4301* Dairy Processing and Sanitation Laboratory 0(3)
Non-credit laboratory to accompany FDSC 4300. Coreq: FDSC 4300.

FDSC 4500 Creative Inquiry-Food Science 1-6(1-6)
Individual or small team research experience in close collaboration with a faculty member. Expands undergraduate learning by application of the scientific method. Research is selected by the student with approval of faculty. May be repeated for a maximum of ten credits.

FDSC 4910 Practicum 1-4(1-4)
Supervised experiential opportunities in the food industry. May be repeated for a maximum of 12 credits. Preq: Food Science and Human Nutrition major and Junior standing and consent of department chair.

FDSC 4950 Senior Honors Research in Food Science 3(1)
With professor supervision, students select a well-defined research question, plan the experimental design, perform data collection and results analysis, and prepare a project summary. Preq: Membership in Calhoun Honors College. Coreq: FDSC 4951.

FDSC 4951 Senior Honors Research in Food Science Laboratory 0(6)
Non-credit laboratory to accompany FDSC 4950. Coreq: FDSC 4950.

FINANCE


FIN 210 Introduction to Personal Finance 3(1)
Provides an introductory overview of personal finance with an emphasis on planning, consumer credit, including student loans, credit cards, and basic bank loans; personal bank services; and purchasing an automobile and property insurance.

FIN 310 Personal Finance 3(3)
Analysis of the principles of personal financial planning. Topics include saving, budgeting, personal taxes, housing and automobile decisions, loans, insurance needs, investments, and retirement needs. May not be counted toward a major or minor in Financial Management.

FIN 3400 Risk and Insurance 3(3)
Studies the nature of risk and the role of insurance in risk management from individual and business viewpoints. Topics include probability, theory of the firm under uncertainty, insurance carriers and contracts, underwriting, and regulation. Preq: FIN 3060 or FIN 3110.

FIN 3500 Investment Analysis 3(3)
Study of techniques useful in analyzing alternative investment opportunities with emphasis on corporate securities. Investment planning and portfolio management are considered. Preq: FIN 3060 or FIN 3110, each with a C or better.

FIN 3600 Corporation Finance 3(3)
Introduction to financial management of nonfinancial firms. Includes such topics as analysis of financial statements, financial forecasting, capital budgeting, working capital management, and long-term financing decisions. Credit may not be received for both FIN 3060 and FIN 3110. Preq: ACCT 2010; and some of the following courses: IE 3500 or MATH 3020 or PSYC 3090 or STAT 3200 or STAT 3090 or STAT 4110.

FIN 3700 Principles of Real Estate 3(3)
Acquaints students with the theories, practices, and principles that govern real estate markets. Major emphasis is on specific real estate brokerage, property rights, and ownership; making real estate investment decisions; and financing real estate investments. Preq: FIN 3060 or FIN 3110, each with a C or better.

FIN 3800 Financial Institutions and Markets 3(3)
Study of the various types of financial institutions and of topics critical to the financial institutions practitioner. Topics include financial regulations, financial security types and their yields, interest rate risk management, foreign currency risks management, and stock index futures. Preq: FIN 3060 or FIN 3110, each with a C or better.

FIN 3110 Financial Management I 3(3)
First in a two-course sequence to provide in-depth exposure to the theory and practice of corporate financial management and to demonstrate how financial management techniques are applied in decision making. Credit may not be received for both FIN 3060 and FIN 3110. Includes Honors sections. Preq: ACCT 2010 with a C or better; and one of the following: IE 3500 or MATH 3020 or PSYC 3090 or STAT 3090 or STAT 3300.