Food Science Courses Approved for Graduate Credit in the Graduate Catalog

FDSC 410 - Food Chemistry (3 Credit Hours). Reactions of water, proteins, lipids, carbohydrates, minerals, enzymes, vitamins, and additives in foods. *(RE) Prerequisite(s): Chemistry 110 or 350.*

FDSC 421 - Food Microbiology (3 Credit Hours). Physical, chemical, and environmental factors moderating growth and survival of foodborne microorganisms. Pathogenic and spoilage microorganisms affecting quality of foods and their control. *(RE) Prerequisite(s): Microbiology 210 or Biology 220 and 229.*

FDSC 429 - Food Microbiology Lab (2 Credit Hours). Methods for examination, enumeration, cultivation, and identification of foodborne microorganisms. *(RE) Corequisite(s):421.*

FDSC 430 - Sensory Evaluation of Food (3 Credit Hours). Principles and procedures of sensory evaluation of food, methods of test analyses, physiological, psychological, and environmental factors affecting sensory perception. *Contact Hour Distribution: 2 hours and 1 lab. Recommended Background: A statistics course.*

FDSC 445 - Applied Food Science (3 Credit Hours). Interactions and functions of dairy, egg, cereal, and other plant based ingredients during the production and storage of processed food products. *Contact Hour Distribution: 2 hours lecture and 1 lab. (RE) Prerequisite(s):100, 241, or consent of instructor; and Food Chemistry (FDST 410) and Food Microbiology (FDST 421).*

FDSC 490 - Food Product Development (3 Credit Hours). Food Science capstone course. Application of principles of food chemistry, food processing and engineering, food microbiology, food laws and regulations, sensory evaluation, and statistics in the development of a food product concept. *Contact Hour Distribution: 2 hours and one 3-hour lab. (RE) Prerequisite(s):241, 390, 410 or 418, and 421 or 428. (RE) Corequisite(s):430. Registration Restriction(s): Only open to food science majors with science or technology concentrations. Minimum student level – senior.*

FDSC 495 - Quality Assurance and Sanitation Practices (3 Credit Hours). Design and evaluation of an industrial food processing operation to produce safe and high quality food products. Introduction to Good Manufacturing Practices (GMP) and Hazard Analysis and Critical Control Point (HACCP) Programs. *(RE) Prerequisite(s):410 or 418; and 421 or 428. Registration Restriction(s): Minimum student level — senior.*

FDSC 500 – Thesis (1-15 Credit Hours).*Grading Restriction: P/NP only. Repeatability: May be repeated. Credit Level Restriction: Graduate credit only. Registration Restriction(s): Minimum student level – graduate.*

FDSC 501 – Seminar (1 Credit Hours). Individual reports and discussion on topics from current literature. *Repeatability: May be repeated. Maximum 3 hours.*

FDSC 502 - Registration for Use of Facilities (1-15 Credit Hours). Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. *Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Credit Restriction: May not be used toward degree requirements. Credit Level Restriction: Graduate credit only. Registration Restriction(s): Minimum student level – graduate.*

FDSC 503 - Problems in Lieu of Thesis (2-3 Credit Hours).*Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Maximum 12 hours. Credit Level Restriction: Graduate credit only. Registration Restriction(s): Minimum student level – graduate.*

FDSC 504 - Research Planning (1-3 Credit Hours). Preliminary research and investigation of thesis research topic. *Grading Restriction: Satisfactory/No credit grading only. Repeatability: May be repeated. Maximum 12 hours. Credit Restriction: May not be used toward degree requirements.*

FDSC 514 - Food Colloids (3 Credit Hours). Presents fundamental colloidal theories in the context of

food systems. Topics include interactions between colloidal particles, stability of colloidal dispersions, and interfacial phenomena. *Recommended Background: food chemistry, physical chemistry, college-level physics. Registration Restriction(s): Minimum student level – graduate.*

FDSC 516 - Food Analysis (4 Credit Hours). Principles, methods and techniques for qualitative and quantitative analyses of composition and physical, chemical, and biological properties of food and food ingredients. *Contact Hour Distribution: 3 hours and one 2-hour lab. Credit Restriction: Students cannot receive credit for both 415 and 516.*

FDSC 521 - Advanced Food Microbiology (3 Credit Hours). Extrinsic and intrinsic factors associated with foods and food processing that relate to growth, survival, inhibition, detection, and recovery of foodborne pathogens and spoilage organisms; traditional and current approaches to microbiological food safety and quality. *(RE) Prerequisite(s):421 and 429.*

FDSC 525 - Molecular Parasitology (3 Credit Hours). The basics of parasitology, life cycle analysis, prevalence, and control strategies of the major classes of parasites affecting global public health will be presented. In particular, the molecular mechanisms employed by parasites that lead to human disease will be the focus. *Registration Restriction(s): Minimal student level - graduate.*

FDSC 530 - Food Biochemistry (3 Credit Hours). Applied biochemistry to plant- and animal-based food. Biochemical reactions in edible tissues pre- and post-harvest. *Recommended Background: Food chemistry. Registration Restriction(s): Seniors and graduate students.*

FDSC 541 - Food Engineering 3 Credit Hours). Transport processes in food engineering; unit operations; thermal and non-thermal processing of foods; food separations; processing and physicochemical properties of foods; calculations, design practices, and equipment used in food processing operations. *Contact Hour Distribution: 2 hours and one 2-hour lab. Credit Restriction: Students cannot receive credit for both 341 and 541. Recommended Background: Basic calculus and physics.*

FDSC 545 - Food Rheology (3 Credit Hours). Principles of fundamental and empirical rheological tests are described. Rheological properties of food colloidal and polymeric systems and application of rheology to understand microstructure and functionality of food systems are discussed. *Recommended Background: Organic chemistry and food chemistry. Registration Restriction(s): Minimum student level – graduate.*

FDSC 551 - Advanced Regression for Agricultural Research (3 Credit Hours). Designed to give an overview of various statistical models for description or prediction purposes and offer students hands on analysis of their own data. Topics will include linear regression models, nonlinear regression models, logistic regression, principle component regression, step-wise regression, and partial least squares regression. *Recommended Background: 3 credit hours of graduate level statistics. Registration Restriction(s): Minimal student level – graduate.*

FDSC 590 - Special Topics in Food Technology and Science (1-3 Credit Hours). Critical reviews of current research and production concerns of food industry. *Repeatability: May be repeated. Maximum 9 hours.*

FDSC 592 - Internship in Food Science and Technology (1-3 Credit Hours). Practical experience in a selected setting under the supervision of a local professional and departmental representative. *Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Maximum 3 hours. Registration Restriction(s): Minimum student level – graduate. Registration Permission: Consent of Instructor. Must be within the Department of Food Science and Technology.*

FDSC 593 - Directed Studies (1-3 Credit Hours). Research on non-thesis topics chosen by student and major professor. Supervised experience in food industry or governmental laboratories. *Repeatability: May be repeated. Maximum 6 hours. Registration Restriction(s): Minimum student level – graduate.*

FDSC 600 - Doctoral Research and Dissertation (3-15 Credit Hours).*Grading Restriction: P/NP only. Repeatability: May be repeated. Registration Restriction(s): Minimum student level – graduate.*

FDSC 601 – Seminar (1 Credit Hours). Reports and directed discussion on research topics from current literature. *Repeatability: May be repeated. Maximum 3 hours. Registration Restriction(s): Minimum student level – graduate.*

FDSC 603 - Research Planning (1-6 Credit Hours). Preliminary research and investigation of dissertation research topic, and preparation of a research proposal. *Grading Restriction: Satisfactory/No credit grading only. Repeatability: May be repeated. Maximum 18 hours. Credit Restriction: May not be used toward degree requirements. Registration Restriction(s): Minimum student level – graduate.*

FDSC 616 - Physical Properties of Foods (3 Credit Hours). Discusses physical properties of foods and applications of fundamental principles to understand and create colloidal and polymeric structures relevant to food systems. *Recommended Background: Organic chemistry and food chemistry. Registration Restriction(s): Minimum student level – graduate.*

FDSC 617 - Food Proteins (3 Credit Hours). Physicochemical properties of proteins used as ingredients in foods. Common methods used for the manufacturing of protein ingredients. Future trends in food proteins and novel methods for quantification and characterization of food proteins. *Recommended Background: Organic chemistry and food chemistry. Registration Restriction(s): Minimum student level – graduate.*

FDSC 618 - Structure and Functionality of Polysaccharides (3 Credit Hours). Occurrence of polysaccharides and their role in nature, conformation and behavior in solutions, gelling mechanisms, and applications. *Recommended Background: Organic chemistry and food chemistry. Registration Restriction(s): Minimum student level – graduate.*

FDSC 690 - Innovations in Food-related Technologies (1 Credit Hours). Will focus on procedures and regulations related to intellectual property. *Registration Restriction(s): Minimum student level – graduate.*