

Description of Courses (Credit Hours are given in parentheses)

FDST 700, 701, 702 Seminar in Food Science and Technology (1)

This course is designed to build communication skills for graduate students. Presentations, both verbal and written are prepared and given by students following an extensive review of the technical literature. Seminar topics to be presented include the specific research area of the student as well as more general topics in the food science field.

A minimum of three (3) credit hours is required of all students in the program.

AGSC 605 Statistics in Agricultural Research (3)

Emphasis is placed on techniques and application of statistical and experimental design, data acquisition, analyses, interpretation and presentation as applied to the Agricultural Sciences.

AGSC 691 Research Methodology in the Agricultural Sciences (3)

Students will learn the basic principles of research methodology. Emphasis will be placed on techniques used in identifying problems, forming hypotheses, constructing and using data-gathering instruments, designing research studies, and employing statistical procedures to analyze data.

AGRI 684 Recombinant DNA Technology (3)

This is a laboratory course to introduce the basic principles of gene cloning, give essential background on working with E.coli, utilize different cloning systems and employ methods utilized for DNA sequencing.

ANPT 424/624 Animal and Avian Health and Diseases (4)

The study of parasitic, viral, bacterial and protozoal disease of mammalian and avian species will be covered. Methods of disease prevention, control and eradication will also be discussed.

ANPT 611 Poultry Diseases and Hygiene (4)

Students will study the parasitic, viral, bacterial and protozoan diseases of domestic poultry. Methods of disease prevention, control and eradication will also be discussed.

ANPT 614 Advanced Animal and Avian Physiology (4)

This course covers an in depth presentation of major organ systems and their interaction in the maintenance of homeostasis.

ANPT 622 Analytical Laboratory Methods (2)

The application of analytical laboratory techniques used in biomedical research will be explored.

ANPT 634 Advanced Animal and Avian Diseases (4)

Students will study the nutritional and metabolic diseases and the isolation and cultivation of macro-and microscopic parasites inclusive of gross and microscopic pathology.

BIOL 601 Environmental Microbiology (4)

Topics include microbial ecology of plants and animals, aquatic microbial ecology (including medical implications), soil microbial ecology, biodegradation, microbial insecticides, gastrointestinal microbiology, microbiology of foods and environmental problems management. Each student will be required to complete an independent research project.

Prerequisite: General Microbiology.

CHEM 670 Advanced Biochemistry (3)

The course covers the classification, chemistry and metabolism of protein, amino acids, carbohydrates and lipids.

Prerequisite: One semester of Biochemistry.

CHEM 621 Advanced Environmental Chemistry (4)

The origin, transport and effects of atmospheric and aquatic pollutants are studied, with emphasis on energy-related pollutants which include coal, oil and synfuels.

Prerequisites: *One year of General Chemistry, one semester of Organic Chemistry and one semester of Analytical Chemistry or permission of the instructor.*

ENVS 641 Environmental Toxicology (3)

The course covers organisms in the atmosphere, hydrosphere and lithosphere and the effects of foreign chemical and other stress on their health and well-being.

Prerequisites: *B.S. in Biology, Chemistry or Environmental Science with some background in environmental pollution or consent of the instructor.*

CSDP 604 Computer Methods in Statistics (3)

This course is an introduction to the principles and applications of probability and statistics needed in graduate studies in various academic areas and to the computer realization of these methods. The course begins with a brief intensive review of basic statistical principles.

Prerequisites: *One Semester of Calculus.*

CSDP 658 Computer Applications in Agriculture (3)

Current topics include expert systems for small farm applications, farm-record management, and special planning tools for agriculture.

NUTD 654 Nutritional Biochemistry (4)

The course reviews recent developments in nutritional sciences, designed to acquaint students with laboratory procedures in nutritional biochemistry and physiology, including the identification and measurements of nutrients and their metabolites in foods, tissue and body fluids and human and animal experiments in nutrition. Special emphasis is placed on the relationship between biochemistry and nutrition.

NUTD 670 Advanced Food Safety (3)

The course emphasizes current trends in number of areas: food safety and emerging food borne pathogens, regulating food safety, traditional and rapid microbiological methods, relationship of environmental factors to occurrence, growth and survival of microorganisms in foods, mechanisms of control, HACCP, risk assessment, sanitation and food safety education. Special emphasis is placed on actual food borne outbreaks. *Prerequisite: BIOL 301 or AMIC 324 or permission of the instructor.*

FDST 493 Food Chemistry (3)

This course talks about the chemistry of food components including water, carbohydrates, liquids, proteins, vitamins, and minerals, as well as additives including preservatives, colorants, flavors, antioxidants and sweeteners. Functionality and interaction of components and their importance to quality and wholesomeness of foods will be discussed.

Prerequisites: *CHEM 212 or permission of the instructor.*

FDST 692 Advanced Food Microbiology (3)

This course is designed to provide the microbiologist and/or food scientist with extended education and training in food microbiology. Emphasis on spoilage and pathogenic microorganisms in food includes detection, identification, characterization, and control methods utilized. Ecology and survival strategies of pathogens in foods and virulence mechanisms of food borne pathogens are being discussed.

Prerequisites: *BIOL 301 or AMIC 324.*

FDST 801 Food Quality Assurance (3)

This course provides understanding of food quality control/assurance programs and compliance with government regulation. Topics presented include International Standards for Quality Management Systems, ISO 9000, Good Manufacturing Practices (GMP), Total Quality Management (TQM) and Hazard Analysis Critical Control Point (HACCP). The class also covers factors affecting the quality of food products, such as appearance, flavor, texture, nutritional value, safety and wholesomeness as well as principles of statistical quality control.

Prerequisite: *FDST 493.*

FDST 802 Advanced Food Toxicology (3)

This course emphasizes biological and chemical aspects of toxicology, microbial aspects of food borne infections and intoxications, food additives, toxic substances occurring in food, either naturally or formed during processing, and the toxic effects of these substances on the biological systems. Safety of genetically engineered foods, risk assessment and food safety policy will be discussed as general topics.

Prerequisite: Permission of the instructor.

FDST 805 Special Topics in Food Processing Technology (3)

This course integrates principles of food chemistry, food microbiology, food engineering, nutrition, statistics and sensory evaluation through discussion of food processing operations, such as processing of fruit and vegetables, dairy, seafood, fats and oils, beverages, and chocolate manufacturing. Food sanitation, food packaging, and food biotechnology, will be discussed as general topics.

Prerequisites: Permission of the instructor.

FDST 899 Doctoral Dissertation Research (1-12)