**NFSC - NUTRITION AND FOOD SCIENCE**

**NFSC100 Elements of Nutrition (3 Credits)**
Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

**NFSC103 Nutrition and Sports Performance (3 Credits)**
Nutrition and Sports Performance would give students a brief overview of positive health-related outcomes of a physically active lifestyle. Students would design a fitness regimen and be able to describe when and how glycogen, blood glucose, fat, and protein are used to meet energy needs during different types of physical activity. They would be able to differentiate between anaerobic and aerobic use of glucose, and identify advantages and disadvantages of each. This course would outline how to estimate and athlete’s calorie need and discuss the general principles for meeting overall nutrient requirements in the training diet. The problems associated with rapid weight loss by dehydration and the importance of water and/or sports drinks during exercise would be examined. An understanding of the importance of staying well-nourished with carbohydrate, protein, and various vitamins and minerals before, during, and after training would be discussed.

**NFSC112 Food: Science and Technology (3 Credits)**
Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

**NFSC220 Diet: Is it a cause or a solution (3 Credits)**
If diet is a very straightforward topic; then why and how does this simple matter result in complicated health problems? Diet can provide a simple solution to numerous health issues. So, why do many people fail to follow this seemingly simple solution and still suffer from obesity and other diet-related diseases? Diet is a topic that most people know but few people understand. In addition, diet has become one of the most important lenses for looking at a variety of social, economic, and cultural issues. Since the concept of diet is continuum and has multifaceted aspects, we need to understand it in broad and multidisciplinary perspectives including social, cultural and economic aspects.

**NFSC315 Nutrition During the Life Cycle (3 Credits)**
A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

**NFSC380 Methods of Nutritional Assessment (3 Credits)**
Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.

**NFSC388 Honors Thesis Research (3-6 Credits)**
Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**NFSC398 Seminar (1 Credit)**
Presentation and discussion of current literature and research in food science.

**NFSC399 Special Problems in Food Science (1-3 Credits)**
Designed for advanced undergraduates. Specific problems in food science will be assigned.

**NFSC412 Food Processing Technology (4 Credits)**
Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

**NFSC414 Mechanics of Food Processing (4 Credits)**
Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

**NFSC420 Food Chemistry (3 Credits)**
Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

**NFSC421 Food Processing Technology (4 Credits)**
Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

**NFSC422 Mechanics of Food Processing (4 Credits)**
Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

**NFSC430 Foodservice Operations (5 Credits)**
Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

**NFSC441 Food Chemistry (3 Credits)**
Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

**NFSC450 Foodservice Operations (5 Credits)**
Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

**NFSC451 Food Chemistry (3 Credits)**
Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.
NFSC422 Food Product Research and Development (3 Credits)
A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.
Restriction: Senior standing; and must be in a major within AGNR-Nutrition and Food Science department; and permission of AGNR-Nutrition and Food Science department.
Formerly: FDSC422.

NFSC423 Food Chemistry Laboratory (3 Credits)
Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC421.
Prerequisite: Must have completed or be concurrently enrolled in NFSC421.

NFSC425 International Nutrition (3 Credits)
Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.
Prerequisite: Must have completed one course in basic nutrition.

NFSC430 Food Microbiology (3 Credits)
A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.
Prerequisite: BSCI223; or permission of instructor.
Credit Only Granted for: ANSC430 or NFSC430.
Formerly: FDSC430.

NFSC431 Food Quality Control (4 Credits)

NFSC434 Food Microbiology Laboratory (3 Credits)
A study of techniques and procedures used in the microbiological examination of foods.
Prerequisite: Must have completed or be concurrently enrolled in NFSC430.
Credit Only Granted for: NFSC434 or ANSC434.
Formerly: FDSC434.

NFSC440 Advanced Human Nutrition (4 Credits)
A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro-and micro-minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.
Prerequisite: BCHM462, BSCI440, and NFSC100; and permission of AGNR-Nutrition and Food Science department.

NFSC450 Food and Nutrient Analysis (3 Credits)
Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.
Prerequisite: BCHM461 and NFSC100.
Formerly: NUTR450.

NFSC460 Medical Nutrition Therapy (4 Credits)
Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.
Prerequisite: NFSC380 and NFSC440; and permission of AGNR-Nutrition and Food Science department.
Formerly: NUTR460.

NFSC470 Community Nutrition (3 Credits)
Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined.
Students will be required to travel to local community nutrition sites during the semester.
Prerequisite: NFSC315; and permission of AGNR-Nutrition and Food Science department.
Formerly: NUTR470.

NFSC490 Special Problems in Nutrition (2-3 Credits)
Individually selected problems in the area of human nutrition.
Prerequisite: NFSC440; and permission of AGNR-Nutrition and Food Science department.

NFSC491 Issues and Problems in Dietetics (3 Credits)
A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.
Prerequisite: NFSC350; and permission of AGNR-Nutrition and Food Science department.
Corequisite: NFSC460.
Restriction: Senior standing or higher; and must be in Nutrition and Food Science: Dietetics program.

NFSC498 Selected Topics (1-3 Credits)
Selected current aspects of food.
Restriction: Permission of AGNR-Nutrition and Food Science department.
Repeatable to: 6 credits if content differs.