DEPARTMENT OF NUTRITION AND FOOD SCIENCES

Web Site: http://www.twu.edu/nutrition-food-sciences/

Courses

Contact hours identified in the course descriptions are based on a 15-week term. Students who enroll in Summer or mini-terms are expected to meet the same total number of contact hours as a 15-week term.

NFS 5003. Food Chemistry. Chemical properties of food ingredients and food systems, relationship of chemical properties to the functional properties, and their effects on food and nutritional qualities. Prerequisite: Organic chemistry or permission of instructor. Three lecture hours a week. Credit: Three hours.

NFS 5013. Sensory Evaluation of Foods. Introduction to the neuroscience of taste and sensory analysis theory and techniques. Practical tools to select, conduct, and statistically analyze appropriate tests. One lecture and six laboratory hours a week. Credit: Three hours.

NFS 5023. Food Analysis. Objective analysis and evaluation of properties of foods and food systems during processing, development, and storage. One lecture and six laboratory hours a week. Credit: Three hours.

NFS 5033. Eating Behaviors and Eating Disorders. Examination of the cultural, societal, and psychological influences on eating behaviors with specific attention to the causes and treatment of various types of eating disorders. Three lecture hours a week. Credit: Three hours.

NFS 5043. Nutritional Aspects of Vegetarianism. Degrees of vegetarian regimens (e.g. lacto-ovo, vegan); potential health benefits from adopting a vegetarian diet, ensuring nutritional adequacy of vegetarian diets throughout the life cycle; potential nutritional deficiencies arising from the partial or complete avoidance of animal products; current research; recent advances in dietetic practice. Three lecture hours a week. Credit: Three hours.

NFS 5053. Functional Foods. Exploration of foods capable of providing health benefits beyond basic nutrition with emphasis on improved health and disease prevention benefits of certain whole foods and food products. Three lecture hours a week. Credit: Three hours.

NFS 5063. Food Toxicology. Principles of toxicology and adverse effects of contaminants in foods of chemical and biological origin on human health; application of principles to food safety. Prerequisites: Food Science, and Human Anatomy and lab course; or permission of instructor. Three lecture hours a week. Credit: Three hours.

NFS 5133. Professional Internship for Exercise and Sports Nutrition. Application of exercise and sports nutrition knowledge in varied practice settings. Student is required to complete 150 clock hours of supervised practice during a minimum of eight weeks (10-19 hours of work a week). Ten practicum hours a week. Credit: Three hours.

NFS 5143. Flavor Analysis. Analysis of compounds associated with aroma, taste, and mouth feel using current analytical methodologies. Prerequisites: NFS 5003 and NFS 5023. Three lecture hours a week and two laboratory intensives. Credit: Three hours.

NFS 5153. Flavor Technology. Introduction to the technology used in the flavor industry including materials, formulation, production, and application. Prerequisites: NFS 5003 and NFS 5023. Three lecture hours a week and two laboratory intensives. Credit: Three hours.

NFS 5163. Advanced Exercise Physiology. Integrative physiology and physiological responses to exercise. Energy expenditure and measurement; cardiovascular and respiratory systems response to acute exercise; cardiovascular and skeletal muscle adaptations to chronic exercise; skeletal muscle anatomy, physiology, and function; and exercise testing and prescription to enhance cardiovascular and muscular fitness. Three lecture hours a week. Credit: Three hours.

NFS 5173. Professional Practicum. Guided field experience in administrative supervisory, consultant, or similar level positions for a Master's degree in Nutrition. Thirty practicum hours a week. Credit: Three hours.

NFS 5213. Human Nutrition and Metabolism: Macronutrients. Nutritional biochemistry; digestion, absorption, transport, function, regulation, and metabolism of macronutrients; relationships between dietary intake, metabolic pathways, and pathogenesis of health. Three lecture hours a week.

NFS 5223. Human Nutrition and Metabolism: Micronutrients. Nutritional biochemistry; digestion, absorption, transport, function, regulation, and metabolism of micronutrients; relationships between dietary intake, metabolic pathways, and pathogenesis of health. Three lecture hours a week. Credit: Three hours.

NFS 5233. Research Techniques in Nutrition Sciences. Nutrition sciences research methodology; ethics, study design, data analysis, and technical writing. Emphasis on nutrition-specific study designs: nutrition epidemiological studies & weight-loss interventions; data analysis programming; and statistical inference using nutrition-related datasets. Three lecture hours per week. Credit: Three hours.

NFS 5321. Seminar in Food Science. General overview of topics related to food science and technology including a review of current literature. Special emphasis on current areas of research including product development. One lecture hour a week. Credit: One hour.

NFS 5331. Seminar in Nutrition. Current research in nutrition and nutritional care. One seminar hour a week. Credit: One hour.

NFS 5332. Capstone Seminar. Terminal seminar for non-thesis Master's degree in Nutrition. Evaluation and critique of advanced concepts in nutrition and food sciences from current scientific publications. Prerequisite: 27 semester credits hours of graduate degree level coursework. Two seminar hours a week. Credit: Two hours.

NFS 5343. Advanced Nutritional Care. Nutritional care including diet therapy; current research in dietary care; dietary treatment of metabolic diseases. Prerequisite: Nutrition and human metabolism course or permission of instructor. Three lecture hours a week. Credit: Three hours.

NFS 5363. Human Nutrition in Disease. The role of nutrition in the etiology, management, and prevention of acquired diseases including cardiovascular, endocrine, and gastrointestinal diseases, cancer, and urological disorders. Prerequisite or Co-requisite: NFS 5213. Three lecture hours a week. Credit: Three hours.

NFS 5423. Nutrition and Gerontology. Nutritional status of older adult, normal, and therapeutic nutrition; metabolic pathways of the nutrients, sociological, and physiological factors. Prerequisite: Micronutrients and macronutrients courses. Three lecture hours a week. Credit: Three hours.

NFS 5443. Nutrition and Women's Health. Relationship between nutrition/nutrients and health issues of women, including Alzheimer's disease, cancer (breast/colon, cervical and ovarian, and lung), diabetes, heart disease, overweight, and obesity; current statistics, etiology, symptoms, treatment, and preventive measures of each health issue. Three lecture hours a week. Credit: Three hours.

NFS 5453. Nutrition Education. Dissemination of nutritional knowledge to various ethnic and age groups; cultural and environmental factors in dietary planning and selection; practical experiences included. Prerequisites: Micronutrients and macronutrients courses. Three lecture hours a week. Credit: Three hours.

NFS 5471. Clinical Aspects of Human Nutrition. Application of the principles of biochemistry, physiology, and nutrition in the treatment of human disease. Prerequisite or co-requisite: Admission to the MEDVAMC Dietetic Internship Program. Three practicum hours a week. Credit: One hour.

NFS 5472. Clinical Aspects of Human Nutrition. Application of the principles of biochemistry, physiology, and nutrition in the treatment of human disease. Prerequisite or co-requisite: Admission to the MEDVAMC Dietetic Internship Program. Six practicum hours a week. Credit: Two hours.

NFS 5473. Advanced Preventive Nutrition. Types of prevention; evidence for the role of dietary nutrients in preventing major causes of morbidity and mortality (e.g., cardiovascular disease, cancer); national goals for health promotions; dietary guidelines for health promotion and disease prevention; position statements on diet and health. Prerequisite: Introduction to nutrition course or equivalent. Three lecture hours a week. Credit: Three hours.

NFS 5493. Medical Nutrition Therapy in Pediatrics. Diagnosis, etiology, prevalence, pathophysiology, and nutrition impact of acute and chronic diseases affecting children. Application of principles of medical nutrition therapy to help prevent certain diseases and conditions and provide nutrition care for infants, children, and adolescents with these diseases and conditions. Prerequisite: NFS 5363. Three lecture hours a week. Credit: Three hours.

NFS 5521. Nutrition for Collegiate and Professional Sports. Application of evidence-based nutrition information in real-life sports settings. Case studies including fueling strategies, weight management, hydration and supplements, training table, traveling, and food challenges with individual athletes. Prerequisites: Nine hours of nutrition courses. One lecture hour a week. Credit: One hour.

NFS 5543. Nutrition in Pregnancy and Infancy. Understanding of nutrition in cellular growth of the whole body and individual organs; physiological changes during pregnancy; maternal-fetal exchange of nutrients; and the influence of nutrition and its nutrient requirements on pregnancy outcome and on the growth and mental developments of infants. Three lecture hours a week. Credit: Three hours.

NFS 5583. Nutrition and Exercise. Biochemistry of exercise, effects of acute and chronic exercise on nutrient requirements, and nutrient recommendations for different sport and exercise states. Scientifically acceptable protocols using an evidence-based analysis approach to discern unproven myths relating to exercise and nutrition. Information and dietary intervention programs for athletes and individuals who are interested in sports nutrition. Prerequisite: Six upper-level undergraduate nutrition hours. Prerequisite or Co-requisite: NFS 5213. Three lecture hours a week. Credit: Three hours.

NFS 5623. Nutraceuticals and Dietary Supplements. A critical evaluation of issues, concepts, and controversies about dietary supplements and nutraceutical ingredients. Emphasis on the importance of scientific investigations to evaluate their efficacy, safety, and value for health promotion, disease prevention, and treatment. Prerequisites or co-requisites: Course in nutrition and human metabolism. Three lecture hours a week. Credit: Three hours.

NFS 5633. Capstone Lecture. Terminal course for non-thesis Master's degree in Nutrition. Evaluation and critique of advanced concepts in nutrition and food sciences from scientific publications. Prerequisites: 27 semester credit hours of graduate-level coursework; NFS 5213, NFS 5223, and NFS 5363; and NFS 5233, HDFS 5193, HS 5703, KINS 5033, or MATH 5573. Three lecture hours a week. Credit: Three hours.

NFS 5681. Sports Nutrition Practicum. Field experiences working with athletic teams or individuals at fitness facilities to provide sports nutrition education to maximize training benefits and performance. May be repeated for additional credit. Three practicum hours a week. Credit: One hour.

NFS 5693. Pathophysiology and Treatment of Obesity and Metabolic Syndrome. Examination of the relationship between obesity, diet, exercise, and health. Obesity and metabolic syndrome (definitions, prevalence, pathophysiology); fat cell biology including development and growth of adipose (hypertrophy and hyperplasia), and the impact of diet and exercise on these processes; health implications of obesity and metabolic syndrome, weight loss, and weight gain; relationship between BMI and mortality (including obesity paradox); impact of lifestyle (diet and exercise), surgical, and pharmacological interventions to treat obesity; and the health benefits of diet and exercise independent of weight loss. Prerequisite or co-requisite: NFS 5213 or other advanced Nutrition course. Three lecture hours a week. Credit: Three hours.

NFS 5763. Food Safety/Foodborne Illness. Study of foodborne illness in relation to food handling practices in foodservice systems and food industry. Hazard Analysis Critical Control methods, risk management, government initiatives, and current search in food safety. Prerequisites: Quantity foods lecture and lab, and microbiology lecture and lab. Three lecture hours a week. Credit: Three hours.

NFS 5813. Internship Experience in Nutritional Care. Application of nutritional care skills in the clinical setting. Acceptance to a dietetic internship is required. May be repeated for credit. Twelve practicum hours a week. Credit: Three hours.

NFS 5833. Principles of Clinical Instruction in Nutritional Care. Experiential development of skills and evaluation techniques for clinical instructors in approved programs. May be repeated for additional credit. Nine clinical hours a week. Credit: Three hours.

NFS 5853. Advanced Internship Experience in Nutritional Care. Advanced application of nutritional care skills in the supervised practice setting. May be repeated for credit. Prerequisite: Acceptance into the Dietetic Internship Program and permission of department. Twelve clinical hours a week. Credit: Three hours.

NFS 5893. Advanced Nutritional Epidemiology. Advanced epidemiological concepts; design of observational and interventional studies; estimation of energy and nutrient intakes; biomarkers of nutritional status; ongoing clinical trials; current literature. Prerequisites: Nine hours of nutrition and three hours of graduate statistics. Three lecture hours a week. Credit: Three hours.

NFS 5901. Special Topics. Lectures or conferences on recent developments in nutrition. May be repeated with change of topic for additional credit. Prerequisite: Permission of the instructor. Credit: One hour.

NFS 5903. Special Topics. Lectures or conferences on recent developments in nutrition. May be repeated with change of topic for additional credit. Prerequisite: Permission of the instructor. Credit: Three hours.

NFS 5911. Independent Study. Intensive study of a problem of individual or professional interest in nutrition, food sciences, or institution administration. Credit: One hour.

NFS 5913. Independent Study. Intensive study of a problem of individual or professional interest in nutrition, food sciences, or food systems management. Credit: Three hours.

NFS 5953. Cooperative Education. Cooperative work-study arrangements between the University, business, industry, or selected institutions appropriate to the graduate program. Job assignments are made on the basis of student interests, skills, and degree program. The student will apply the ideas and processes learned in other courses in practical experience under cooperative supervision. Cooperative planning and evaluation are essential elements in the course. Nine practicum hours a week. Credit: Three hours.

NFS 5961. Research in Nutrition and Food Sciences. Individual research problem in a specific area of food and nutrition. Group and individual conferences. Credit: One hour.

NFS 5963. Research in Nutrition and Food Sciences. Individual research problem in a specific area of food and nutrition. Group and individual conferences. Credit: Three hours.

NFS 5973. Professional Paper. Prerequisite: Statistics. Credit: Three hours.

NFS 5983. Thesis. Credit: Three hours.

NFS 5993. Thesis. Prerequisite: NFS 5983. Credit: Three hours.

NFS 6003. Food Lipids. Application of basic lipid chemistry principles to analyze properties of food and food system lipids; functional properties of lipids and their effects on food systems. Prerequisite: Course in food chemistry or biochemistry. Three lecture hours a week. Credit Three hours.

NFS 6113. Nutrition and Cancer. Overview of nutrition and cancer at the population, cellular, and molecular levels; roles of nutrients and non-nutrients in cancer prevention. Prerequisite: Nutrition and human metabolism course or permission of instructor. Three lecture hours a week. Credit: Three hours.

NFS 6123. Micronutrients in Human Nutrition. Metabolic functions, metabolism, interrelationships, possible toxicity, and bioavailability of the vitamins and minerals based on current literature and research. Prerequisite: Nutrition and human metabolism course. Three lecture hours a week. Credit: Three hours.

NFS 6124. Macronutrients in Human Nutrition. Fundamental roles and energy transformation of carbohydrates, lipids, and proteins in human nutrition. Emphasis on function, metabolism, and interrelationships of the macronutrients based on current literature and research. Prerequisite: Nutrition and human metabolism course. Four lecture hours a week. Credit: Four hours.

NFS 6133. Drug and Nutrient Interactions. Effects of drugs on absorption and metabolism of nutrients, role of nutrients in drug detoxification; use of nutrients as drugs; toxic megadoses of vitamins; combination of drugs and diet in the treatment of disease; effect of nutritional status on drug and nutrient binding. Prerequisite: Nutrition and human metabolism course or permission of the instructor. Three lecture hours a week. Credit: Three hours.

NFS 6163. Nutritional Aspects of Obesity. Role of nutritional factors and their interplay with biochemical, physiological, genetic, and psychosocial factors in the etiology of obesity. Adverse health consequences of obesity. The role of nutrition intervention, exercise, pharmacological treatment, and surgical intervention and their nutritional sequelae. Prerequisite: Nutrition and human metabolism course. Three lecture hours a week. Credit: Three hours.

NFS 6173. Professional Practicum. Guided field experience in administrative supervisory, consultant, or similar level positions. Field experiences may not be part of the student's regular job responsibilities. May be repeated for three additional hours. Credit: Three hours.

NFS 6203. Advanced Research Techniques. Select laboratory techniques in separation and measurements of proteins (ELISA, Western Blot gel chromatography), cell culture techniques; cell separation and culture. One lecture hour and six laboratory hours a week. Credit: Three hours.

NFS 6331. Advanced Seminar in Nutrition. This course will accommodate both doctoral and master's students with more emphasis on current topics in ever changing nutrition research. Seminars designed to cover state of the are overview of current and emerging topics will be presented by invited outside guest speakers, TWU faculty, and graduate students. One seminar hour a week. Credit: One hour.

NFS 6903. Special Topics. Specially scheduled course on topic of current interest. May be repeated for additional credit when topic varies. Three lecture hours a week. Credit: Three hours.

NFS 6911. Independent Study. Intensive study of a problem of individual or professional interest in nutrition, food sciences, or food systems management. Credit: One hour.

NFS 6913. Independent Study. Intensive study of a problem of individual or professional interest in nutrition, food sciences, or food systems management. Credit: Three hours.

NFS 6921. Advanced Research in Nutrition and Food Science. Individual research problem in a specific area of food and nutrition. Group and individual conferences. May be repeated for credit. Credit: One hour.

NFS 6923. Advanced Research in Nutrition and Food Science. Individual research problem in a specific area of food and nutrition. Group and individual conferences. May be repeated for credit. Credit: Three hour.

NFS 6931. Advanced Research in Nutrition. Research problems in radiographic bone densitometry, metabolic balance studies; nutritional status of children and of older persons. Group and individual conferences and laboratory hours to be arranged. Credit: One hour.

NFS 6933. Advanced Research in Nutrition. Research problems in radiographic bone densitometry, metabolic balance studies; nutritional status of children and of older persons. Group and individual conferences and laboratory hours to be arranged. Credit: Three hours.

NFS 6941. Advanced Research in Food Science. Selection and study of individual research problems in a selected specific area of foods; objective and subjective methods of product evaluation. Credit: One hour.

NFS 6943. Advanced Research in Food Science. Selection and study of individual research problems in a selected specific area of foods; objective and subjective methods of product evaluation. Credit: Three hours.

NFS 6983. Dissertation. Credit: Three hours.

NFS 6993. Dissertation. Prerequisite: NFS 6983. Credit: Three hours.