

DEPARTMENT OF NUTRITION AND FOOD SCIENCES

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

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The academic programs in nutrition and food science provide opportunities for education in liberal arts and sciences with professional specialization. Students can take courses in nutrition, food science, food service management, chemistry, physiology, mathematics, and business. Graduates are prepared for careers in clinical dietetics, food service systems management, food industry sales or research, health and wellness, culinary science, community nutrition and public health, or consultation and private practice.

Undergraduate Degrees Offered

- Minors (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/minors/>)
- B.A.S. in Culinary Science & Food Service Management (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/culinary-science-food-service-management-bas/>)
- B.S. in Food Science (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/food-science-bs/>)
- B.S. in Food & Nutrition in Business & Industry (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/food-nutrition-business-industry-bs/>)
- B.S. in Food & Nutrition in Business & Industry (Food Science) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/food-nutrition-business-industry-bs-food-science/>)
- B.S. in Nutrition (Dietetics) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/nutrition-bs-emphasis-dietetics/>)
- B.S. in Nutrition (Nutritional Sciences) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/nutrition-bs-emphasis-nutritional-sciences/>)
- B.S. in Nutrition (Community Nutrition) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/nutrition-bs-emphasis-community-nutrition/>)
- B.A.A.S. in Health Sciences (Nutrition) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/health-sciences-baas-emphasis-nutrition/>)

Teacher Certification in Hospitality, Nutrition, and Food Science

Students majoring in either B.S. in Nutrition (Dietetics) or B.S. in Food and Nutrition in Business and Industry may receive teacher certification to teach Hospitality, Nutrition, and Food Science in Texas schools, grades 8-12, by completing 20 semester credit hours of education courses, 20 semester credit hours of family science courses, and 8 semester credit hours of related studies. See the Human Sciences (<https://catalog.twu.edu/undergraduate/professional-education/human-sciences/>) section of this catalog for more information.

Graduate Courses

In addition to undergraduate programs, the department offers a dietetic internship/master's program in both Denton and Houston. Graduate degrees are available in nutrition, nutrition emphasizing dietetics, exercise and sports nutrition, and food science and flavor chemistry. The department also participates in interdisciplinary master's degrees. Please refer to the Graduate Catalog (<https://catalog.twu.edu/graduate/>) for information regarding graduate courses.

Admissions

All applicants must meet the general undergraduate admission requirements (<https://catalog.twu.edu/undergraduate/admission-information/>). The following degrees have additional secondary admission criteria:

- B.S. in Nutrition (Dietetics) (<https://catalog.twu.edu/undergraduate/health-sciences/nutrition-food-sciences/nutrition-bs-emphasis-dietetics/>)

Faculty

*BROUGHTON, KENNETH Shane, Professor of Nutrition and Food Sciences; Chair of the Department of Nutrition and Food Sciences, B.S., Colorado State University; M.S., Washington State University; Ph.D., Washington State University

*DAVIS, KATHLEEN, Associate Professor of Nutrition and Food Sciences, B.S., Texas Woman's University; M.S., Texas Woman's University; Ph.D., Texas Woman's University

*DU, XIAOFEN, Associate Professor of Nutrition and Food Sciences, B.S., Huazhong Agricultural University; M.S., Huazhong Agricultural University; Ph.D., Oregon State University

*EVERTS, HELEN B., Associate Professor of Nutrition and Food Sciences, B.S., The Pennsylvania State University; M.S., The University of Georgia; Ph.D., The University of Georgia

*GRIFFIN, ANGELA, Assistant Clinical Professor, B.S., University of Central Arkansas; M.S., University of Central Arkansas

*JUMA, SHANIL, Professor of Nutrition and Food Sciences, B.S., Purdue University; M.S., University of Illinois, Chicago; Ph.D., Oklahoma State University

*KEARNEY, DOLORES E., Associate Clinical Professor of Nutrition and Food Sciences, B.S., State University of New York College at Oneonta; M.P.H., University of North Carolina, Chapel Hill

*LEMIEUX, MONIQUE J., Associate Professor of Nutrition and Food Sciences, B.S., Christopher Newport University; M.S., The University of Tennessee Knoxville; Ph.D., Texas Tech University

*MIKETINAS, DEREK, Associate Professor of Nutrition and Food Sciences, B.S., Louisiana State University-Baton Rouge; Ph.D., Louisiana State University-Baton Rouge

*PAHLAVANI, MANDANA, Assistant Professor, M.S., Ferdowsi University of Mashhad; Ph.D., Texas Tech University

*PATTERSON, MINDY, Associate Professor of Nutrition and Food Sciences, B.S., Texas A&M University; M.S., University of Alabama, Birmingham; Ph.D., Texas Woman's University

*ROBBINS, RONNA, Assistant Professor, B.S., University of Texas System-Austin; PhD, University of Texas System-Austin

*TUCKER, WESLEY, Assistant Professor of Nutrition and Food Sciences, B.S., North Carolina State University; M.S., Arizona State University; , Arizona State University

*WANG, DANHUI, Assistant Professor, M.S., University of Massachusetts-Amherst; Ph.D., Cornell University

*WARREN, CYNTHIA A., Professor of Nutrition and Food Sciences, B.S., Texas A&M University; M.S., Texas A&M University; Ph.D., Texas A&M University

Asterisk () denotes Graduate Faculty status.*

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 1301. Food Preparation Principles Laboratory. Laboratory experience in food preparation. Co-requisite: NFS 1302. Three laboratory hours a week. Credit: One hour.

NFS 1302. Food Preparation Principles. Application of nutrition knowledge and basic scientific principles of meal management, selection, preparation, and safety of food. Co-requisite: NFS 1301. Two lecture hours a week. Credit: Two hours.

NFS 2011. Introduction to Dietetics. Introduction to the field of dietetics including history of the profession, education, preparation, roles and responsibilities of dietetic practitioners, exploration of practice settings, ethics of professional conduct, professionalism, evidence-based practice, and internship program requirements. Prerequisite: Majors in Nutrition with an emphasis in Dietetics. One lecture hour a week. Credit: One hour.

NFS 2031. Food Microbiology Laboratory. Evaluations of microorganisms as spoilage agents in foods. Preservation techniques to retard microbial spoilage. Foods which require microbial fermentations in their processing procedures; conditions which result in "food-borne" illnesses. Prerequisites: BIOL 1113 and BIOL 1111. Co-requisite: NFS 2033. Three laboratory hours a week. Credit: One hour.

NFS 2033. Food Microbiology. Microbial diversity and environmental interactions with emphasis on organisms found in fresh and spoiled foods. Contamination, preservation methods, and spoilage mechanisms of different foods. Effects of microbial enzymes on foods. Food sanitation, control, and inspection; and food-related illnesses. Prerequisites: BIOL 1113 and BIOL 1111. Co-requisite: NFS 2031. Three lecture hours a week. Credit: Three hours.

NFS 2323. Introduction to Nutrition. (TCCN BIOL 1322) Principles of normal nutrition including study of the major nutrients, their interrelationships, and their role in health. Recommended prerequisite: One semester of biology, chemistry, or physiology. Satisfies Life and Physical Sciences Core (30). Three lecture hours a week. Credit: Three hours.

NFS 2343. Nutritional Management for the Family and Child. Applications of principles of food and nutrition to the family and child. Study of nutritional needs of the social, cultural, economic, and governmental factors which influence the health and welfare of family members. Prerequisite: NFS 2323 or BIOL 1123. Three lecture hours a week. Credit: Three hours.

NFS 3033. Nutrition throughout the Life Cycle. Relationship of nutritional requirements to the stages of the life cycle from conception through aging. Prerequisite: NFS 2323. Three lecture hours a week. Credit: Three hours.

NFS 3041. Food Protection Management. Identification of causes of foodborne disease. Application of control measures to prevent food safety problems according to HACCP (Hazard Analysis Critical Control Point) principles. One lecture hour a week. Credit: One hours.

NFS 3043. Community Nutrition. Identification of nutritional problems and resources available in the community. Management of nutrition services, provision of nutrition information/education to the public, and the legislative process. Prerequisite: NFS 2323. Three lecture hours a week. Credit: Three hours.

NFS 3063. Ecology of Foods and Nutrition. Discussion of factors which affect choice of foods. Examination of the interaction of cultural, socioeconomic, political, physiological, and ecological factors that impact food availability, consumption, and ultimately nutritional status on global basis. Satisfies Global Perspectives graduation requirement. Three lecture hours a week. Credit: Three hours.

NFS 3083. Nutritional Biochemistry. Fundamental principles of biochemistry for nutrition, covering protein, carbohydrate, fat, vitamin, and energy metabolism; underlying causes and rationale for the prevention and treatment of diseases. Prerequisites: NFS 2323, BIOL 1111, BIOL 1113, CHEM 1011, CHEM 1013, CHEM 1021, and CHEM 1023. Three lecture hours a week. Credit: Three hours.

NFS 3101. Advanced Nutrition Laboratory. Laboratory experience in assessing nutritional status and nutrients in food. Prerequisite: NFS 2323. Three laboratory hours a week. Credit: One hour.

NFS 3163. Sports Nutrition. Physiological effects of exercise and nutrition upon the human body. Current topics of interest, current research, and their relationship to athletic performance. Prerequisite: NFS 2323. Three lecture hours a week. Credit: Three hours.

NFS 3173. Culture and Food. Study of influence of culture on food habits in various countries and the accompanying health effects. Evolution of cultural food habits are related to nationality, ethnicity, religion, and the changing role of women. Satisfies Global Perspectives graduation requirement. Three lecture hours a week. Credit: Three hours.

NFS 3202. Nutrition Care Process. Principles and techniques of the nutrition care process including assessing nutritional status, practicing routine health screenings, identifying and writing nutrition diagnoses, and developing and implementing nutrition care plans. Prerequisite: NFS 3033, NFS 3083, and acceptance to the DPD program. One lecture hour and two laboratory hours a week. Credit: Two hours.

NFS 3321. Food Science Laboratory. Introduction to the techniques of food processing and preparation, food analysis, and new product development. Co-requisite: NFS 3323. Three laboratory hours a week. Credit: One hour.

NFS 3323. Food Science. Application of chemical and physical properties of basic food ingredients; major processing and preservation principles and application of science technology to various food products. Sensory evaluation of foods. Emphasis on current topics of the national and local food industry. Prerequisites: NFS 1301, NFS 1302, CHEM 1013, and CHEM 1023. Co-requisite: NFS 3321. Three lecture hours a week. Credit: Three hours.

NFS 3393. Principles of Culinary Science. Applications of basic mathematics concepts, general principles of science, and information technology to develop new products, describe and analyze basic food and food systems, and determine the objective and subjective properties of food and food ingredients. Three lecture hours a week. Credit: Three hours.

NFS 3713. Quantity Food Production and Service. Principles of food preparation, food safety, and quality improvement applied to quantity food production and service; institutional menu planning, production planning, and cost determination; food purchasing; marketing theory and materials management for foodservice systems. Prerequisites: NFS 1301 and NFS 1302, or equivalent; NFS 2323; and NFS 2033 or equivalent. Co-requisite: NFS 3722. Three lecture hours a week. Credit: Three hours.

NFS 3722. Quantity Food Production and Service Laboratory. Supervised experiences in quantity food production and service. Co-requisite: NFS 3713. Six laboratory hours a week. Credit: Two hours.

NFS 4024. Food Product Development. Group and individual experiments in development of new food products; objective and sensory evaluation of the effects of varying the type and amount of ingredients and methods of preparation on the quality of the finished product. Prerequisites: NFS 3321, NFS 3323, and NFS 3393. Two lecture and four laboratory hours a week. Credit: Four hours.

NFS 4031. Culinary Nutrition Modification Lab. Application of culinary techniques, food science, and nutrition to development and modification of menus and recipes for healthcare. Sensory evaluation of modified recipes. Prerequisite: NFS 1301 and NFS 1302, or culinary degree; and NFS 2323. Co-requisite: NFS 4032. Three laboratory hours a week. Credit: One hour.

NFS 4032. Culinary Nutrition Modification. Medical nutrition therapy, menu planning, and recipe modification for healthcare. Prerequisite: NFS 1301 and NFS 1302, or culinary degree; and NFS 2323. Co-requisite: NFS 4031. Two lecture hours a week. Credit: Two hours.

NFS 4033. 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. Prerequisites: CHEM 1123, CHEM 1121, NFS 3323, NFS 3321. Three lecture hours a week. Credit: Three hours.

NFS 4043. Food Safety Systems. Development and implementation of food safety management systems. Historical review of the evolution of food safety systems with a focus on the USA. Development and requirements of the Hazard Analysis and Critical Control Points system (HACCP) as it is mandated. Prerequisites: NFS 2031 and NFS 2033. Three lecture hours a week. Credit: Three hours.

NFS 4053. Food Analysis. Quantitative analysis to understand chemical compositions of foods including water, protein, fat, carbohydrate, and other minor components found in foods. Prerequisites: CHEM 1221 and CHEM 1223. Three lecture hours a week and 15 total laboratory hours. Credit: Three hours.

NFS 4103. Medical Nutrition Therapy I. Concepts of appropriate therapeutic nutrition as applied in the treatment of human disease. Prerequisites: NFS 3033, NFS 3083, NFS 3202, and acceptance to the DPD program. Co-requisite: NFS 4303. Three lecture hours a week. Credit: Three hours.

NFS 4113. Medical Nutrition Therapy II. Concepts of appropriate therapeutic nutrition as applied in the treatment of human disease. Prerequisites: NFS 3033, NFS 3083, NFS 3202, NFS 4303, and acceptance to the DPD program. Three lecture hours a week. Credit: Three hours.

NFS 4123. Sensory Evaluation of Food. The anatomy, physiology, and functions of human senses used to evaluate the sensory qualities of foods and food ingredients. Application of sensory evaluation methods to assess qualities of foods including taste, texture, appearance, and flavor. Use of experimental designs and statistical tests necessary to analyze and present sensory evaluation data. Prerequisites: NFS 3321, NFS 3323, and NFS 3393. Three lecture hours a week. Credit: Three hours.

NFS 4303. Advanced Nutrition: Macronutrients. Fundamental principles of biochemistry for nutrition, covering carbohydrate, fat, protein, and energy metabolism; underlying causes and rationale for the prevention and treatment of diseases. Prerequisites: NFS 2323, NFS 3083, ZOOL 2011, ZOOL 2013, ZOOL 2021, and ZOOL 2023. Three lecture hours a week. Credit: Three hours.

NFS 4313. Advanced Nutrition: Micronutrients. Advanced study of fundamental concepts of micronutrients as related to both the chemistry and physiology of the human body. Prerequisites: NFS 2323, NFS 3083, ZOOL 2023, and ZOOL 2021. Three lecture hours a week. Credit: Three hours.

NFS 4473. Nutrition Therapy and Education Methods. Principles and techniques of therapy and educational methods applied to nutrition and foodservice management, communication skills, and evaluation methods. Enroll during final spring semester. Co-requisite: NFS 4103 or NFS 4113. Three lecture hours a week. Credit: Three hours.

NFS 4503. Food Processing and Unit Operations. Principles and practices of today's food processing industry; procedures for processing and manufacturing various foods for retail sale. Prerequisites: NFS 2033, NFS 3321, NFS 3323, and NFS 3393. Three lecture hours a week. Credit: Three hours.

NFS 4601. Literature in Nutrition and Food Science Seminar. Student presentations based on library or laboratory research projects. May be repeated for a total of three credits. Prerequisite: NFS 2323 or equivalent; or permission of the instructor. One lecture hour a week. Credit: One hour.

NFS 4701. Dietetics As a Profession. A discussion of the professional responsibilities of the dietitian with emphasis on nontraditional careers; AND's organization and structure; routes to registration, and the application process for internship. Enroll during final fall semester. Co-requisite: NFS 4103 or NFS 4113. One lecture hour a week. Credit: One hour.

NFS 4744. Foodservice Systems. Management principles, strategic management, risk management, layout evaluation and equipment selection, human resources management, and financial management of foodservice systems. Prerequisites: NFS 3713 and NFS 3722, or equivalent. Four lecture hours a week. Credit: Four hours.

NFS 4901. Special Topics. Specially scheduled course on topic of current interest. May be repeated for additional credit. One lecture hour a week. Credit: One hour.

NFS 4903. Special Topics. Specially scheduled course on topic of current interest. May be repeated for additional credit. Three lecture hours a week. Credit: Three hours.

NFS 4911. Independent Study. Intensive study of a topic of individual or professional interest in nutrition and food sciences. Credit: One hour.

NFS 4912. Independent Study. Intensive study of a topic of individual or professional interest in nutrition and food sciences. Credits: Two hour.

NFS 4913. Independent Study. Intensive study of a topic of individual or professional interest in nutrition and food sciences. Credit: Three hours.

NFS 4943. Trends and Controversies in Nutrition and Food Sciences. An in-depth examination of recent research on topics of current interest such as food safety, role of nutrients in cancer prevention, and nutrition policy. Prerequisite: NFS 2323 or equivalent. Three lecture hours a week. Credit: Three hours.

NFS 4953. Cooperative Education. Credit: Three hours.

NFS 4956. Cooperative Education. Credit: Six hours.

NFS 4983. Research in Nutrition and Food Sciences. Participate in ongoing projects of faculty. May be repeated. Prerequisite: Permission of faculty member. Nine laboratory hours a week. Credit: Three hours.