

NUTRITION AND FOOD SCIENCE

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Chairperson: Ahmad R. Heydari

<https://clas.wayne.edu/nfs> (<https://clas.wayne.edu/nfs/>)

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ZHANG, YIFAN: Ph.D., University of Maryland; Associate Professor

ZHOU, KEQUAN: Ph.D., University of Maryland; Professor

- Dietetics (M.S.) (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/nutrition-food-science/dietetics-ms/>)
- Nutrition and Food Science (M.A.) (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/nutrition-food-science/nutrition-food-sciences-ma/>)
- Nutrition and Food Science (M.S.) (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/nutrition-food-science/nutrition-food-sciences-ms/>)
- Nutrition and Food Science and Public Health (M.A./M.P.H. Joint Degree) (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/nutrition-food-science/nutrition-food-science-public-health-mamph/>)
- Nutrition and Food Science (Ph.D.) (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/nutrition-food-science/nutrition-food-science-phd/>)

NFS 5100 Nutrition Care Process I Cr. 2

Introduction to management of nutrition care in both healthy and ill people throughout the life span using the Nutrition Care Process model, developed by the Academy of Nutrition and Dietetics. Emphasis is on the Registered Dietitian's role in the four steps of the process, nutrition assessment, diagnosis, intervention, and monitoring and evaluation. The process covers identification of nutrition-related problems in patients, planning intervention to solve their nutrition problems and reduce nutrition-related health risks associated with chronic disease. Offered Yearly.

Prerequisites: NFS 2130, NFS 2140, NFS 2030, and NFS 3230

Corequisite: NFS 5510

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5120 Nutrition Care Process II Cr. 2

Builds on Nutrition Care Process I (NFS 5100). Emphasis is on the RD's role in treating patients with nutrition-related problems by means of planning intervention to assist individuals in meeting nutritional needs and decrease nutrition-related health risks associated with chronic disease. Specific content on medical nutrition therapy includes interpretation of biochemical parameters related to specific disease states (e.g. glucose, lipids, therapeutic diets, drug-nutrient interactions, and diet instruction). Offered Yearly.

Prerequisites: NFS 5100

Corequisite: NFS 5520

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5130 Food Chemistry Cr. 3

Study of the chemical constituents of foods, their relationship to the biological and physical properties, and overall food quality. Offered Fall, Winter.

Prerequisites: CHM 2220 with a minimum grade of C- (must be taken at WSU) and NFS 2130 with a minimum grade of C-

NFS 5140 Laboratory Techniques in Nutrition and Food Science Cr. 3

Satisfies General Education Requirement: Writing Intensive Competency Basic modern and classical analytical techniques and instruments in nutrition and food science. Background theory to principles of instrumental assays. Procedures for evaluation of macro and micro food components analysis. Physiological functions relevant to nutrition. Offered Fall.

Prerequisites: CHM 2220 with a minimum grade of D, NFS 2130 with a minimum grade of C-, and NFS 2220 with a minimum grade of C-
Fees: \$90

NFS 5145 Fundamentals of Fermentation Cr. 3

The role of the microbiome (commensal bacteria) in human health has enjoyed a surge in interest and diet is recognized as one of the most impactful factors influencing the gut microbiome. We are just beginning to understand the impact of specific food constituents, their preparation, processing, and preservation, on gut microbiome and health. This course will introduce the theoretical and practical aspects of fermentation of food products as a means for altering the nutritional and sensory states, preservation, and the potential impacts on human health. Offered Yearly.

Prerequisite: NFS 4150 with a minimum grade of C- or NFS 5140 with a minimum grade of C-

NFS 5150 Food Safety Assurance Cr. 4

This is a senior level undergraduate course that provides students in-depth knowledge and practices of food safety management. Topics include GMP (Good Manufacturing Procedures), SSOP (Sanitation Standard Operation Procedures), HACCP, Preventive Controls for Human Food, and Foreign Supplier Verification Program, and PCQI (Preventive Control Qualified Individual). Upon successful completion of this course students could earn two certificates: PCQI (for human food) certification by the FSPCA and HACCP certification accredited by the International HACCP alliance. Offered Yearly.

Prerequisites: NFS 2130 with a minimum grade of C-, NFS 2140 with a minimum grade of C-, BIO 2200 with a minimum grade of C-, or CHM 1100 with a minimum grade of C-

NFS 5170 Nutrition, Physical Activity, and the Brain Cr. 3

Neurobehavioral responses and adaptations to dietary constituents and physical activity/inactivity. Offered Fall.

Prerequisite: NFS 3230 with a minimum grade of C- or BIO 3200 with a minimum grade of C- or PSY 3330 with a minimum grade of C-

NFS 5200 Advanced Dietetics Cr. 3

Development and refinement of dietetic practitioner skills through application in critical care and specialty practice areas such as nutrition support, renal, oncology, pulmonary, stress and trauma. Offered Fall.

Prerequisites: NFS 5100, NFS 5120, and NFS 5250

Corequisite: NFS 5530

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

Fees: \$90

NFS 5220 Community Nutrition Cr. 2

Introduction to management of nutritional care in healthy and at-risk persons throughout the lifespan. Identifying problems and planning interventions to meet population nutritional problems and to reduce nutrition-related health risks in community settings. Community assessment; organization and function of community agencies; interventions appropriate to small and large groups, including nutrition education. Offered Fall, Spring/Summer.

Prerequisite: NFS 2130 with a minimum grade of C- and NFS 2140 with a minimum grade of C- and NFS 3230 with a minimum grade of C-

NFS 5240 Nutritional Epidemiology Cr. 3

The purpose of this class is for the students to gain an in-depth Understanding of the relationships between diet, health and diseases: to gain an appreciation for the statistical processes involved in nutritional epidemiologic studies and to examine objectively the collection and use of the nutritional information used in epidemiologic studies. Offered Fall.

Prerequisite: NFS 3230 with a minimum grade of C- or PH 3300 with a minimum grade of C-

NFS 5250 Nutrition and Disease Cr. 4

Application of the principles of biochemistry and physiology in the study of nutrient metabolism as altered by disease. The physio-biochemical basis for diet in the treatment of disease. Offered Winter, Spring/Summer.

Prerequisites: NFS 4230 with a minimum grade of C- and NFS 4231 with a minimum grade of C-

NFS 5350 Organization and Management of Food Service Systems Cr. 4

Survey of food service systems; factors affecting their successful operation. Components of quality assurance supporting well-being of target markets. Identification of operative management skills. Offered Fall.

Prerequisite: NFS 2130 with a minimum grade of C- and NFS 2140 with a minimum grade of C- and NFS 3230 with a minimum grade of C- and MGT 2530 with a minimum grade of C-

NFS 5360 Management of Nutritional Care and Services Cr. 3

Application of management theory and principles in the three areas of dietetic practice; career planning and professional role development.

Offered Winter.

Prerequisites: NFS 5200

Corequisite: NFS 5540

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5510 Supervised Practice I Cr. 1

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5520 Supervised Practice II Cr. 1

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5530 Supervised Practice III Cr. 1

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5510-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5540 Supervised Practice IV Cr. 1

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 5990 Honors Directed Study Cr. 1-4

Offered for undergraduate credit only. Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Nutrition and Food Science Hon; enrollment is limited to Undergraduate level students.

Repeatable for 6 Credits**NFS 5992 Supervised Field Experience Cr. 2-4**

Supervised field experience designed to correlate classroom theory with practical work. Offered Every Term.

NFS 5996 Research in Food Science and Nutrition Cr. 1-4

Research projects under direction of faculty active in research. Offered for undergraduate credit only. Offered Every Term.

Restriction(s): Enrollment limited to students with a class of Unranked Undergrad, Freshman, Sophomore, Junior or Senior; enrollment is limited to Undergraduate level students.

Repeatable for 6 Credits**NFS 6000 Nutritional Biochemistry Cr. 4**

Biochemical effects of nutrients at cellular and organ levels. Offered for graduate credit only. Offered Fall.

Restriction(s): Enrollment is limited to Graduate level students.

NFS 6020 Nutrient and Gene Interaction Cr. 3

Introduction to molecular genetics concepts, terminology and molecular methodologies, with emphasis on nutrition and food science. Overview of nutrition and gene interaction in onset and progression of disease, cancer, and aging. Offered for graduate credit only. Offered Every Other Year.

Prerequisites: NFS 5130 with a minimum grade of C-, NFS 5140 with a minimum grade of C-, and NFS 5230 with a minimum grade of C-

Restriction(s): Enrollment is limited to Graduate level students.

NFS 6030 Microbiological Safety of Foods Cr. 3

Food-borne microorganisms as causes of human illnesses, including bacteria, mold, viruses and parasites. Microbial toxins and their mode of action. Antimicrobial agents in food. Means of prevention and protection. Offered Fall.

Prerequisites: NFS 4150 with a minimum grade of C- and NFS 5130 with a minimum grade of C-

NFS 6150 Functional Foods for Health Cr. 3

Introduction to functional foods (those with specific health benefits) and nutraceuticals, as well as a variety of functional food ingredients and extracts, their chemical and potential health promoting properties, processing, production, safety and regulation. Offered Winter.

Prerequisite: NFS 2030 with a minimum grade of D- and NFS 2130 with a minimum grade of D- and NFS 3230 with a minimum grade of D-

Restriction(s): Enrollment is limited to Graduate level students.

NFS 6210 Nutrition through the Life Cycle Cr. 3

Biological growth and nutritional requirements from fetal stages of development through aging. Nutritional standards in light of current epidemiological data and scientific research. Offered for graduate credit only. Offered Intermittently.

Prerequisites: NFS 5230 with a minimum grade of C

Restriction(s): Enrollment is limited to Graduate level students.

NFS 6230 Nutrition and Physical Performance Cr. 3

How nutrients affect physical fitness and physical performance; how physical performance can be improved by adopting optimal dietary practice and how exercise and optimal nutrition can prevent human diseases. Offered Fall.

Prerequisite: NFS 3230 with a minimum grade of C-

NFS 6270 Eating Behavior and Body Weight Regulation Cr. 3

Central and peripheral regulation of food intake, normal and abnormal eating behavior, physiological and psychological regulation of body weight, different models of obesity, etiology of treatment of obesity. Offered Winter.

Prerequisite: BIO 2870 with a minimum grade of C-

NFS 6850 Controversial Issues Cr. 2

Topics to be announced in Schedule of Classes. Offered Fall.

Prerequisite: NFS 3230 with a minimum grade of C

NFS 6860 Controversial Issues in Clinical Nutrition and Dietetics Cr. 2

Current controversial topics; differing points of view will be debated; discussion of modes of communication of nutrition information. Offered Winter.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 7000 Nutritional Metabolomics and Bioinformatics Cr. 3

Introduction to and application of the "omics" technologies to nutrition: genomics, proteomics, and metabolomics. Examples and exercises using bioinformatic software for multivariate data analyses. Offered Winter.

Prerequisite: NFS 6000 with a minimum grade of C- and STA 1020 with a minimum grade of C-

Restriction(s): Enrollment is limited to Graduate level students.

Fees: \$90

Equivalent: PSL 7180

NFS 7060 Research Problems in Nutrition and Food Science Cr. 2

Research orientation: acquaintance with published data, principles of design, methods of collecting data, and basic statistical analysis. Offered Every Other Year.

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7140 Advanced Laboratory Techniques in Nutrition and Food Science Cr. 4

Laboratory techniques in nutrition and food science research, including: animal experimentation, isotope use and quantitation, radioimmunoassay and receptor assays, atomic absorption; chromatography; microbial assays. Offered Yearly.

Prerequisite: (BMB 5010 with a minimum grade of C- or CHM 5600 with a minimum grade of C-) and NFS 5140 with a minimum grade of C-

Restriction(s): Enrollment is limited to Graduate level students.

Fees: \$90

NFS 7170 Nutrition, Physical Activity, and the Brain Cr. 3

Neurobehavioral responses and adaptations to dietary constituents and physical activity/inactivity. Offered Fall.

Prerequisite: NFS 6000 with a minimum grade of C

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7230 Nutrition and Physical Performance Cr. 3

How nutrients affect physical fitness and physical performance; how physical performance can be improved by adopting optimal dietary practice and how exercise and optimal nutrition can prevent human diseases. Offered Fall.

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7240 Nutritional Epidemiology Cr. 3

Introduction to epidemiology concepts and terminology. Emphasis on examining the associations between nutrition and chronic disease. Offered Intermittently.

Prerequisites: NFS 2210 with a minimum grade of C-

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7800 Master's Capstone Seminar in Dietetics Cr. 3

The capstone is designed for the dietetics student to demonstrate the foundational knowledge acquired in the didactic coursework, as well as the practical skills, problem-solving and critical thinking gained during the supervised practice rotations of the Coordinated Program in Dietetics. It include intensive writing through an original clinical case study, food service case study, community planning presentation, a cumulative examination, and national registration examination review modules. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

NFS 7820 Master's Capstone Seminar in Nutrition and Food Science Cr. 3

The capstone course is designed to allow the graduate student to assimilate foundational knowledge and critical thinking gained during the didactic graduate program into effective science communication. The primary objective of this course is to help develop communication skills required in today's world of algorithms and polarizing opinions that fuel misconceptions about the science of nutrition. A uniting thread throughout the course will be in identifying misinformation and disinformation in the public domain and developing strategies to help correct the public narrative. Offered Yearly.

Restriction(s): Enrollment is limited to students with a major in Nutrition and Food Science.

NFS 7850 Graduate Seminar Cr. 1

Presentations by graduate students, graduate faculty, and visiting scientists. Offered Fall, Winter.

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7990 Directed Study Cr. 1-4

Offered for each area of specialization. Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 4 Credits

NFS 7991 Lab Rotation Cr. 1

For new graduate students; students spend at least two weeks in all research labs. Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

NFS 7996 Research Cr. 1-8

Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 20 Credits

NFS 7999 Master's Essay Direction Cr. 1-3

Offered Every Term.

Restriction(s): Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

Repeatable for 3 Credits

NFS 8999 Master's Thesis Research and Direction Cr. 1-8

Offered Every Term.

Restriction(s): Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

Repeatable for 8 Credits

NFS 9990 Pre-Doctoral Candidacy Research Cr. 1-8

Research in preparation for doctoral dissertation. Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 12 Credits

NFS 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 3-9

Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 9 Credits

NFS 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 1-18

Offered Every Term.

Prerequisite: NFS 9991 with a minimum grade of S

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 18 Credits

NFS 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5

Offered Every Term.

Prerequisite: NFS 9992 with a minimum grade of S

Restriction(s): Enrollment is limited to Graduate level students.

NFS 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5

Offered Every Term.

Prerequisite: NFS 9993 with a minimum grade of S

Restriction(s): Enrollment is limited to Graduate level students.

NFS 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0

Offered Every Term.

Restriction(s): Enrollment is limited to Graduate level students.

Fees: \$434.8

Repeatable for 0 Credits