The Department of Nutrition and Food Sciences (NFS) prepares students to enter the rapidly expanding field of dietetics, food science, food safety, nutrition, health, and fitness. Nutrition and Food Science, unique fields of study, are rooted in the physiological, chemical, and biochemical sciences but are comprehensive in scope since they integrate knowledge learned in the social and psychological sciences. Through formal course work, field experience, and independent research, students prepare themselves in the biochemical, psychological, and socioeconomic aspects of diet, nutrition and foods. Thus, NFS majors are able to meet the current and future needs in nutrition and food science and assume innovative leadership roles in society and industry.

The credits earned in NFS provide background in preventive and therapeutic nutrition as well as nutrient requirements for human growth, development, health, and fitness throughout the life cycle. Other courses focus on the physical, chemical, and nutritional properties of food, food safety, and consumer aspects of food related to socioeconomic status, life style, cultural beliefs, and health. Although a series of courses providing knowledge in these areas is required of all majors, each student has a generous amount of free elective credits to pursue personal interests.

Departmental majors may elect to meet the undergraduate requirements needed for admission to medical schools (including naturopathic, chiropractic or osteopathic) or graduate school in nutrition, food science or dietetics.

Depending on current interests and future plans, majors may select one of two departmental majors:

**DIETETICS, NUTRITION AND FOOD SCIENCES MAJOR**

Dietetics is a profession concerned with the science and art of human nutritional care, an essential component of human health science. The didactic program in Dietetics is accredited by the:

Accreditation Council for Education and Dietetics
Academy of Nutrition and Dietetics
120 South Riverside Plaza, Suite 2000
Chicago, IL 60606-6995
(312) 899-0040 ext. 5400

This program prepares students for careers as Registered Dietitians by providing the undergraduate requirements needed to apply to dietetic internships.

To become a Registered Dietitian, students must complete the didactic program in Dietetics, complete an ACEND accredited supervised practice/internship program, and pass the National Registration Examination for Dietitians. This major prepares graduates to counsel people about the preventive and therapeutic role of nutrition in the maintenance of health and fitness.

**NUTRITION AND FOOD SCIENCES MAJOR**

This customized major is designed to provide a strong background in preventive nutrition, food science, and basic science. Students have an opportunity to integrate course work in medical, biochemical, biological, physiological, psychological, and sociological sciences or business. This option can prepare students for careers in the commercial food processing industry or in professions where the knowledge of food and beverage, nutrient content of foods, eating behavior, and the role of food in society is critical. The demand for qualified professionals with education and training in the food science arena greatly exceeds the number of graduates available thus making this option highly desirable for the career motivated student.

Through appropriate selection and advisement, students in either DNFS or NFS may meet the undergraduate requirements needed for admission to medical school (including naturopathic, chiropractic or osteopathic) or graduate school.

**GENERAL EDUCATION STUDIES FOR ALL MAJORS**

<table>
<thead>
<tr>
<th>COMMUNICATION SKILLS</th>
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<tbody>
<tr>
<td>ENGS 001 FW: Written Expression 3</td>
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<tr>
<td>or HCOL 085 FW: Honors Coll First Year Sem</td>
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<td>CALS 183 Communication Methods (or equivalent) 3</td>
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<tr>
<th>FINE ARTS AND HUMANITIES</th>
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<tr>
<td>Any two humanities courses (Note: See diversity course substitute for Humanities) 6</td>
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<tr>
<th>SOCIAL SCIENCE CORE</th>
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<tr>
<td>PSYS 001 Intro to Psychological Science 3</td>
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<tr>
<td>SOC 001 SU: Introduction to Sociology 3</td>
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<tr>
<td>or ANTH 021 D2: SU: Cultural Anthropology</td>
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<td>or HLTH 105 D2: Cultural Health Care</td>
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<tr>
<th>BASIC SCIENCE CORE</th>
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<tbody>
<tr>
<td>CHEM 023 Outline of General Chemistry 4</td>
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<tr>
<td>or CHEM 031 General Chemistry 1</td>
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<td>CHEM 042 Intro Organic Chemistry 4</td>
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<td>or CHEM 141 Organic Chemistry 1</td>
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<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology 4</td>
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<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology 4</td>
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<td>PBIO 185 Introduction to Biochemistry 3</td>
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or NFS 183 Introduction to Biochemistry

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<th>ANALYTIC SCIENCES CORE</th>
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<tr>
<td>STAT 111 QR: Elements of Statistics</td>
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<tr>
<td>CALS 085 Computer Applications (or equivalent)</td>
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<tr>
<td>Diversity Requirement (may substitute for Humanities; see list)</td>
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<tr>
<td>Sustainability Requirement</td>
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<tr>
<td>CALS 001 &amp; CALS 002 Foundations: Communication Meth and Foundation: Information Tech (first year students only)</td>
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MAJORS
NUTRITION AND FOOD SCIENCES MAJORS
Dietetics, Nutrition and Food Sciences B.S. (http://catalogue.uvm.edu/undergraduate/agricultureandlifesciences/nutritionandfoodsciences/dieteticsbs/)

Nutrition and Food Sciences B.S. (http://catalogue.uvm.edu/undergraduate/agricultureandlifesciences/nutritionandfoodsciences/nutritionfoodsciencesminor/)

MINORS
NUTRITION AND FOOD SCIENCES MINORS
Nutrition and Food Sciences (http://catalogue.uvm.edu/undergraduate/agricultureandlifesciences/nutritionandfoodsciences/nutritionfoodsciencesminor/)

Food Systems (http://catalogue.uvm.edu/undergraduate/agricultureandlifesciences/foodsystems/foodsysternsminor/)

GRADUATE
Dietetics M.S.D.
Nutrition and Food Sciences M.S.
Nutrition and Food Sciences AMP
Food Systems M.S.
Food Systems AMP
Food Systems Ph.D.

See the online Graduate Catalogue (http://catalogue.uvm.edu/graduate/) for more information

Courses
NFS 020. Vtrim for Undergrads. 1 Credit.
This course is designed to teach healthy eating, exercise and weight management behaviors to college students.

NFS 033. What's Brewing in Food Science. 3 Credits.
This course will explore food science via the production of beer and other fermented beverages. Students will also identify mechanisms to modify their drinking habits.

NFS 034. Servsafe Certification Course. 1 Credit.
This course will prepare students for the ServSafe Certification Exam. The topics include food safety and proper food handling in a restaurant setting.

NFS 043. Fundamentals of Nutrition. 3 Credits.
The study of standard guidelines to select foods that maximize human health and the functions of the essential nutrients needed to sustain human life. Prerequisites: High school chemistry and biology.

NFS 044. Survey of the Field. 1 Credit.
Nutrition and Food Sciences introduction to the professional field and career opportunities in dietetics, nutrition and food science. Required of all First-Year and transfer students. Fall. Prerequisite: Nutrition and Food Science majors and Dietetics, Nutrition and Food Science majors only, or Instructor permission.

NFS 050. D2: Cheese and Culture. 3 Credits.
The history of cheesemaking is used as a lens through which to view current conflicts in European and American attitudes towards foods.

NFS 053. Basic Concepts of Foods. 3 Credits.
Introduces the basic concepts of food central to the disciplines of nutrition, food science and food systems. Introduces these basic concepts in the same way as everyday Americans - through the process of meal preparation.

NFS 063. D2: Obesity: What, Why, What to Do. 3 Credits.
Introduction to the causes, consequences, and treatment of obesity. Fall.

NFS 072. Kitchen Science. 3 Credits.
Integrated lecture-lab course that explores the scientific concepts underlying why foods do what they do in the kitchen. Applications include topics such as ice cream, gluten, and molecular gastronomy. Labs and final project provide opportunities to design, conduct, and evaluate experiments investigating culinary phenomena.

NFS 073. D2: SU: Farm to Table: Food Sys. 3 Credits.
This course provides an introduction to the contemporary food system, focusing on the interdependence of all components, from farm to table.

NFS 092. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

NFS 095. Special Topics. 1-18 Credits.
Introductory level special topics courses.
NFS 096. Internship. 1-3 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

NFS 113. U.S. Food Policy and Politics. 3 Credits.
Provides a systems perspective on U.S. food policies and politics across the food system. Focuses on understanding the U.S. food policy process, policymakers, stakeholders, issues, goals and feedbacks between food policy and politics. Prerequisites: NFS 073 or CDAE 002 or CDAE 004. Cross-listed with: FS 101.

NFS 114. Human Health in the Food Syst. 3 Credits.
Explores the multifaceted and evolving intersection of food systems, dietary quality, food availability and human health outcomes. Investigates how political, economic, social and cultural drivers in the food system influence human health outcomes. Prerequisites: NFS 043 or NFS 073. Cross-listed with: FS 103.

NFS 143. Nutrition in the Life Cycle. 3 Credits.
Nutritional needs of people throughout the life cycle. Physiological and environmental factors which affect nutritional status. Designed for Nutrition majors. Prerequisite: NFS 043. Fall.

NFS 153. Principles of Food Technology. 3 Credits.
Food processing technologies and underlining principles of changes in microbiological quality and safety, chemical composition and nutritional value, and interaction of functional additives and ingredients. Prerequisite: NFS 043, NFS 053; organic chemistry. Spring.

NFS 154. Principles Food Technology Lab. 1 Credit.
Experiential learning of principles of major modern food processing and preservation technologies, essential skills of food quality and safety assurance, and new product development. Prerequisite: NFS 153, or concurrent enrollment in NFS 153, organic chemistry; Department majors only.

NFS 163. Sports Nutrition. 3 Credits.
Timing and composition of meals for training and pre- and post-competition. Fall/Spring. Prerequisite: NFS 043 or Instructor permission.

NFS 183. Introduction to Biochemistry. 3 Credits.
Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of carbohydrates and lipids. Restricted to Nutrition and Food Sciences and Dietetics, Nutrition and Food Sciences majors; others by Instructor permission. Prerequisites: CHEM 042; or CHEM 141 and CHEM 142; or other acceptable coursework in organic chemistry. Cross-listed with: PBIO 185.

NFS 187. Intro to Biochemistry: Lab. 1 Credit.
Introduction to techniques used to explore fundamental biochemistry concepts including enzyme kinetics, lipids, carbohydrate chemistry, and gene expression. Includes spectrophotometry, gel electrophoresis, and mass spectrometry. Pre/Co-requisites: PBIO 185, BIOC 201, or NFS 183. Cross-listed with: ASCI 187, PBIO 187.

NFS 191. Teaching Assistantship. 1-3 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

NFS 192. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

NFS 195. Intermediate Special Topics. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

NFS 196. Internship. 1-18 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Department permission.

NFS 198. Undergraduate Research. 1-18 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

NFS 199. Undergraduate Research. 1-18 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.

NFS 203. Food Microbiology. 3 Credits.
Desirable and undesirable activities of bacteria in foods. Mechanisms of food-borne infection and intoxication. Laboratory methods to enumerate and identify microorganisms associated with food. Prerequisite: NFS 153 or Instructor permission. Co-requisite: NFS 213.

NFS 205. Functional Foods:Prncpl & Tech. 3 Credits.
Examines the constituents that make food products functional and provides laboratory techniques needed to create a functional food. Prerequisites: NFS 153, NFS 154, or Instructor permission.

NFS 213. Food Microbiology Lab. 1 Credit.
Introduces microbiological techniques such as Gram Stain, streak plate isolation, dilutions, aseptic technique as well as means of identifying the microbial content of food products. Prerequisites: NFS 153, NFS 154, or Instructor permission. Co-requisite: NFS 203.
NFS 223. Nutrition Educ & Counseling. 3 Credits.
Use of appropriate education theory, techniques, and media in nutrition education and counseling theories and negotiation, interviewing and counseling skills in individual and group counseling. Pre/co-requisites: NFS Prerequisites: NFS 043, NFS 053, NFS 143.

NFS 243. Advanced Nutrition. 3 Credits.
Study of nutrients and their specific functions in metabolic process integrating cellular physiology, biochemistry, and nutrition. Prerequisites: NFS 043, ANPS 019, NFS 183 or PBIO 185; minimum Junior standing. Spring.

NFS 244. Nutr in Hlth & Disease Preventn. 3 Credits.
Examination of dietary planning, nutrition assessment, genetics, drug-nutrient interactions, CAM therapies and nutrition related to health and prevention of disease. Pre/co-requisites: NFS 053, NFS 143; minimum Junior standing.

NFS 250. Foodservice Systems. 4 Credits.
Emphasis on the foodservice system model for understanding quality control; food procurement, production, and marketing; management and evaluation of foodservice facilities, human and financial resources. Prerequisites: BSAD 060 or CDAE 158; BSAD 120; minimum Junior standing; Dietetics or Nutrition and Food Sciences, and Dietetics, Nutrition and Food Sciences majors only.

NFS 253. Food Regulation. 3 Credits.
Comprehensive examination of U.S. food laws and regulations and their relationships to the safety of the U.S. food supply. Focus on how food-related laws and regulations are enacted and enforced, through detailed examination of selected food regulation topics. Prerequisite: NFS 153 or equivalent course/training with Instructor permission.

NFS 254. Global Food Safety. 3 Credits.
An overview of food safety issues, policies, and opportunities around the globe, with a focus on bacterial, viral, and parasite-based food safety challenges. Prerequisites: NFS 113 or NFS 114; NFS 153 or MMG 002 or MMG 101.

NFS 260. Diet and Disease. 3 Credits.
Examination of the physiologic, biochemical, and psychosocial basis of several disease states and the application of medical nutrition therapy in treatment. Prerequisite: NFS 053, NFS 143, NFS 243; Senior standing.

NFS 262. Community Nutrition. 3 Credits.
Study of U.S. public health nutrition policies, programs and practices. Emphasis on community nutrition program planning including needs assessment, intervention development and evaluation. Prerequisite: Minimum Junior or Graduate standing. Spring.

NFS 274. Community Practicum. 1-3 Credits.
Professional field experience in a community nutrition organization. Credit negotiable but not to exceed three per semester. Enrollment may be more than once, maximum of six credits. Prerequisite: Instructor permission.

NFS 283. HACCP: Theory & Application. 3 Credits.
This course addresses the development of a HACCP plan. Requirements of both the USDA-FSIS and FDA are examined. A mock HACCP plan will be developed. Prerequisites: NFS 203 and Instructor permission.

NFS 286. DNFS Senior Seminar. 1 Credit.
Designed to help students through the process of identifying what they'd like to do with their dietetics degree after graduating from UVM, as well as prepare students to complete the required materials for future opportunities. Prerequisites: Dietetics, Nutrition and Food Sciences major; Senior standing.

NFS 291. Teaching Assistantship. 1-3 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

NFS 292. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

NFS 295. Advanced Special Topics. 1-18 Credits.
Lectures, laboratories, readings, or projects relating to contemporary areas of study. Credits negotiable. Enrollment may be more than once, maximum of twelve hours in NFS 195 and NFS 295 combined. Prerequisite: Department permission.

NFS 296. Internship. 1-18 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion. Prerequisite: Departmental permission.

NFS 298. Undergraduate Research. 1-18 Credits.
Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.