Department of Nutrition and Food Sciences (NFSC)

Chairperson: Nasreddine, Lara
Professors: Hwalla, Nahla; Obeid, Omar; Toufeili, Imad
Associate Professors: Kharroubi, Samer; Nasreddine, Lara; Naja, Farah; Olabi, Ammar
Assistant Professors: Abiad, Mohammad; Jomaa, Lamis
Lecturers: Chamieh, Marie Claire; Habib-Mrad, Carla; Karam, Pascale
Instructors: El Halabi, Dima; Gholmie, Yara; Hamadeh, Basma

Undergraduate Program

The mission of the Department of Nutrition and Food Science is to produce qualified graduates capable of serving the region in various areas of food science, nutrition, and dietetics. The department participates in offering courses within the FAFS undergraduate core program and, in addition, offers junior and senior courses that cover areas of major importance in food science, nutrition, and dietetics.

The department offers two three-year programs, one leading to a BS degree in Nutrition and Dietetics (NTDT) and the other leading to a BS degree in Food Science and Management. Graduates wishing to qualify as licensed dietitians should complete an internship for a minimum of six months in a recognized medical setting.

In addition, the Department offers a Nutrition and Dietetics Program (NDCP), which combines the didactic and supervised practice components and which has been granted candidacy for accreditation status by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040 ext 5400. http://www.eatright.org/ACEND.

Students who intend ultimately to enter the Faculty of Medicine must complete the premedical requirements as outlined in the AUB catalogue Faculty of Arts and Sciences section titled Premedical Study. Graduates of these programs do not receive the Diploma of Ingénieur Agricole.

The following courses are offered by the department:

Core Courses for the BS Degree in Nutrition and Dietetics

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>NFSC 210</td>
<td>Statistics in Nutrition and Food Sciences</td>
<td>2,3,3</td>
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An introductory course to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: Samples, population and types of data; Organizing and graphing data; Numerical descriptive measures; Probability; Discrete random variables and their probability distributions; Continuous random variables and the Normal distribution; Point and interval estimation and hypothesis testing; Correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package “SPSS” for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213, or EDUC 227. Every semester.
NFSC 221  Basic Nutrition  3.0; 3 cr.
Nutritional survey of nutrients, including their food sources, digestion, metabolism, functions, and requirements in humans.  *Fall and spring.*

NFSC 222  Community Nutrition  3.0; 3 cr.
An introduction to key concepts and current topics in community nutrition. The course discusses the role of nutrition in improving the health and well-being of communities and familiarizes students with population nutritional status assessment, principles of nutrition research, and factors involved in planning, implementing and evaluating community nutrition programs and policies. *Prerequisite: NFSC 221; corequisite: NFSC 285.*

NFSC 229  Menu Planning  0.3; 1 cr.
The course explores the principles and techniques of menu planning for healthy persons. Topics include nutrient needs for optimum health, dietary guidelines, food groups, food portion sizes, and the use of exchange lists for meal planning and client nutrition education in both the English and Arabic languages. *Prerequisite: NFSC 221; corequisite: NFSC 240.*

NFSC 240  Nutritional Status Assessment  1.3; 2 cr.
The course exposes students to the theoretical basis of various aspects of nutritional assessment (counseling dietary assessment, anthropometric measurement, biochemical assays, and clinical assessment). The course also familiarizes students with nutritional status assessment tools and techniques through practical experimentation in the lab. *Prerequisite: NFSC 221; pre- or corequisite: NFSC 274.*

NFSC 261  Introductory Biochemistry  3.0; 3 cr.
Chemistry of biological compounds, their enzymatic degradation and intermediary metabolism. *Prerequisite: CHEM 208. Fall and spring.*

NFSC 265  Food Chemistry  3.0; 3 cr.
Chemical composition, physical and sensory properties of foods. *Prerequisite: CHEM 208. Fall and spring.*

NFSC 267  Food Analysis  1.3; 2 cr.
Laboratory methods for chemical analysis of nutrients and chemicals in food products. *Prerequisites: CHEM 205 and CHEM 209; pre- or corequisite: NFSC 265. Fall and spring.*

NFSC 274  Human Nutrition and Metabolism  3.0; 3 cr.
Human physiological needs for energy, carbohydrates, fats, proteins, vitamins, and minerals; control of nutrient metabolism. *Prerequisites: NFSC 221, NFSC 261, and PHYL 246.*

NFSC 277  Food Microbiology I  3.0; 3 cr.
A survey of micro-organisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic micro-organisms in foods.

NFSC 281  Nutrition in the Life Cycle Lab for NTDT  0.3; 1 cr.
The course emphasizes the practical applications of the principles of nutrition and human development in the context of the normal physiologic changes that occur throughout the lifecycle. It includes evidence-based recommendations and interventions to improve nutrition
status and food-related behaviors through the life cycle, for individuals, groups and populations. 
Prerequisites: NFSC 221 and NFSC 229; corequisites: NFSC 274 and NFSC 285.

**NFSC 285  Nutrition in the Life Cycle**  2.0; 2 cr.
The course focuses on the basic nutritional needs of individuals throughout their life cycle: infancy, childhood, adolescence, adulthood, and old age, and special nutritional requirements for pregnancy and lactation. Prerequisites: NFSC 221 and NFSC 274.

**NFSC 287  Food Processing**  2.0; 2 cr.
Principle of food spoilage, food preservation, and the different methods and food processing. Prerequisites: NFSC 265, and NTDT III or FSMT IIII. Fall and spring.

**NFSC 289  Food Processing Laboratory**  0.3; 1 cr.
Laboratory exercises in the Pilot Plant in food preservation, preparation and processing. Corequisites: NFSC 287 and, NTDT III or FSMT IIII.

**NFSC 290  Food Service Management**  2.3; 3 cr.
Techniques of management of functional operation of food service; field trips, self-study modules, reports, and discussion. Prerequisite: NFSC 221; pre- or corequisite: MNGT 215. Fall and spring.

**NFSC 292  Medical Nutrition Therapy I**  3.0; 3 cr.
The course examines selected metabolic diseases, HIV, and cancer by covering their etiology, metabolic pathways, and the importance of medical nutrition therapy. Prerequisites: NFSC 240 and NFSC 274; corequisite: NFSC 285.

**NFSC 293  Medical Nutrition Therapy II**  3.0; 3 cr.
A thorough review of the nutrition care process in the treatment of diet-related diseases. The course prepares students to implement the nutrition care process for various conditions, including but not limited to overweight and obesity, diabetes, cardiovascular, gastrointestinal and renal diseases and helps students: 1) understand the pathophysiology of selected diseases in which nutritional intervention plays a major role; 2) identify the nutritional needs of patients with disease; and 3) develop an appropriate patient nutrition care plan. Prerequisites: NFSC 274, NFSC 240 and NFSC 285.

**NFSC 294  Medical Nutrition Therapy Laboratory I for NTDT**  0.3; 1 cr.
An intensive laboratory course designed to help students learn and practice the application of the evidence-based medical nutrition therapy for diseases and disorders discussed in NFSC 292. This is done through the use of self-study modules, case studies, reports, and discussions. Prerequisites: NFSC 240 and NFSC 274. Corequisites: NFSC 292 and NFSC 285.

**NFSC 295  Medical Nutrition Therapy Laboratory II for NTDT**  0.3; 1 cr.
An intensive laboratory course designed to help students learn and practice the application of the evidence-based medical nutrition therapy for diseases and disorders discussed in NFSC 293. This is done through the use of self-study modules, case studies, reports, and discussions. Prerequisites: NFSC 274, NFSC 240, and NFSC 285. Corequisite: NFSC 293.
NFSC 296  Current Topics in Food Sciences and Nutrition  1 cr.
Prerequisite: NTDT III. Fall and spring.

NFSC 299  Projects in Nutrition and Food Sciences  2 cr.
Directed study. Tutorial. Prerequisite: NTDT III. Fall and spring.

Core Courses for the BS Degree in Nutrition and Dietetic Coordinated Program (NDCP)

NFSC 221  Basic Nutrition  3.0; 3 cr.
Nutritional survey of nutrients, including their food sources, digestion, metabolism, functions, and requirements in humans. Fall and spring.

NFSC 222  Community Nutrition  3.0; 3 cr.
An introduction to key concepts and current topics in community nutrition. This course discusses the role of nutrition in improving the health and well-being of communities and familiarizes students with population nutritional status assessment, principles of nutrition research, and factors involved in planning, implementing and evaluating community nutrition programs and policies. Prerequisite: NFSC 221; corequisite: NFSC 285.

NFSC 224  Advanced Nutrition Principles and Practices  0.3; 1 cr.
Principles essential for being a successful Registered Dietitian (RD) including Code of Ethics, Scope of Dietetics Practice, Medical Coding, and process of Nutrition Legislation within the United States. Through the use of real life clinical case study scenarios and role playing, students will use the Nutrition Care Process (NCP) in developing their nutrition care plans, and practice counseling techniques to improve their effectiveness in providing nutrition education and working with an interdisciplinary team. Prerequisite: NDCP III.

NFSC 225A/B  Job Shadowing  0 cr.
Students will shadow dietitians at different types of facilities covering MNT, Community Nutrition and Foodservice Management. Prerequisite: NDCP status.

NFSC 229  Menu Planning  0.3; 1 cr.
The course explores the principles and techniques of menu planning for healthy persons. Topics include nutrients needs for optimum health, dietary guidelines, food groups, food portion sizes, and the use of exchange lists for meal planning and client nutrition education in both the English and Arabic languages. Prerequisite: NFSC 221; corequisite: NFSC 240.

NFSC 240  Nutritional Status Assessment  1.3; 2 cr.
The course expose students to the theoretical basis of various aspects of nutritional assessment (counseling dietary assessment, anthropometric measurement, biochemical assays, and clinical assessment). The course also familiarizes students with nutritional status assessment tools and techniques through practical experimentation in the lab. Prerequisite: NFSC 221; pre- or corequisite: NFSC 274.
NFSC 261  Introductory Biochemistry  3.0; 3 cr.
Chemistry of biological compounds, their enzymatic degradation and intermediary metabolism. Prerequisite: CHEM 208. Fall and spring.

NFSC 265  Food Chemistry  3.0; 3 cr.
Chemical composition, physical and sensory properties of foods. Prerequisite: CHEM 208. Fall and spring.

NFSC 267  Food Analysis  1.3; 2 cr.
Laboratory methods for chemical analysis of nutrients and chemicals in food products. Prerequisites: CHEM 205 and CHEM 209; pre- or corequisite: NFSC 265. Fall and spring.

NFSC 274  Human Nutrition and Metabolism  3.0; 3 cr.
Human physiological needs for energy, carbohydrates, fats, proteins, vitamins, and minerals; control of nutrient metabolism. Prerequisites: NFSC 221, NFSC 261, and PHYL 246.

NFSC 275  Quantity Food Production  1.3; 2 cr.
A course whereby principles and methods of buying, preparing and serving foods for various types of quantity food facilities are considered. Standardization of recipes, cost control, safety and sanitation are practiced. Students demonstrate proficiency with food service equipment and utensils, participate in large-scale recipe preparation, and work in teams to create, plan, and produce high quality meal(s) for 40-75 people. Prerequisites: NFSC 290 and NDCP III.

NFSC 277  Food Microbiology I  3.0; 3 cr.
A survey of micro-organisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic micro-organisms in foods.

NFSC 279  Medical Nutrition Therapy Lab I for NDCP  0.3; 1 cr.
An intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy utilizing the nutrition care process for diseases and disorders discussed in NFSC 292. This is done through the use of self-study modules, case studies, reports, and discussions. Prerequisites: NFSC 240 and NFSC 274. Corequisites: NFSC 285, NFSC 292, and NDCP III.

NFSC 285  Nutrition in the Life Cycle  2.0; 2 cr.
The course focuses on the basic nutritional needs of individuals throughout their life cycle: infancy, childhood, adolescence, adulthood, and old age, and special nutritional requirements for pregnancy and lactation. Prerequisites: NFSC 221 and NFSC 274.

NFSC 286  Nutrition in the Life Cycle Lab for NDCP  0.3; 1 cr.
The course emphasizes the practical applications of the principles of nutrition and human development in the context of the normal physiologic changes that occur throughout the lifecycle. It incorporates problem-based learning through case studies, and employs the nutrition care process for evidence-based implementation of interventions to improve nutrition status and food related behaviors through the life cycle. Prerequisites: NFSC 221, NFSC 229, and NDCP III. Corequisites: NFSC 274 and NFSC 285.
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<tr>
<td>NFSC 287</td>
<td>Food Processing</td>
<td>2.0; 2</td>
<td>Principle of food spoilage, food preservation, and the different methods and food processing. <em>Prerequisites: NFSC 265, and NTDT III or FSMT III. Fall and spring.</em></td>
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<tr>
<td>NFSC 289</td>
<td>Food Processing Laboratory</td>
<td>0.3; 1</td>
<td>Laboratory exercises in the Pilot Plant in food preservation, preparation and processing. <em>Pre- or corequisites: NFSC 287, and NTDT III or FSMT III.</em></td>
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<tr>
<td>NFSC 290</td>
<td>Food Service Management</td>
<td>2.3; 3</td>
<td>Techniques of management of functional operation of food service; field trips, self-study modules, reports, and discussion. <em>Prerequisites: NFSC 221; pre- or corequisite: MNGT 215. Fall and spring.</em></td>
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<td>NFSC 292</td>
<td>Medical Nutrition Therapy I</td>
<td>3.0; 3</td>
<td>The course examines selected metabolic diseases, HIV, and cancer by covering their etiology, metabolic pathways, and the importance of medical nutrition therapy. <em>Prerequisites: NFSC 240 and NFSC 274; corequisite: NFSC 285.</em></td>
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<td>NFSC 293</td>
<td>Medical Nutrition Therapy II</td>
<td>3.0; 3</td>
<td>A thorough review of the nutrition care process in the treatment of diet-related diseases. The course prepares students to implement the nutrition care process for various conditions, including but not limited to overweight and obesity, diabetes, cardiovascular, gastrointestinal and renal diseases. It helps students: 1) understand the pathophysiology of selected diseases in which nutritional intervention plays a major role; 2) identify the nutritional needs of patients with disease; and 3) develop an appropriate patient nutrition care plan. <em>Prerequisites: NFSC 274, NFSC 240 and NFSC 285.</em></td>
</tr>
<tr>
<td>NFSC 296</td>
<td>Current Topics in Food Sciences and Nutrition</td>
<td>1</td>
<td><em>Prerequisite: NTDT or NDCP III. Fall and spring.</em></td>
</tr>
<tr>
<td>NFSC 297</td>
<td>Medical Nutrition Therapy Lab II for NDCP</td>
<td>0.3; 1</td>
<td>An intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy utilizing the nutrition care process for diseases and disorders discussed in NFSC 293. This is done through the use of self-study modules, case studies, reports, and discussions. <em>Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Corequisites: NFSC 293 and NDCP III.</em></td>
</tr>
<tr>
<td>NFSC 299</td>
<td>Projects in Nutrition and Food Sciences</td>
<td>2</td>
<td>Directed study. Tutorial. <em>Prerequisite: NTDT or NDCP III. Fall and spring.</em></td>
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<tr>
<td>NFSC 283</td>
<td>Nutrition Education and Communication</td>
<td>3</td>
<td>The course focuses on principles of health behavior, learning theories and their application to nutrition education and nutrition counseling practice. Equips students with the necessary communication tools and techniques to help prevent nutrition-related disease and promote health. <em>Prerequisite: NDCP IV.</em></td>
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</table>
NFSC 284 (A,B) Seminar in Clinical Dietetics 1 cr.
This course focuses on developing the communication and research skills as well as strengthening the critical thinking capacities of CP students undergoing an intensive internship program, by providing them the opportunity to present and discuss all interesting nutritional issues arising during their CP practicum. It is divided into NFSC 284A and 284B. Prerequisite: NDCP IV.

NFSC 298 (F,S) Dietetic Practicum 28 cr.
Training for a minimum of 1200 hours at an affiliated medical facility. Prerequisite: NDCP IV.

Core Courses for the BS Degree in Food Science and Management

NFSC 221 Basic Nutrition 3.0; 3 cr.
Nutritional survey of nutrients, including their food sources, digestion, metabolism, functions, and requirements in humans. Fall and spring.

NFSC 261 Introductory Biochemistry 3.0; 3 cr.
Chemistry of biological compounds, their enzymatic degradation, and intermediary metabolism. Prerequisite: CHEM 208. Fall and spring.

NFSC 265 Food Chemistry 3.0; 3 cr.
Chemical composition, physical and sensory properties of foods. Prerequisite: CHEM 208. Fall and Spring.

NFSC 267 Food Analysis 1.3; 2 cr.
Laboratory methods for chemical analysis of nutrients and chemicals in food products. Prerequisites: CHEM 205 and CHEM 209; pre- or corequisite: NFSC 265. Fall and spring.

NFSC 272 Introduction to Food Service and Industries 1.3; 2 cr.
An introduction to food service and the food industry. This course explains the food chain system, and describes the food service institutions and the different food industries; it also includes visits to different institutions in the food chain. Prerequisites: NFSC 265 and NFSC 277.

NFSC 277 Food Microbiology I 3.0; 3 cr.
A survey of micro-organisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic micro-organisms in foods.

NFSC 278 Food Microbiology II 2.3; 3 cr.
Microbiological aspects of food preservation; beneficial utilization of micro-organisms in food applications; detection of microbial contamination and hazards of importance to public health. Prerequisite: NFSC 277.

NFSC 280 Summer Training in Food Establishments 1 cr.
The course involves students in supervised training in one of the food service institutions or food industries. Prerequisite: NFSC 272.
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<tr>
<td>NFSC 282</td>
<td>Food Quality Management</td>
<td>3.0; 3 cr.</td>
<td>Basic principles of food quality control, quality assurance, and quality management in food service establishments and food industries; emphasis on modern concepts such as HACCP, ISO 9000, and Good Manufacturing Practices.</td>
</tr>
<tr>
<td>NFSC 287</td>
<td>Food Processing</td>
<td>2.0; 2 cr.</td>
<td>Principle of food spoilage, food preservation, and the different methods and food processing. <strong>Prerequisites:</strong> NFSC 265, and NTDT III or FSMT III. Fall and spring.</td>
</tr>
<tr>
<td>NFSC 288</td>
<td>Technology of Food Products</td>
<td>2.3; 3 cr.</td>
<td>Technology and processing of foods; includes processing food products in the Pilot Plant. <strong>Prerequisites:</strong> NTDT III, and FSMT III or AGRL IV.</td>
</tr>
<tr>
<td>NFSC 289</td>
<td>Food Processing Laboratory</td>
<td>0.3; 1 cr.</td>
<td>Laboratory exercises in the Pilot Plant in food preservation and processing. <strong>Pre- or corequisites:</strong> NFSC 287, and NTDT III or FSMT III.</td>
</tr>
<tr>
<td>NFSC 291</td>
<td>Elements of Food Engineering</td>
<td>3.0; 3 cr.</td>
<td>Basic concepts and principles of food engineering; emphasis on food handling and unit operations utilized in food processing. <strong>Prerequisites:</strong> MATH 204 and FSMT III.</td>
</tr>
<tr>
<td>NFSC 296</td>
<td>Current Topics in Food Sciences and Nutrition</td>
<td>1 cr.</td>
<td><strong>Prerequisite:</strong> NTDT III or FSMT III. Fall and spring.</td>
</tr>
<tr>
<td>NFSC 299</td>
<td>Projects in Nutrition and Food Sciences</td>
<td>2 cr.</td>
<td>Directed study. Tutorial. <strong>Prerequisite:</strong> NTDT III or FSMT III. Fall and spring.</td>
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**Core Course for the BS Degree in Agribusiness**

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<tr>
<td>NFSC 252</td>
<td>Food Processing</td>
<td>3.0; 3 cr.</td>
<td>Technology and processing of foods; includes processing of food products and field visits to local food companies. <strong>Prerequisite:</strong> Junior status standing.</td>
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**Elective Course not for Nutrition and Dietetics or Food Science and Management**

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<tr>
<td>NFSC 220</td>
<td>Food and Nutrition Awareness</td>
<td>3.0; 3 cr.</td>
<td>The course introduces the discipline of nutrition and assists students in making optimal food choices for better health. <strong>Free elective.</strong></td>
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