Nutrition Science

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Bachelor of Science Degree

The Nutrition Science baccalaureate degree contains a strong scientific base that is applied throughout the curriculum. It is designed for students interested in nutrition, food, and the relationship of diet to human health, fitness, and disease prevention—for which current interest has never been greater than today. Graduates will learn to examine complex relationships in human nutrition and food technology. Course work includes understanding obesity and weight management, nutritional influences on chronic disease, dietary intake patterns, addressing nutrient industry and marketing trends, and food/nutrient recommendations to protect the population and promote optimum health.

Graduates will be prepared for further academic professional studies or graduate school including medical, dental, occupational/physical therapy, pharmacy, and advanced graduate study in nutrition science. The nutrition science program can also lead to admission into a one-year clinical dietetic internship leading to licensure in dietetics.*

*Please note: The Nutrition Science degree does not lead to becoming a licensed dietitian after graduation. If you are interested in becoming a Registered Dietitian, it is vital that you understand the additional education requirements determined by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). This Nutrition Science degree provides a strong science and nutrition background for other allied health care settings and work in both the private and public sectors.

Typical Employment Opportunities

Graduates are eligible for a variety of careers in both private and public sectors.
Opportunities found in, but not limited to:
Healthcare Field
Sport & Fitness Industry
Food Technology
Biomedical and Laboratory Research
County, State and Federal Government Nutrition Services
Cooperative Extension
Food and Agriculture Industry
Nutraceutical Industry
Non-Profit Nutritional Support Programs
Graduate Education

Nutrition Science (BS) Program Outcomes:

• Graduates will demonstrate professional and personal ethics with a cultural awareness for dietary intake and skills in maintaining health and disease prevention throughout the life span (Professionalism/Leadership).
• Graduates will employ effective oral and written communication skills (Communication/Marketing).
• Graduates will apply critical thinking skills to evaluate, interpret, and analyze current issues in nutrition utilizing theoretically based problem solving skills (Critical Thinking).
• Graduates will be able to investigate, differentiate, and extrapolate nutrition science data and trends. This will allow them to excel in the nutrition sciences and to prepare for further professional and graduate education (Knowledge).

Liberal Arts and Sciences  ( 36 credits )

- EGL 101 Composition I: College Writing (GE) 3
- EGL 102 Composition II: Writing About Literature 3
- History Elective (GE) 3
- PSY 101 Introduction to Psychology (GE) 3
- BIO 130 Biological Principles I (GE) 4
- Humanities (GE) 3
- SOC 122 Introductory Sociology (GE) 3
- MTH 116 Algebra (GE) 4
- BIO 131 Biological Principles II (GE) 4
- Foreign Language Elective (GE) 3
- Arts Elective (GE) 3

Required: Lower Division  ( 39 credits )

- BIO 170 Human Anatomy and Physiology I (GE) 4
- CHM 152 General Chemistry Principles I (GE) 4
- BUS 131 Marketing Principles 3
- BIO 171 Human Anatomy and Physiology II (GE) 4
- CHM 153 General Chemistry Principles II (GE) 4
- BIO 125/NTR 110 Introduction to Nutrition Science 3
- CHM 260 Fundamentals of Organic Chemistry (GE) 4
- BIO 220 Medical Microbiology w/lab 4
- NTR 200 Nutrition Through the Life Cycle 3
- Technical Electives Lower Level* 6

Required: Upper Division  ( 47 credits )

- NTR 300 Cultural Foods w/lab 3
- NTR 305 Weight Management & Obesity 3
- NTR 310 Food Service Management 3
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NTR 320 Medical Nutritional Therapy w/lab</td>
<td>4</td>
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<tr>
<td>NTR 335 Nutritional Biochemistry</td>
<td>3</td>
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<td>NTR 340 Nutrition Communication</td>
<td>3</td>
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<tr>
<td>NTR 350 Energy &amp; Exercise</td>
<td>3</td>
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<tr>
<td>NTR 400 Food Science w/Lab</td>
<td>4</td>
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<tr>
<td>NTR 405 Supplements &amp; Ergogenic Aids</td>
<td>3</td>
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<td>NTR 410 Macronutrient Nutrition Metabolism</td>
<td>3</td>
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<tr>
<td>NTR 420 Community Nutrition</td>
<td>3</td>
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<tr>
<td>NTR 411 Micronutrient Nutrition Metabolism</td>
<td>3</td>
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<tr>
<td>NTR 425 Nutrition Seminar</td>
<td>3</td>
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<tr>
<td>NTR 450 Research Methods in Health Sciences</td>
<td>3</td>
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<tr>
<td>Technical Elective Upper Level**</td>
<td>3</td>
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</tbody>
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Total Credits: 122

Degree Type: BS
Total Required Credits: 122

Notes:

*Technical Electives Lower Level

Must select two 3 cr. courses

- NTR 150 Quantity Food Production
- NTR 260 Sports Nutrition
- BIO 210 Introduction to Bioscience
- BIO 240 Bioethics
- BIO 123 Human Body in Health and Disease
- BUS 101 Accounting I
- BUS 109 Management Theories and Practices
- BUS 259 Public Relations
- BUS 267 Small Business Management
- ECO 156 Principles of Economics – Macro
- SOC 228 Society and Health

**Technical Electives Upper Level

Must select one 3 cr. course

- NTR 330 Food Microbiology w/virtual lab
- NTR 360 Experimental Foods.
- NTR 460 Nutrition Field Experience
- NTR 430 Clinical Nutrition Assessment & Planning
- BIO 416 Industrial Microbiology
• BUS 305 Entrepreneurship
• ECO 304 Sports Economics
• ECO 310 Health Economics and Policy
• SMT 330 Nutrition and Sports
• SOC 309 Sport in Society
• SOC 360 Sociological Research Methods

Course Descriptions

**EGL 101 Composition I: College Writing (GE)**
This is the first part of a required sequence in college essay writing. Students learn to view writing as a process that involves generating ideas, formulating and developing a thesis, structuring paragraphs and essays, as well as revising and editing drafts. The focus is on the development of critical and analytical thinking. Students also learn the correct and ethical use of print and electronic sources. At least one research paper is required. A grade of C or higher is a graduation requirement. Note: Students passing a departmental diagnostic exam given on the first day of class will remain in EGL 101; all others will be placed in EGL 097. Prerequisite is any of the following: successful completion of EGL 097; an SAT essay score (taken prior to March 1, 2016) of 7 or higher; an SAT essay score (taken after March 1, 2016) of 5 or higher; on-campus placement testing. Credits: 3

**EGL 102 Composition II: Writing About Literature**
This is the second part of the required introductory English composition sequence. This course builds on writing skills developed in EGL 101, specifically the ability to write analytical and persuasive essays and to use research materials correctly and effectively. Students read selections from different literary genres (poetry, drama, and narrative fiction). Selections from the literature provide the basis for analytical and critical essays that explore the ways writers use works of the imagination to explore human experience. Grade of C or higher is a graduation requirement. Prerequisite(s): EGL 101 Credits: 3

**BIO 130 Biological Principles I (GE)**
This course deals with biological processes primarily at the molecular and cellular level, and develops the foundations of evolutionary and ecological concepts. There is a study of cell structure, and an examination of cellular composition and metabolic processes including enzyme activity, respiration, and photosynthesis. Principles of genetics are studied at the cellular and molecular level, with reference to current techniques in molecular biology. Evolutionary mechanisms are introduced and ecological concepts are presented as a unifying theme. Note: BIO 130 is the first course in the required two-semester introductory sequence in the Bioscience Curriculum Core. It is also approved in the Natural Sciences General Education Competency Area and can serve as a lower-level laboratory science elective within the Liberal Arts. Note: the laboratory course, BIO 130L is a part of your grade for this course. Corequisite(s): BIO 130L Credits: 4

**SOC 122 Introductory Sociology (GE)**
Introductory course designed to help the student develop insights into human social interaction in terms of behavior as a group, across groups, and the impact the group has on individuals. We study sociological concepts and theories and apply them to key aspects of our lives and society (such as culture, family, education, work, media, stratification, and social change). Note: Students who take SOC 122W cannot receive credit for SOC 122. Credits: 3 Note: Students cannot get credit for SOC 122 and 122W; SOC 122W can be used to fulfill the writing intensive requirement.

**MTH 116 Algebra (GE)**
This course is designed to provide students with a firm foundation in symbolic manipulation and algebraic reasoning. Both manipulative skills and conceptual understanding of algebraic principles are stressed. Topics include equivalent expressions and equations, linear functions, properties of exponents and logarithms, quadratic equations, power functions, exponential
functions. Upon completion of this course students will be prepared for precalculus as well as for quantitative courses in the natural and social sciences. Prerequisite(s): MP2 or MTH 015 Credits: 4

**BIO 131 Biological Principles II (GE)**
This course deals with biological processes primarily at the organismal level, and examines the diversity of living things. The origins and adaptations of the Prokaryota, Protista, and Fungi are explored, with emphasis on their ecological roles, economic value, and medical significance. Plant life cycles are introduced, and plant structure, physiology, and utilization are studied. The evolution and adaptations of various animal phyla are presented, with a consideration of structure and function in each; organ systems are studied with emphasis on humans as representative vertebrates. Note: BIO 131 is the second course in the required two-semester introductory in the Bioscience Curriculum Core. It is also approved in the Natural Sciences General Education Competency Area and can serve as a lower-level laboratory science elective within the Liberal Arts. Note: the laboratory course, BIO 131L is a part of your grade for this course. Prerequisite(s): BIO 130 with a grade of C- or higher Corequisite(s): BIO 131L Credits: 4

**BIO 170 Human Anatomy and Physiology I (GE)**
This is the first semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach, with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. This sequence is appropriate preparation for nursing and other allied health professions. Topics included in Anatomy and Physiology I are: basic anatomical and directional terminology, fundamental concepts and principles of cell biology, histology, and the integumentary, skeletal, muscular, and nervous systems. Students may not receive credit for both BIO 170 and BIO 270. Note: the laboratory course, BIO 170L is a part of your grade for this course. Prerequisite(s): High School biology with a lab or BIO 120 or 123 or 130; High School or College chemistry recommended Corequisite(s): BIO 170L Credits: 4

**CHM 152 General Chemistry Principles I (GE)**
The first part of a two semester sequence in General Chemistry Principles with laboratory. This course covers the qualitative and quantitative aspects of scientific measurement, the nature of matter, gases, liquids and solids, energy, atomic theory, properties of elements, chemical bonding, molecular structure and properties, stoichiometry, thermochemistry and solutions. Note: the laboratory course CHM 152L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): MP3 or MTH 116 Credits: 4

**BUS 131 Marketing Principles**
This course provides the student with a sound knowledge of the basic elements of the marketing process. Major topics include the features of consumer and organizational markets, market segmentation, and target market strategies. Product planning and development, brands, packaging and other product features are covered. Price determination and the use of various pricing strategies are discussed. The factors in the selection of channels of distribution and the features of wholesaling and retailing are considered. Elements of the promotional process such as sales, advertising, and sales promotion are included. Ethical and legal issues in marketing, marketing of services, global marketing, and marketing on the Internet are also covered. Credits: 3

**BIO 171 Human Anatomy and Physiology II (GE)**
This is the second semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach, with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. This sequence is appropriate preparation for nursing and other allied health professions. Topics include Anatomy and Physiology II are: the endocrine system, the cardiovascular system, the lymphatic system and immunity, the respiratory system, the digestive system, metabolism, the urinary system, fluid/electrolyte and acid/base balance; and the
reproductive systems. Note: students may not receive credit for both BIO 171 and BIO 271. Note: the laboratory course, BIO 171L is a part of your grade for this course. Prerequisite(s): BIO 170 Corequisite(s): BIO 171L Credits: 4

**CHM 153 General Chemistry Principles II (GE)**  
A continuation of General Chemistry Principles I, which includes laboratory. Topics include: solutions and their colligative properties, acids and bases, chemical equilibrium, ionic equilibrium, pH, buffers, titration curves, oxidation and reduction balancing, electrochemistry, chemical kinetics, the covalent bond and the shape of molecules. Note: the laboratory course CHM 153L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 152 Credit: 4

**BIO 125/NTR 110 Introduction to Nutrition Science**  
This course provides a basic background in the nature and biochemical function of essential and non-essential nutrients, the molecular basis of metabolism and nutrient requirements of living cells and organisms. The role of nutrients in gene expression, genetically modified foods and the role of diet in the treatment of diseases. Credits: 3

**CHM 260 Fundamentals of Organic Chemistry (GE)**  
A one semester course in organic chemistry designed to provide background in the fundamentals of nomenclature, mechanisms, structures, and synthesis of carbon based compounds. This course is designed for science and health science majors who desire a general rather than a detailed knowledge of the compounds of carbon. Topics to be covered include: structure and bonding, acid/base chemistry, isomerism, stereochemistry, and structure determination. Functional groups to be covered include: hydrocarbons, alcohols, ethers, aldehydes and ketones, carboxylic acids, carboxylic acid derivatives and amines. Laboratory work will include common organic techniques and experiments supporting the principles covered in lecture. Note: the laboratory course CHM 260L is a part of your grade for this course. Attendance in the laboratory course is required. Approved eye-protection and a laboratory coat are required materials. A student must pass the laboratory course to receive a passing grade in the entire course. Prerequisite(s): CHM 153 Credits: 4

**BIO 220 Medical Microbiology w/lab**  
The role of microbes as causative agents of disease in human hosts; the morphological characterization of pathogenic species, classification of communicable diseases and epidemiological aspects. Host-parasite relationship, infection, and host-resistance mechanisms; sero-diagnostic methods in medical practice. Chemotherapy, mode of action of antibiotics, sterilization, disinfection methods and contamination control. Note: the laboratory course, BIO 220L is a part of your grade for this course. Prerequisite(s): BIO 166 or 170 or 171 or 130 or 131 Corequisite(s): BIO 220L Credits: 4

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.