NUTRITIONAL BIOCHEMISTRY AND METABOLISM, BA

Degree: Bachelor of Arts (BA)
Major: Nutritional Biochemistry and Metabolism

Program Overview
Nutritional Biochemistry and Metabolism is the study of nutrients and their metabolic functions. This degree program also prepares the students for graduate studies in nutrition or metabolic research or for further training for careers in medicine, dentistry, and other allied health professions.

The BA in Nutritional Biochemistry and Metabolism is easily combined with majors such as Psychology, Sociology, Chemistry, Biology or Communication Sciences. It will also easily accommodate the requirements of a pre-health curriculum.

Didactic Program in Dietetics
Students interested in applying to dietetic internships must meet specific course requirements (Didactic Program in Dietetics) as required by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. These requirements are met in the courses that comprise the Didactic Program in Dietetics (DPD). A department advisor should be consulted in the first year to plan the dietetics coursework.

The DPD at Case Western Reserve University is currently granted Accreditation 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, 800.877.1600.

Undergraduate Policies
For undergraduate policies and procedures, please review the Undergraduate Academics section of the General Bulletin.

Accelerated Master's Programs
Undergraduate students may participate in accelerated programs toward graduate or professional degrees. For more information and details of the policies and procedures related to accelerated studies, please visit the Undergraduate Academics section of the General Bulletin.

Program Requirements
Students seeking to complete this major and degree program must meet the general requirements for bachelor's degrees and the Unified General Education Requirements. Students completing this program as a secondary major while completing another undergraduate degree program do not need to satisfy the school-specific requirements associated with this major.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NTRN 201</td>
<td>Nutrition</td>
<td>3</td>
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<tr>
<td>NTRN 363</td>
<td>Human Nutrition I: Energy, Protein, Minerals</td>
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<tr>
<td>NTRN 364</td>
<td>Human Nutrition II: Vitamins</td>
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NTRN 397 SAGES Capstone Proposal Seminar 3
NTRN 398 SAGES Senior Capstone Experience 3
NTRN 452 Nutritional Biochemistry and Metabolism 3

Nutrition Electives:
Choose three NTRN courses at 300-level

Additional Required Courses:
MATH 125 Math and Calculus Applications for Life, Managerial, and Social Sci I 4
or MATH 121 Calculus for Science and Engineering I 4
MATH 126 Math and Calculus Applications for Life, Managerial, and Social Sci II 4
or MATH 122 Calculus for Science and Engineering II 4
CHEM 105 Principles of Chemistry I 3
CHEM 106 Principles of Chemistry II 3
CHEM 113 Principles of Chemistry Laboratory 2
CHEM 223 Introductory Organic Chemistry I 3
or CHEM 323 Organic Chemistry I 3
CHEM 224 Introductory Organic Chemistry II 3
or CHEM 324 Organic Chemistry II 3
CHEM 233 Introductory Organic Chemistry Laboratory I 2
CHEM 234 Introductory Organic Chemistry Laboratory II 2
BIOC 214 Genes, Evolution and Ecology 3
BIOC 215 Cells and Proteins 3
BIOC 216 Development and Physiology 3
or BIOC 340 Development and Physiology & BIOC 346 Human Physiology and Human Anatomy 3
BIOC 216L Development and Physiology Lab 1
PHYS 115 Introductory Physics I 4
or PHYS 121 General Physics I - Mechanics 4
PHYS 116 Introductory Physics II 4
or PHYS 122 General Physics II - Electricity and Magnetism 4
BIOC 307 Introduction to Biochemistry: From Molecules To Medical Science 4
BIOC 334 Structural and Computational Biology 3
or BIOC 312 Proteins and Enzymes 3
or NTRN 454 Advanced Nutrition and Metabolism: Investigative Methods 3

Total Hours 78

Didactic Program in Dietetics (DPD)

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<tr>
<td>NTRN 201</td>
<td>Nutrition</td>
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<tr>
<td>NTRN 337</td>
<td>Nutrition Communication, Counseling and Behavior Change Strategies</td>
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<tr>
<td>or NTRN 437</td>
<td>Nutrition Communication, Counseling and Behavior Change Strategies</td>
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<tr>
<td>NTRN 342</td>
<td>Food Science</td>
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<td>Food Science Lab</td>
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<td>NTRN 343</td>
<td>Dietary Patterns</td>
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<td>NTRN 351</td>
<td>Food Service Systems Management</td>
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<td>NTRN 363</td>
<td>Human Nutrition I: Energy, Protein, Minerals</td>
<td>3-4</td>
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Nutritional Biochemistry and Metabolism, BA

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<tr>
<td>or NTRN 433</td>
<td>Advanced Human Nutrition I</td>
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<tr>
<td>NTRN 364</td>
<td>Human Nutrition II: Vitamins</td>
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<tr>
<td>or NTRN 434</td>
<td>Advanced Human Nutrition II</td>
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<td>NTRN 365</td>
<td>Nutrition for the Prevention and Management of Disease: Pathophysiology</td>
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<td>NTRN 550A</td>
<td>Advanced Community Nutrition</td>
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<td>or NTRN 528</td>
<td>Introduction to Public Health Nutrition</td>
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<td>BIOC 307</td>
<td>Introduction to Biochemistry: From Molecules To Medical Science</td>
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<td>BIOL 216</td>
<td>Development and Physiology</td>
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<td>BIOL 343</td>
<td>Microbiology</td>
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<td>CHEM 223</td>
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<td>SOCI 101</td>
<td>Introduction to Sociology</td>
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<tr>
<td>ANTH 215</td>
<td>Health, Culture, and Disease: An Introduction to Medical Anthropology</td>
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<td>or SOCI 311</td>
<td>Health, Illness, and Social Behavior</td>
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<td>ANTH 319</td>
<td>Introduction to Statistical Analysis in the Social Sciences</td>
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<td>STAT 201</td>
<td>Basic Statistics for Social and Life Sciences</td>
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<td>STAT 312</td>
<td>Basic Statistics for Engineering and Science</td>
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<td>STAT 313</td>
<td>Statistics for Experimenters</td>
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Nutrition Electives:
- Choose two NTRN courses at 300-level

Total Hours 58-59

a Excluding NTRN 370.
b Please contact the DPD Director in Department of Nutrition to confirm DPD courses and other requirements.
c Excluding NTRN 341 and NTRN 370.

**Sample Plan of Study**

**First Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 214</td>
<td>Genes, Evolution and Ecology</td>
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<td>CHEM 105</td>
<td>Principles of Chemistry I</td>
<td>3</td>
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<td>CHEM 113</td>
<td>Principles of Chemistry Laboratory</td>
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<td>MATH 125</td>
<td>Math and Calculus Applications for Life, Managerial, and Social Sci I</td>
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<td><strong>Hours</strong></td>
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**Spring**

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<tr>
<td>BIOL 215</td>
<td>Cells and Proteins</td>
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<td>CHEM 106</td>
<td>Principles of Chemistry II</td>
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<tr>
<td>MATH 126</td>
<td>Math and Calculus Applications for Life, Managerial, and Social Sci II</td>
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**Second Year**

**Fall**

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<td>Introduction to Biochemistry: From Molecules To Medical Science</td>
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<td>NTRN 363</td>
<td>Human Nutrition I: Energy, Protein, Minerals</td>
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<td>PHYS 115</td>
<td>Introductory Physics I</td>
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**Spring**

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<tr>
<td>CHEM 224</td>
<td>Introductory Organic Chemistry II</td>
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**Third Year**

**Fall**

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<td>Human Nutrition I: Energy, Protein, Minerals</td>
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<td>PHYS 116</td>
<td>Introductory Physics I</td>
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<td>Breadth, or Elective course a</td>
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**Spring**

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<tr>
<td>NTRN 364</td>
<td>Human Nutrition II: Vitamins</td>
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<td>NTRN 397</td>
<td>SAGES Capstone Proposal Seminar</td>
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<td>PHYS 116</td>
<td>Introductory Physics II</td>
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**Fourth Year**

**Fall**

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<tr>
<td>NTRN 398</td>
<td>SAGES Senior Capstone Experience</td>
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<tr>
<td>NTRN 452</td>
<td>Nutritional Biochemistry and Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>Breadth, or Elective course a</td>
<td></td>
<td>3</td>
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<tr>
<td>Nutrition Elective</td>
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<tr>
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**Spring**

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<tr>
<th>Course</th>
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<tr>
<td>NTRN 454</td>
<td>Advanced Nutrition and Metabolism: Investigative Methods</td>
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**Total Hours** 120
a Unified General Education Requirement.