

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 Office of Undergraduate Studies 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 Office of Undergraduate Studies 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 general requirements of the College of Arts and Sciences. Students completing this program as a secondary major while completing another undergraduate degree program do not need to satisfy the latter set of requirements.

Code	Title	Hours
Required Nutrition Courses		
NTRN 201	Nutrition	3
NTRN 343	Dietary Patterns	3
NTRN 363	Human Nutrition I: Energy, Protein, Minerals	3

NTRN 364	Human Nutrition II: Vitamins	3
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 courses at 300-level (or above with instructor consent) chosen from the following:

NTRN 300	Healthy Lifestyles as Preventive Medicine	
NTRN 328	Child Nutrition, Development and Health	
NTRN 338	Dietary Supplements	
NTRN 341	Food as Medicine: How what we eat influences how we feel, think, and our health status	
NTRN 351	Food Service Systems Management	
NTRN 360	Clinical Assessment and Diagnosis: Nutritional, Functional, Physical	
NTRN 361	Metabolic Dysregulation of Energy from Obesity to Anorexia	
NTRN 365	Nutrition for the Prevention and Management of Disease: Pathophysiology	
NTRN 366	Nutrition for the Prevention and Management of Disease: Clinical Applications	
NTRN 367		
NTRN 371	Special Problems	
NTRN 388	Seminar in Sports Nutrition	
NTRN 390	Undergraduate Research	

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	
MATH 126	Math and Calculus Applications for Life, Managerial, and Social Sci II	4
or MATH 122	Calculus for Science and Engineering II	
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	
CHEM 224	Introductory Organic Chemistry II	3
or CHEM 324	Organic Chemistry II	
CHEM 233	Introductory Organic Chemistry Laboratory I	2
CHEM 234	Introductory Organic Chemistry Laboratory II	2
BIOL 214	Genes, Evolution and Ecology	3
BIOL 215	Cells and Proteins	3
BIOL 216	Development and Physiology	3
or BIOL 340 & BIOL 346	Human Physiology and Human Anatomy	
BIOL 216L	Development and Physiology Lab	1
PHYS 115	Introductory Physics I	4
or PHYS 121	General Physics I - Mechanics	
PHYS 116	Introductory Physics II	4
or PHYS 122	General Physics II - Electricity and Magnetism	
BIOC 307	Introduction to Biochemistry: From Molecules To Medical Science	4
BIOC 334	Structural Biology	3

or BIOC 312	Proteins and Enzymes
or NTRN 454	Advanced Nutrition and Metabolism: Investigative Methods

Total Hours **81**

Didactic Program in Dietetics (DPD)

The following courses must be included in the program*:

Code	Title	Hours
Required Courses		
NTRN 201	Nutrition	3
NTRN 337	Nutrition Communication, Counseling and Behavior Change Strategies	3
or NTRN 437	Nutrition Communication, Counseling and Behavior Change Strategies	
NTRN 342	Food Science	3
NTRN 342L	Food Science Lab	2
NTRN 343	Dietary Patterns	3
NTRN 351	Food Service Systems Management	3
or NTRN 451	Food Service Systems Management	
NTRN 363	Human Nutrition I: Energy, Protein, Minerals	3-4
or NTRN 433	Advanced Human Nutrition I	
NTRN 364	Human Nutrition II: Vitamins	3
or NTRN 434	Advanced Human Nutrition II	
NTRN 365	Nutrition for the Prevention and Management of Disease: Pathophysiology	4
NTRN 550A	Advanced Community Nutrition	3
or NTRN 528	Introduction to Public Health Nutrition	
BIOC 307	Introduction to Biochemistry: From Molecules To Medical Science	4
BIOL 216	Development and Physiology	3
or BIOL 340	Human Physiology	
or BIOL 346	Human Anatomy	
BIOL 343	Microbiology	3
CHEM 223	Introductory Organic Chemistry I	3
ENGL 150	Expository Writing (or SAGES Writing Portfolio)	3
SOCI 101	Introduction to Sociology	3
ANTH 215	Health, Culture, and Disease: An Introduction to Medical Anthropology	3
or SOCI 311	Health, Illness, and Social Behavior	
ANTH 319	Introduction to Statistical Analysis in the Social Sciences	3
or PSCL 282	Quantitative Methods in Psychology	
or PQHS 431	Statistical Methods I	
or STAT 201	Basic Statistics for Social and Life Sciences	
or STAT 243	Statistical Theory with Application I	
or STAT 312	Basic Statistics for Engineering and Science	
or STAT 313	Statistics for Experimenters	
Two NTRN Electives **		6
Total Hours		61-62

* Please contact DPD Director in Department of Nutrition to confirm DPD courses and other requirements.

** Undergraduate students = Two 3-credit 300-level + NTRN Dept. courses; Master's students = Two 3-credit 400-level+ NTRN Dept. courses; excluding NTRN 341.

Sample Plan of Study

First Year

Fall	Hours	
MATH 125	Math and Calculus Applications for Life, Managerial, and Social Sci I	4
NTRN 201	Nutrition	3
BIOL 214	Genes, Evolution and Ecology	3
SAGES First Seminar		4
CHEM 105	Principles of Chemistry I	3
Hours		17

Spring

SAGES Breadth Requirements		3
BIOL 215	Cells and Proteins	3
CHEM 113	Principles of Chemistry Laboratory	2
MATH 126	Math and Calculus Applications for Life, Managerial, and Social Sci II	4
CHEM 106	Principles of Chemistry II	3
Hours		15

Second Year

Fall

CHEM 233	Introductory Organic Chemistry Laboratory I	2
CHEM 223	Introductory Organic Chemistry I	3
BIOL 216 & 216L	Development and Physiology and Development and Physiology Lab	4
SAGES University Seminar		3
Electives		3
Hours		15

Spring

CHEM 224	Introductory Organic Chemistry II	3
CHEM 234	Introductory Organic Chemistry Laboratory II	2
Nutrition Elective		3
Elective		3
SAGES University Seminar		3
Hours		14

Third Year

Fall

BIOC 307	Introduction to Biochemistry: From Molecules To Medical Science	4
PHYS 115	Introductory Physics I	4
NTRN 342	Food Science	3
NTRN 342L	Food Science Lab	2
Hours		13

Spring

NTRN 397	SAGES Capstone Proposal Seminar	3
Elective		3
PHYS 116	Introductory Physics II	4

SAGES Breadth Requirement		6
Hours		16
Fourth Year		
Fall		
NTRN 398	SAGES Senior Capstone Experience	3
NTRN 452	Nutritional Biochemistry and Metabolism	3
NTRN 363	Human Nutrition I: Energy, Protein, Minerals	3
Elective		3
Hours		12
Spring		
Nutrition Elective (if not already taken)		3
NTRN 364	Human Nutrition II: Vitamins	3
BIOC 334	Structural Biology	3
Elective		3
Hours		12
Total Hours		114