

BS in Food Science (284320) MAP Sheet

Life Sciences, Nutrition Dietetics and Food Science

For students entering the degree program during the 2023-2024 curricular year.

Food science is the multidisciplinary study of food, utilizing biology, chemistry, nutrition, engineering, and other sciences.



The suggested sequence of courses per semester listed on this MAP are for the Food Science Technical Track only. The Food Science Industry Management Track with class recommendations per semester can be found in the NDFS Department office ESC-S221, or please contact the advisor for Food Science, Dr. Steele in ESC S-131.

University Core and Graduation Requirements			Suggested Sequence of Courses
University Core Requirements:			
Requirements	#Classes	Hours	Classes
Religion Cornerstones			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250
Foundations of the Restoration	1	2.0	REL C 225
The Eternal Family	1	2.0	REL C 200
The Individual and Society			
American Heritage	1-2	3-6.0	from approved list
Global and Cultural Awareness	1	3.0	from approved list
Skills			
First Year Writing	1	3.0	from approved list
Advanced Written and Oral Communications	1	3.0	WRTG 316 Recommended
Quantitative Reasoning	1	3-4.0	from approved list
Languages of Learning (Math or Language)	1	3.0	STAT 121*
Arts, Letters, and Sciences			
Civilization 1	1	3.0	from approved list
Civilization 2	1	3.0	from approved list
Arts	1	3.0	from approved list
Letters	1	3.0	from approved list
Biological Science	1	3.0	BIO 100 or PDBIO 120
Physical Science	2	7.0	PHSCS 105* and CHEM 105*
Social Science	1	3.0	ECON 110 recommended
Core Enrichment: Electives			
Religion Electives	3-4	6.0	from approved list
Open Electives	Variable	Variable	personal choice
Graduation Requirements:			
Minimum residence hours required		30.0	
Minimum hours needed to graduate		120.0	
			FRESHMAN YEAR
			<u>1st Semester</u>
			CHEM 105 (FWSpSu) 4.0
			First Year Writing or American Heritage 3.0
			Quantitative Reasoning (if needed) 3.0
			NDFS 191 1.0
			Religion Cornerstone course 2.0
			General Elective 2.0
			Total Hours 15.0
			The following semester recommendations are for the Food Science
			Technical Track.
			<u>2nd Semester</u>
			First-year Writing or American Heritage 3.0
			CHEM 106, 107 (FWSpSu) 4.0
			NDFS 100(FWSu) 3.0
			PHSCS 105 (FWSp) 3.0
			Religion Cornerstone course 2.0
			Total Hours 15.0
			SOPHOMORE YEAR
			<u>3rd Semester</u>
			CHEM 351(FWSp) 3.0
			MATH 112 (FWSpSu) 4.0
			NDFS 250 (FWSp) 3.0
			NDFS 251 (FWSp) 1.0
			BIO 100 or PDBIO 120 3.0
			Religion Cornerstone Course 2.0
			Total Hours 16.0
			<u>4th Semester</u>
			CHEM 352 (FWSpSu) 3.0
			CHEM 353 (FWSpSu) 1.0
			MMBIO 221 (FWSpSu) (Biological Science) 3.0
			MMBIO 222 (FWSpSu) 1.0
			Religion Cornerstone Course 2.0
			STAT 121 3.0
			General Elective 2.0
			Total Hours 15.0
			JUNIOR YEAR
			<u>5th Semester</u>
			Arts or Letters elective 3.0
			WRTG 316 (FWSpSu) (Adv. Writing) 3.0
			NDFS 361 (F) 3.0
			NDFS 362 (F) 2.0
			Religion elective 2.0
			General electives 2.0
			Total Hours 15.0
			<u>6th Semester</u>
			Global & Cultural Awareness Elective 3.0
			NDFS 355 (W) 3.0
			NDFS 363 (W) 2.0
			Religion electives 2.0
			General elective 3.0
			Total Hours 13.0
			SENIOR YEAR
			<u>7th Semester</u>
			CHEM 481(FWSpSu) 3.0
			NDFS 450 (F) 3.0
			NDFS 462 (F) 3.0
			Civilization 1 elective 3.0
			Arts or Letters elective 3.0
			Total Hours 15.0
			<u>8th Semester</u>
			NDFS 464 (W) 2.0
			NDFS 465 (W) 3.0
			Social Science elective 3.0
			Religion elective 2.0
			Civilization 2 elective 3.0
			NDFS 350 (W) 4.0
			Total Hours 17.0
<p>Note: Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.</p>			

Program Requirements

Requirement 1 —Complete 14 Courses

Core requirements:

CHEM 105 - Gen College Chem 1+Lab Integr 4.0
MMBIO 221 - General Microbiology 3.0
MMBIO 222 - Gen Micro Lab 1.0
NDFS 100 - Essentials of Human Nutrition 3.0
NDFS 191 - Careers in Food Science 1.0
NDFS 250 - Essentials of Food Science 3.0
NDFS 251 - Essentials of Food Sci Lab 1.0
NDFS 350 - Food Analysis 4.0
NDFS 355 - Food Process Engineering 3.0
NDFS 361 - Food Microbiology 3.0
NDFS 362 - Food Processing 1 2.0
NDFS 462 - Food Reg & Qual Assr 3.0
PHSCS 105 - General Physics 1 3.0
STAT 121 - Principles of Statistics 3.0

Requirement 2 —Complete 1 of 2 Options

Complete one of the following tracks:

Option 2.1

Complete 2 Requirements

A. Food Science Technical Track:

Requirement 2.1.1

Complete 25 hours

CELL 120 - Science of Biology 3.0
CHEM 106 - General College Chemistry 2 3.0
CHEM 107 - Gen Coll Chem Lab 1.0
CHEM 351 - Organic Chemistry 1 3.0
CHEM 352 - Organic Chemistry 2 3.0
CHEM 353 - Organic Chem Lab-Nonmajors 1.0v
CHEM 481 - Biochemistry 3.0
NDFS 450 - Food Chemistry 3.0
NDFS 464 - Food Sensory Evaluation 2.0
NDFS 465 - Food Product Development 3.0

Requirement 2.1.2

Complete 1 of 2 Courses

MATH 112 - Calculus 1 4.0

Option 2.2

Complete 4 Requirements

B. Food Industry Management Track:

Requirement 2.2.1

Complete 7 Courses

ACC 200 - Principles of Accounting 3.0
CHEM 285 - Intro Bio-organic Chemistry 4.0
ECON 110 - Econ Principles & Problems 3.0
FIN 201 - Principles of Finance 3.0
HRM 300 - Organizational Behavior 3.0
STRAT 488 - Agribusiness Management 1 3.0
STRAT 489 - Agribusiness Management 2 3.0

Requirement 2.2.2

Complete 1 hour

Complete 1.0 hour of NDFS 399R to fulfill this requirement. You may complete more internship hours if desired.

NDFS 399R - Academic Internship - You may take once 0.5v

Requirement 2.2.3

Complete 1 of 3 Courses

ENT 381 - Entrep Lecture Series 1.0
ENT 382 - Tech Entrep Lecture Series 1.0
MSB 380 - Executive Lectures 1.0
Requirement 2.2.4 —Complete 1 of 4 Courses
ENT 301 - Business Model Validation 3.0
NDFS 200 - Nutrient Metabolism 3.0
NDFS 450 - Food Chemistry 3.0

NDFS 465 - Food Product Development 3.0

Requirement 3 — Complete 1 Options

During the junior year or upon declaring food science as a major, students are strongly encouraged to select one of the following options to enhance career preparation (students in food industry management track MUST take 1 credit hour of NDFS 399R to graduate):

A. Choose a research topic and faculty mentor. Working in a research laboratory for 10-20 hours per week over the course of eight months, the student has daily contact with graduate students, technicians, and fellow undergraduate colleagues and frequent interactions with a faculty mentor. Student research often leads to participation in a publication and/or a presentation at a professional meeting. NDFS 494R credit is available.

B. Produce a senior thesis in collaboration with a faculty mentor, derived primarily from library study that extensively explores the relevant questions. The thesis is written in the format of a scientific review paper. NDFS 494R credit is available.

C. Work in an approved, faculty-supervised summer internship with a food company (generally the internship does not include study abroad). NDFS 399R credit is available.

Recommended Courses are not required to complete the program

A. Food Science Technical Track - recommended courses (consult with a faculty advisor before selecting):

CHEM 223 - Quant & Qual Analy 4.0
ECON 110 - Econ Principles & Problems 3.0
IAS 220 - Intro Devel Stu 3.0
MFGEN 355 - Plastics Materials & Processing 3.0
NDFS 200 - Nutrient Metabolism 3.0
PHSCS 106 - General Physics 2 3.0
PHSCS 107 - General Physics Lab 1 1.0
PHSCS 108 - General Physics Lab 2 1.0
PWS 100 - Plants in the Environment 3.0
STDEV 150 - Public Speaking 3.0
STDEV 317 - Career Strategies 2.0

TECH 201 - Hist Creativity & Innovation 1 - This course is no longer available for registration and will count only if you completed it while it was offered.

TECH 202 - Hist Creativity & Innovation 2 - This course is no longer available for registration and will count only if you completed it while it was offered.

Please see your college advisement center for possible substitutions. 3.0
WRTG 316 - Technical Communication 3.0

Recommended Courses are not required to complete the program

B. Food Industry Management Track - recommended courses (consult with a faculty advisor before selecting):

Recommended Courses are not required to complete the program
M COM 320 - Commun in Organiztnl Settings 3.0
WRTG 316 - Technical Communication 3.0
Recommended Courses are not required to complete the program
IAS 220 - Intro Devel Stu 3.0

MATH 119 - Introduction to Calculus 4.0
MFGEN 479 - Innovation & Entrepreneurship 3.0
NDFS 200 - Nutrient Metabolism 3.0
NDFS 450 - Food Chemistry 3.0
NDFS 464 - Food Sensory Evaluation 2.0
PHSCS 106 - General Physics 2 3.0
PWS 100 - Plants in the Environment 3.0
STDEV 150 - Public Speaking 3.0

TECH 201 - Hist Creativity & Innovation 1 - This course is no longer available for registration and will count only if you completed it while it was offered.

Please see your college advisement center for possible substitutions. 3.0
TECH 202 - Hist Creativity & Innovation 2 - This course is no longer available for registration and will count only if you completed it while it was offered.

Please see your college advisement center for possible substitutions. 3.0

THE DISCIPLINE:

Food Science is the multidisciplinary study of food and the application of knowledge thus gained to developing food products and processes, preserving and storing food, and assuring food safety and quality. Food science addresses the conversion of raw agricultural products into a nutritious, convenient, and economical food supply. Most of the food products available in grocery stores were developed, produced and tested by food scientists. Students graduating in Food Science are well prepared for immediate employment in the food industry. The technical track curriculum also provides excellent preparation as a premedical, predoctoral or other preprofessional major. With one additional credit hour, students graduating in the technical track are able to obtain a minor in chemistry. Students pursuing the management track are eligible to apply for a business minor and are well prepared for graduate studies in a Master of Business Administration (MBA) program.

PRACTICAL EXPERIENCE AND INTERNSHIPS:

Students can get hands-on experience working several semesters with faculty on research projects. Summer work opportunities are available with many food companies in numerous cities. The department has developed ongoing summer internships with several food companies.

PROFESSIONAL ASSOCIATION:

BYU's food science technical track curriculum has been reviewed and approved by the Institute of Food Technologists (IFT), the professional society of food scientists.

HONORARY SOCIETIES AND CLUBS:

Students and faculty interact in the various social, service and career-related activities of the Food Science Club. The Food Science Club is a student chapter of IFT and participates in the statewide IFT Bonneville Section, which helps students develop a network of professional contacts. Students may also participate in Food Science College Bowl and other student competitions sponsored by IFT.

CAREERS:

Food Science provides excellent career prospects in the worldwide, multibillion dollar food industry. The food industry is consistently looking for graduates to fill all of the unique and challenging opportunities available. Potential careers include:

Food research and development scientist - Develops new food products according to market demand. Improves and modifies existing foods to meet current consumer wants. Participates in manufacturing scale-up and commercialization of lab prototypes.

Food plant production manager - Manages and supervises food processing plant. Uses technical and business skills to ensure economical production. Manages personnel and solves food production problems.

Quality assurance director - Generates specifications and supervises analyses of raw materials and ingredients. Monitors food processing and assures final product quality. Assures proper sanitation.

Food Ingredient technical salesperson - Contacts industrial customers or potential users of food ingredients. Provides technical insight and assistance. Extends the company's products among consuming companies.

Basic research scientist - Conducts basic and applied food research. Works in industry, academia, or government.

See faculty advisor for additional career choices.

FINANCING:

Scholarships are available from the department, the college, and IFT. University and federal sources of scholarships and financing are also available. Many students work part time to help with finances. Research opportunities and summer work are available for most students. Work in the department as research or teaching assistants is available for some qualified

students.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

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