

# BS in Food Science (284320) MAP Sheet

## Life Sciences, Nutrition Dietetics and Food Science

For students entering the degree program during the 2024-2025 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			
<b>University Core Requirements:</b>				<b>FRESHMAN YEAR</b>			
<b>Requirements</b>	<b>#Classes</b>	<b>Hours</b>	<b>Classes</b>	<b>1st Semester</b>		<b>JUNIOR YEAR</b>	
<b>Religion Cornerstones</b>				<b>5th Semester</b>			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	UNIV 101	2.0	Arts or Letters elective	3.0
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	CHEM 105 (FWSpSu)	4.0	WRGT 316 (FWSpSu) (Adv. Writing)	3.0
Foundations of the Restoration	1	2.0	REL C 225	First Year Writing or American Heritage	3.0	NDFS 361 (F)	3.0
The Eternal Family	1	2.0	REL C 200	Quantitative Reasoning (if needed)	3.0	NDFS 362 (F)	2.0
<b>BYU Foundations for Student Success</b>				NDFS 191	1.0	Religion elective	2.0
Foundations for Student Success	1	2.0	UNIV 101	Religion Cornerstone course	2.0	General electives	2.0
<b>The Individual and Society</b>				General Elective	2.0	<b>Total Hours</b>	<b>15.0</b>
American Heritage	1-2	3-6.0	from approved list	<b>Total Hours</b>	<b>17.0</b>	<b>6th Semester</b>	
Global and Cultural Awareness	1	3.0	from approved list	The following semester recommendations are for the Food Science			
<b>Skills</b>				Technical Track.		Global & Cultural Awareness Elective	3.0
First Year Writing	1	3.0	from approved list	<b>2nd Semester</b>		NDFS 355 (W)	2.0
Advanced Written and Oral Communications	1	3.0	WRGT 316	First-year Writing or American Heritage	3.0	Religion electives	2.0
			Recommended	CHEM 106, 107 (FWSpSu)	4.0	General elective	3.0
Quantitative Reasoning	1	3-4.0	from approved list	NDFS 100 (FWSu)	3.0	<b>Total Hours</b>	<b>13.0</b>
Languages of Learning (Math or Language)	1	3.0	STAT 121*	PHSCS 105 (FWSp)	3.0		
<b>Arts, Letters, and Sciences (complete 6 of 7)</b>				Religion Cornerstone course	2.0	<b>SENIOR YEAR</b>	
Civilization 1	1	3.0	from approved list	<b>Total Hours</b>	<b>15.0</b>	<b>7th Semester</b>	
Civilization 2	1	3.0	from approved list	<b>SOPHOMORE YEAR</b>		CHEM 481 (FWSpSu)	3.0
Arts	1	3.0	from approved list	<b>3rd Semester</b>		NDFS 450 (F)	3.0
Letters	1	3.0	from approved list	CHEM 351 (FWSp)	3.0	NDFS 462 (F)	3.0
Biological Science	1	3.0	BIO 100 or PDBIO 120	MATH 112 (FWSpSu)	4.0	Civilization 1 elective	3.0
Physical Science	2	7.0	PHSCS 105* and CHEM 105*	NDFS 250 (FWSp)	3.0	Arts or Letters elective	3.0
				NDFS 251 (FWSp)	1.0	<b>Total Hours</b>	<b>15.0</b>
Social Science	1	3.0	ECON 110 recommended	BIO 100 or PDBIO 120	3.0	<b>8th Semester</b>	
<b>Core Enrichment: Electives</b>				Religion Cornerstone Course	2.0	NDFS 464 (W)	2.0
Religion Electives	3-4	6.0	from approved list	<b>Total Hours</b>	<b>16.0</b>	NDFS 465 (W)	3.0
Open Electives	Variable	Variable	personal choice	<b>4th Semester</b>		Social Science elective	3.0
				CHEM 352 (FWSpSu)	3.0	Religion elective	2.0
				CHEM 353 (FWSpSu)	1.0	Civilization 2 elective	3.0
				MMBIO 221 (FWSpSu) (Biological Science)	3.0	NDFS 350 (W)	4.0
				MMBIO 222 (FWSpSu)	1.0	<b>Total Hours</b>	<b>17.0</b>
				Religion Cornerstone Course	2.0		
				STAT 121	3.0		
				General Elective	2.0		
				<b>Total Hours</b>	<b>15.0</b>		
<b>Graduation Requirements:</b>				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.			
Minimum residence hours required		30.0					
Minimum hours needed to graduate		120.0					

## 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 2.0  
NDFS 462 - Food Reg & Qual Assr 3.0  
PHSCS 105 - General Physics 1 3.0  
STAT 121 - Intro to Stat Data Analysis 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 Course

MATH 112 - Calculus 1 4.0

#### Option 2.2 —Complete 5 Requirements

B. Food Industry Management Track:

##### Requirement 2.2.1 —Complete 5 Courses

ACC 200 - Principles of Accounting 3.0  
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

##### Requirement 2.2.2 —Complete 1 hour

More than 1.0 hours counts for elective credit only.

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 2.2.5 — Complete 1 Course

CHEM 285 - Intro Bio-organic Chemistry 4.0

### Recommended Courses are not required to complete the program

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

CHEM 201 - Chem Handling & Safe Lab Prac 0.5  
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  
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):

M COM 320 - Commun in Organiztnl Settings 3.0  
WRTG 316 - Technical Communication 3.0  
IAS 220 - Intro Devel Stu 3.0  
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

### 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, pre dental 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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