

FOOD SCIENCE, Fermentation Science (effective Fall 2016)

COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES

The School of Food Science has merged the Washington State University's (WSU) and University of Idaho's (UI) Food Science programs for a Bachelor of Science degree in Food Science. **Fermentation Science** is for students interested in yeasts, bacteria and molds, the science behind fermented beverages and foods, and industrial-scale applications of fermentation. The schedule below is only a guideline. Course selection and order taken may deviate according to student's needs, and in consultation with advisor. Classes are offered on both WSU and UI campuses, so travel is required. This Bachelor of Science degree requires a total of 120-121 semester hours. At least 40 of the total hours required for the degree must be in upper division courses (300-400 level). For the meaning of bracketed symbol letters, e.g. [PSCI], see University Common Requirements (UCOREs) for Graduation in the WSU Catalog <http://catalog.wsu.edu/General/AcademicRegulations/Search/both/ucore>. The schedule below is guideline. Review Food Science information at <http://sfs.wsu.edu/undergraduates/wsu-undergrads/>.

FRESHMAN YEAR

<u>First Semester</u>	<u>Credits</u>	<u>Second Semester</u>	<u>Credits</u>
Biol 107 [BSCI] Intro Biol:Cell Biol/Genet (UCORE)	4	Chem 106 [PSCI] Principles of Chem II+ (UCORE)	4
Chem 105 [PSCI] Prin. of Chemistry I+ (UCORE)	4	History 105 [ROOT] Roots of Contemporary Issues (UCORE)	3
Vit_Enol 113 Introduction to Vines and Wines	3	Math 140 [QUAN] Calculus for Life Scientists+ Or Math 171 [QUAN] Calculus I+ (UCORE)*	4
Engl 101 [WRTG] Introductory Writing Or Engl 105 [WRTG] Composition for ESL+ (UCORE)	<u>3</u>	Creative & Professional Arts [ARTS] (UCORE)	<u>3</u>
	14		14

SOPHOMORE YEAR

<u>First Semester</u>	<u>Credits</u>	<u>Second Semester</u>	<u>Credits</u>
Chem 345 Organic Chemistry I+	4	FS 220 Food Safety & Quality	3
Com 102 [COMM] Public Speaking Or H D 205 [COMM] Comm For Human Rel (UCORE)	3-4	FS 304 Cereal Chemistry and Processing+	3
PHYSICS 101 [PSCI] General Physics (UCORE)	4	MBioS 101 [BSCI] Introductory Microbiology Or MBioS 305 Gen Micro+ and MBioS 304 Lab+	4-6
STAT 212 [QUAN]+ Intro to Statistical Methods (Certify major)	<u>4</u> 15-16	MBioS 303 Introductory Biochemistry+ (Complete writing portfolio)	<u>4</u> 14-16

JUNIOR YEAR

<u>First Semester</u>	<u>Credits</u>	<u>Second Semester</u>	<u>Credits</u>
ECONS 101 [SSCI] Fundamentals of Microeconomics	3	Diversity [DIVR]	3
FS 302 [M] Food Processing Lab+	1	FS 422 Sensory Evaluation of Food & Wine+	3
FS 303 Food Processing+	3	Humanities [HUM]+ (UCORE)	3
MKTG 360 Marketing+	3	Laboratory Elective ²	1
Option Elective ¹	3	Option Elective ¹	3
PLP/FS 301 Food Mycology+	<u>3</u>	Electives	<u>3</u>
	15	(apply for graduation)	16

SUMMER SESSION

	<u>Credits</u>
FS 495 Internship in Food Science Or FS 496 Internship in a Winery	2

SENIOR YEAR

<u>First Semester</u>	<u>Credits</u>	<u>Second Semester</u>	<u>Credits</u>
FS 429 Dairy Products	3	FS 402 Industrial Fermentations+	3
FS 460 Food Chemistry+ ³	3	FS 405 Ciders and other Fermented Foods+	3
FS 465 Wine Microbiology and Processing+	3	FS 418 Oral Seminar in Food Science	1
Laboratory Elective ²	2	Capstone Course [CAPS] ⁺⁵	3
Microbiology/Genetics Elective ⁴	<u>3</u>	Electives	<u>6</u>
Writing in the Major [M]	14		16
		Total Credits	120-123

The + indicates that the course has a prerequisite.

*One semester of calculus (Math 140 or Math 171) is required for students competing for scholarships offered by the Institute of Food Technologists (IFT).

¹Option Electives (6 hours minimum): BIO ENG 350 Introduction of Cellular Bioengineering; FS 329 Dairy Foods Composition and Quality; FS 432 Food Engineering; FS 470 Advanced Food Technology; HBM 350 Beverage Management.

²Laboratory Electives (3 hours minimum): FS 417 Food Microbiology Laboratory; FS 423 Sensory Evaluation of Food and Wine Laboratory; FS 430 Dairy Products Laboratory; FS 461 Food Chemistry Laboratory [M]; FS 466 Wine Microbiology and Processing Laboratory.

³HORT 435 Chemistry and Biochemistry of Fruit and Wine can be substituted per advisor approval.

⁴Microbiology/Genetics Electives (3 hours minimum): BIOL/MBIOS 301 General Genetics; FS 416 Food Microbiology; MBIOS 450 Microbial Physiology.

⁵FS 489 Product Development [CAPS] is recommended but requires FS 416 Food Microbiology and FS 460 Food Chemistry as prerequisite courses.

⁶While ENGLISH 402 Technical Writing [M] is recommended, other [M] courses will satisfy the requirement regardless of number of hours.

Elective Classes recommended for students:

Course	Course Name	Credit	Semester
FS 201	Science on Your Plate	3	Fall
FS 301	Food Mycology	3	Fall (WSU Only, alt)
FS 304	Cereal Products	2	Fall
FS 329	Dairy Foods Composition & Quality	4	Fall
FS 401	HACCP/GAPS	1	Fall/Spring
FS 406	Evaluation of Dairy Products I	1	Spring
FS 407	Evaluation of Dairy Products II	1 (0-3)	Fall
FS 409	Principles of Environmental Toxicology	3	Fall
FS 429	Dairy Products	3	Fall
FS 430	Dairy Products Lab	1 (0-3)	Fall
FS 436	Principles of Sustainability	3	Spring
FS 464	Food Toxicology	3	Fall (UI Only)
FS 465	Wine Microbiology & Processing	3	Fall
FS 466	Wine Microbiology & Processing Lab	1 (0-3)	Fall
FS 475	Statistical Quality Management of Food Prod.	3	Fall
FS 495	Internship in Food Science	2	Fall/Spring/Summer
FS 496	Internship in a Winery	2	Fall/Summer
A S 360	Meat Science	3	Spring
FS 363	Animal Products for Human Consumption	3	Spring (UI Only)
EconS 351	Intro to Food and Agricultural Markets	3	Fall
Engl 402	Technical and Professional Writing	3	Fall/Spring/Summer
Engl 403	Technical and Professional Writing ESL	3	Fall/Spring/Summer
HBM 258	Fundamentals of Cooking and Lab	3	Fall/Spring
Hort 435	Chemistry and Biochemistry of Fruit and Wine	3	Spring A/Y
Mktg 360	Marketing	3	Fall
Vit_Enol 113	Introduction to Wines and Vines	3	Fall
AFS 101	Introduction to Agricultural and Food Systems	3	Fall
AFS 201	Systems Skills Development for AFS	3	Spring
AFS 401	Adv. Systems Analysis & Design in AFS	3	Spring
ENTOM 101	Insects and People: A Perspective	3	Fall/Summer
CROP_SCI 102	Introduction to Cultivated Plants	3	Fall/Spring
SOIL_SCI 101	Organic Gardening and Farming	3	Fall/Spring