FERMENTED FOODS AND BEVERAGES, CERTIFICATE

REQUIREMENTS

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Code	Title	Credits
Certificate Requirements		
Core		5
Experiential Learning		1-2
Electives		6
Total Credits		**12-13**

CORE

Complete the following courses:

Code	Title	Credits
FOOD SCI 150	Fermented Food and Beverages: Science, Art and Health	3
FOOD SCI 550	Fermented Foods and Beverages	2

EXPERIENTIAL LEARNING

Complete one of the following courses:

Code	Title	Credits
FOOD SCI 551	Food Fermentation Laboratory	1
FOOD SCI 378	Precision Fermentation for Sustainable Foods and Products	2

ELECTIVES

Complete at least 6 credits from one of the following two thematic areas:

Business Theme

Code	Title	Credits
A A E 246	Climate Change Economics and Policy	3
A A E/C&E SOC/ SOC 340	Issues in Food Systems	3-4
A A E/ECON/ ENVIR ST 343	Environmental Economics	3-4
A A E 335	Introduction to Data Analysis using Spreadsheets	2
FOOD SCI/ AN SCI 321	Food Laws and Regulations	1
SOC/C&E SOC 222	Food, Culture, and Society	3
A A E 101	Introduction to Agricultural and Applied Economics	4
SOC/C&E SOC 365	Data Management for Social Science Research	3-4
A A E 320	Agricultural Systems Management	3
A A E 322	Commodity Markets	4
LSC 270	Marketing Communication for the Sciences	3
LSC 435	Brand Strategy for the Sciences	3
A A E 419	Agricultural Finance	3
A A E 422	Food Systems and Supply Chains	3
A A E/ECON 421	Economic Decision Analysis	4

Science Theme

Code	Title	Credits
FOOD SCI/ MICROBIO 325	Food Microbiology	3
FOOD SCI 410	Food Chemistry	3
FOOD SCI 301	Introduction to the Science and Technology of Food	3
MICROBIO 101	General Microbiology	3
MICROBIO 303	Biology of Microorganisms	3
MICROBIO 450	Diversity, Ecology and Evolution of Microorganisms	3
MICROBIO 526	Physiology of Microorganisms	3
BIOCHEM 301	Survey of Biochemistry	3
BIOCHEM 501	Introduction to Biochemistry	3
BIOCHEM 507	General Biochemistry I	3
BIOCHEM 508	General Biochemistry II	3-4
BIOLOGY/BOTANY/ ZOOLOGY 151	Introductory Biology	5
ZOOLOGY/ BIOLOGY/ BOTANY 152	Introductory Biology	5
ZOOLOGY 153	Introductory Biology	3
HORT 330	Wines and Vines of the World	2
HORT/AGRONOMY/ BOTANY 340	Plant Cell Culture and Genetic Engineering	3
SOIL SCI 211	Soils and Climate Change	2
AGRONOMY 377	Global Food Production and Health	3
AGRONOMY/ DY SCI 471	Food Production Systems and Sustainability	3
MICROBIO/AN SCI/ BOTANY 335	The Microbiome of Plants, Animals, and Humans	3
AN SCI 366	Concepts in Genomics	3
AN SCI 420	Microbiomes of Animal Systems	3
DY SCI/ AGRONOMY 471	Food Production Systems and Sustainability	3
BSE 249	Engineering Principles for Biological Systems	3
BSE 460	Biorefining: Energy and Products from Renewable Resources	3
M E 331	Computer-Aided Engineering	3
M E 361	Thermodynamics	3
M E 363	Fluid Dynamics	3
M E 364	Elementary Heat Transfer	3
CBE 250	Process Synthesis	3
CBE 310	Chemical Process Thermodynamics	3
CBE 426	Mass Transfer Operations	3

COMP SCI 540	Introduction to Artificial Intelligence	3
COMP SCI 571	Building User Interfaces	3

Additional Requirements:

- 2.000 GPA in certificate courses.
- At least 50% of certificate courses taken in-residence (i.e. at UW-Madison or through a UW-Madison sponsored study abroad program.)
- Courses taken on a pass/fail (satisfactory/unsatisfactory) basis will not count toward the certificate.

CERTIFICATE COMPLETION REQUIREMENT

This undergraduate certificate must be completed concurrently with the student's undergraduate degree. Students cannot delay degree completion to complete the certificate.