Facilities and Equipment (con't)

Artisan Cheesemaking Plant: State-of-the-art artisan cheesemaking equipment from Holland and France has recently been purchased. Currently, students can make most cheese types in dairy processing classes and during Food and Fermentation Science Club events. The equipment is also utilized for extension short courses.

Industry Outreach Programs

Faculty in the Department of Food Science and Technology are involved in both applied enology research and extension activities. Applied enology research is focused on wine quality issues facing the industry as well as evaluating fermentation and processing practices to optimize wine quality and stability. Enology extension activities focus on performing applied research relevant to Oregon wine production and the transfer of relevant research results to commercial applications. This includes the development of industry workshops and seminars to aid in the transfer of research results to commercial application as well as technical workshops aimed at training industry members. In addition, technical assistance and industry advice for solving commercial production problems is solved.

OSU coordinates several important conferences and workshops related to the field of enology. Special workshops and retreats are offered on an annual basis which address topics such as wine phenolics, wine microbiology, quality control management, filtration, and research needs. OSU also co-develops the Oregon Wine Industry Technical Conference, and annual conference where the most recent technical, business, and marketing information is disseminated to the wine industry.

Sensory Science Laboratory

Evaluation of beers and wines has been a major focus of the sensory science laboratory for over twelve years. Funding by Anheuser Busch and the Hop Research Council has supported many studies on hop quality. Wine industry members regularly participate in sensory studies on experimental wines.

Fermentation Science Faculty and Specialization

Teaching Faculty

Alan Bakalinsky, PhD, University of California, Davis
Yeast Genetics

Mark Daeschel, PhD, N. Carolina State University
Microbiology

James Kennedy, PhD, University of California, Davis
Wine Chemistry

James Osborne, PhD, Washington State University
Enology

Tom Shellhammer, PhD, University of California, Davis
Brewing Chemist

Faculty Research Assistants

Jeff Clawson, MS - *Brewhouse Operations*
Cindy Lederer, MS - *Sensory Science Laboratory*

For More Information, contact:

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Oregon State University
Corvallis, OR 97331-6602

Phone: 541.737.3131
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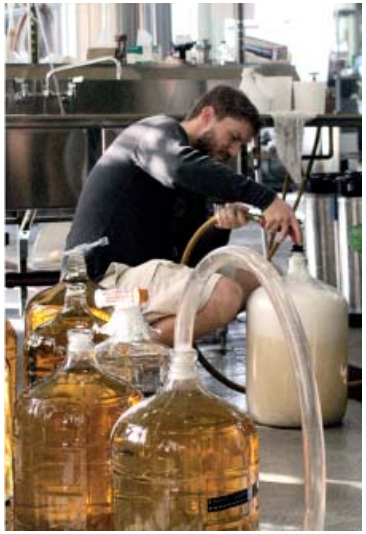
Welcome to...

OSU Department of Food Science and Technology



Fermentation Science Option

Oregon State University OSU

Fermentation Science is the study of the fundamental and applied sciences related to the use of microorganisms as production and processing agents. The OSU Department of Food Science and Technology offers an inter-disciplinary undergraduate degree in Food Science and Technology, with the opportunity to specialize in fermentation science. Courses specific to the degree address the biological, chemical and physical principles of fermentation as well as the engineering, processing, preservation, quality evaluation, public health aspects and use of beer, wine, and fermented food products.

Career opportunities

Fermentation science graduates enjoy career opportunities in the food and beverage industry: winemaking, brewing, cheesemaking, distilled spirits, fermented foods; and in legal and regulatory governmental agencies. Some of the wineries and breweries that employ our graduates include: Ponzi, Archery Summit, Domaine Serene, Hogue Cellars, Gallo, Anheuser Busch, Coors, and a number of craft breweries.

Courses comprising the Fermentation Science option include: Introduction to Wines, Beers, and Spirits; Brewing Science; Brewing Analysis; Wine Production Principles; Wine Production Practices and Analysis; Wine Sensory Evaluation; Fermentation Microbiology; and Topics in Fermentation *(usually offered as 1-2 credits, with a total of 2 credits required).*

Facilities and Equipment

Pilot Plant Brewhouse: A state-of-the-art, two-barrel, temperature-controlled brewing system is located in the pilot plant in Wiegand Hall. This research and development brewery was made available by the Nor'Wester Brewing Company. The brewhouse allows students to participate in the brewing process from malt milling to lagering, and is complete with packaging and pasteurization capabilities. The system also serves as a teaching tool for extension workshops and for current and new research projects. The facility is available to industry on a fee basis.

Pilot Plant Winery: The pilot plant winery is located in Withycombe Hall and is composed of equipment necessary for wine grape processing including a stemmer-crusher, presses, filtration systems, batch centrifuge, bottling systems and storage facilities.The winery serves as a teaching tool for extension workshops and University-owned vineyards provide the wine grapes for teaching and research purposes.

B.S. Degree Requirements: Fermentation Science Option

Course Title	Course #	Credits
Food Science & Technology Courses		
Food Safety and Sanitation	FST 360	03
Senior Seminar	FST 407	01
Food Law Bacc Core Course	FST 421	03
Food Chemistry Fundamentals	FST 422	03
Food Systems Chemistry	FST 425	03
Fermentation Microbiology	FST 479	03
Intro to Process Engineering	BEE 452	04
Intro to Process Eng. Design	BEE 453	04
Chemistry/Biochemistry Courses		
General Chemistry	CH 221, 222, 223	05, 05, 05
Organic Chemistry	CH 331, 332	04, 04
Organic Chemistry Lab	CH 337	04
Quantitative Analysis	CH 324	04
Math/Physics Courses		
General Physics	PH 201	05
Intro to Statistical Methods	ST 351	04
(Alternate choice - ST 201 + ST 211)		03, 01
Biological Sciences Courses		
(BI 211 & 213 highly recommended)		
General Biology	BI 212	04
General Microbiology/Lab	MB 302, 303	03, 02
Fermentation Science Option Courses		
Food Analysis	FST 423	04
Brewing Science	FST 460	03
Brewing Analysis (WIC)	FST 461	03
Wine Production Principles	FST 466	03
* Wine Prod Pract & Analysis	FST 467	02
* Wine Sensory Evaluation	FST 468	02
Topics in Fermentation	FST 480	01/02
Food Processing Calculations	FST 490	02
Food Processing Calc Lab	FST 491	01
Food Packaging	FST 495	02
Food Microbiology/Lab	MB 440, 441	03, 02
Human Nutrition	NUTR 225 or 240	04
General Physics	PH 202	05
Choose one from the three choice sets for this option:		
Human Nutrition	NUTR 225	03
OR Humant Nutrition	NUTR 240	03
Elementary Biochemistry	BB 350	04
OR		
Princ of Bio, Cell & Molec Bio	BI 211, 213 and 314	04, 04, 04
(enforced prerequisite of BI 211, 212, 213)		
Differential Calc; Integral Calc	MTH 251 & 252	04, 04
OR		
Elem Funct; Calc-Mgmt & SS	MTH 112 & 241	04,04

Course Title	Course #	Credits
Additional baccalaureate Core Courses		
Skills Courses		
Writing I: English Composition	WR 121	03
Writing II: Written Comm	WR 222 or 327	03
Writing III: Oral Comm	COMM 111	03
Lifetime Fitness for Health	HHS 231	02
Activity/Fitness Class	HHS 241-248, or 251	01
(choose from HHS 241, 248, or 251)		
Perspectives Courses		
Western Culture		03
Cultural Diversity		03
Literature & Arts		03
Social Processes and Institutions		03
(Econ 201 recommended)		
Difference, Power and Discrimination		0
Synthesis Courses		
Contemporary Global Issues		03
Electives		**21-29**
TOTAL Credits Required		**180**

* *Anticipated curricular changes for 2008-09. FST 467 (5) Wine Production Analysis and Sensory Evaluation will replace the existing FST 467, 468.*

For questions or to obtain more information contact:
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E-mail: linda.dunn@oregonstate.edu