



Brewing

at Oregon State University

We are...

At the forefront of beer study and one of only two brewing science programs nationwide. Oregon, epicenter of America's micro-brewing renaissance since 1983, has developed an exceptional beer culture enjoyed by consumers, brewers, and scientists alike. Total economic impact from the beer industry is 2.83 billion for Oregon's economy. Approximately 185 brewing companies exist statewide with 226 brewing facilities in 71 cities in Oregon. Portland has more craft breweries than any other city in the world.

Our facilities...

Pilot Plant Brewhouse/Malt House

A state-of-the-art, two-barrel, brewing system is located in the Wiegand Hall Pilot Plant. 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 research projects. The Food and Fermentation Science Club does a monthly brew throughout the school year providing hands-on experience for those involved.



Corvallis is just south of Willamette Valley's hop growing region, producing close to 16% of the U.S. hop crop. Corvallis is also home to the USDA Hop Breeding program. In fact, Oregon is the second largest hop producing state in the nation, and most of the beer research conducted at Food Science revolves around hops.

The department of Food Science has an average enrollment slightly more than 200 students. Classes are small - most in the range of 50-60 students.



Sensory Science Laboratory

Evaluation of beers and wines has been a major focus of the sensory science laboratory for over twenty years. Funding by Indie Hops and the Hop Research Council has supported many studies on hop quality. OSU graduates work in industry as experts in sensory evaluation of beer.

Career Development

With approximately 185 breweries operating in Oregon, students are able to secure practical brewing experiences through internships, particularly with larger breweries such as: Bridgeport, Deschutes, Ninkasi, Full Sail, McMenamins, Pyramid, and Widmer. In addition, students are proactive and successful in seeking internships at larger U.S. companies such as Anheuser-Busch, MillerCoors, and Boston Beer.



Career Development, *continued*

While not affiliated with OSU, international brewing experience has been earned through the Congress Bundestag Program for Young Professionals, <http://www.cbyx.info>.

This is a federally funded scholarship/program with three parts: a two-month intensive German language course; four-month study at a German university or professional school; and a five month internship with a Germany company or organization in the participant's field. Participants live with German host families or in a shared apartment situation with Germans.

Positions in the U.S. brewing industry may include, but are not limited to, Quality Assurance Analyst, Brewmaster, Research and Development, Operations Manager, Marketing Operations, and Brewing Engineer. Oregon breweries directly employ 6400 full and part time Oregonians.

Salaries vary with region and job responsibility. National averages may range in the high 20k range for employment in a craft brewery. In bigger national breweries such as Anheuser-Busch or MillerCoors, the salaries may begin in the 50-60k range.

Food Science Major Core (104 Cr.) - Required for all options			Option: Fermentation Science (con't)		
Supporting Courses (75 Cr.)			Fermentation Science Option Required Courses (19-21 Cr.)		
Tech Wri, Science Wri, or Eng Comp <i>Select one of WR 327, 362, or 222</i>	WR* 327, 362, <u>or</u> 222	3	Brewing Science	FST 460	3
Public Speaking	COMM 111*	3	Wine Production Principles	FST 466	3
General Chemistry	CH* 231, 232, 233	4, 4, 4	Fermentation Microbiology	FST 479	3
General Chemistry Lab	CH* 261, 262, 263	1, 1, 1	Food Processing Calculations/Lab	FST 490/491	2, 1
Organic Chemistry/Lab	CH 331, 332/337	4, 4, 4	<i>Complete two analysis courses from among FST 423, FST 461, or FST 467. Course not applied here may be used as Ferm Sci Option Elective.</i>		
Quantitative Analysis	CH 324	4	Food Analysis	FST 423	4
Principles of Biology	BI* 211, 212, 213	4, 4, 4	Brewing Analysis	FST 461	3
Elementary Biochemistry	BB 350	4	Wine Prod., Analysis & Sensory Eval.	FST 467	5
General Microbiology/Lab	MB 302/303	3, 2	Fermentation Sci. Opt. Elective Courses (8-10 cr. to bring to 37 cr)		
Intro to Statistical Methods	ST 351	4	Seminar - Leadership Academy	AG 407**	3
General Physics	PH 201	5	Food Science Orientation	FST 101	1
<i>Complete one pair: MTH 227/228 or MTH 251/252</i>			Intro. Wine, Beers and Spirits	FST 251	3
Calculus & Probability for Life Science	MTH 227*/228	4, 4	Food Sci & Tech in Western Culture	FST 260*	3
Differential/Integral Calculus	MTH 251*/252	4, 4	Wine in the Western World	FST 273*	3
<i>Depending on placement, some students may also need to complete some part of the progression: MTH 095, 111* and 112*</i>			Research	FST 401**	3
Core Food Science Courses (29 Cr.)			Internship	FST 410**	3
Food Safety and Sanitation	FST 360	3	Sensory Evaluation of Foods	FST 420	4
Industry Preparation/HACCP	FST 370	3	Topics in Fermentation	FST 480	1
Communicating Food and Ferm Sci	FST 385^	3	<i>Up to 2 credits of FST 480 may be applied</i>		
Senior Seminar	FST 407	1	Food Microbiology/Lab	MB 440/441	3, 2
Food Law	FST 421*	3	Food in Non-Western Culutre	NUTR 216*	3
Food Chemistry Fundamentals	FST 422	4	Toxic Substances in Foods	TOX 429	3
Food Systems Chemistry	FST 425	4	Total Credits in Major		141
Intro to Food Engineering Principles	BEE 472	5	Preparatory Math		0-8
Intro to Food Eng Process Design	BEE 473	3	Add'l. Bacc Core		21-24
Option: Fermentation Science (37 Cr.)			Unrestricted Electives		7-22
Additional Supporting Courses (8 Cr.)			Minimum 180 credits required for graduation		
Human Nutrition <i>NUTR 225 may be substituted, however NUTR 240 is preferred</i>	NUTR 240 <u>or</u> NUTR 225	3			
General Physics	PH 202	5	Degree requirements subject to change in accordance with OSU policies. Requests for exceptions to major requirements should be made in consultation with academic advisor to the FST Undergraduate Committee.		
^ Writing Intensive Course					
* Fulfills Bacc Core requirements					
** Competitive selection, and/or dept. pre-approval required					