

Applied Brewing Microbiology (BIOM 208) Spring 2017

Tues. 5:30-7:30 and online
Rm. 104 Science Hall

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Course Emphasis: This course will cover fundamental aspects of yeast fermentation and microbiology relevant to brewing. Some basic microbiological principles will be presented followed by explanations of the various brewing/quality-impacting processes brought about by biological activity, as well as means of monitoring the brewing process. The course will involve lectures as well as laboratory and online components.

Text: *The Practical Brewer*, Master Brewers Association of the Americas, 3rd Edition.

Learning Outcomes: Students will:

- Gain an understanding of how the science of microbiology has impacted the ancient art of brewing
- Learn basic techniques used in the microbiology laboratory to avoid contamination and to cultivate and identify microorganisms
- Understand aspects of cell biology, physiology and genetics relevant to the brewing process and its quality control
- Understand theory and practice regarding means of controlling microorganisms in the brewery environment.

Assessment and Points:

Assessment will take the form of homework and written midterm and final exams. Homework will consist of online discussions, graded on the basis of participation, and graded assignments. A grading rubric for discussions will be posted on the course homepage. Laboratory work will be assessed based on attendance and completion of exercises.

Homework/laboratory	50 pts
Midterm exam	50 pts.
Final exam	<u>50 pts.</u>
Total	150 pts.

Grading:

90-100%	A
80-89%	B
65-79%	C
50-64%	D
Below 50%	F

Final grades are based on total points.

Attendance: Attendance will not be taken, however many of the points emphasized will not be found in the text and the degree to which certain text content is emphasized will vary. For this reason it is advisable to attend lectures.

Tentative Schedule

<u>Date</u>	<u>Topic</u>
Jan. 24	Pasteur and Microbiology Applied to Industrial Fermentations
Jan. 31	Techniques of Culturing and Observation of Microbes
Feb. 7	Yeast Biology
Feb. 14	“ “
Feb. 21	Yeast Genetics
Feb. 28	Midterm Exam
Mar. 7	Spring Break (no class)
Mar. 14	Flavor Components Imparted by Yeast
Mar. 21	Yeast Production
Mar. 28	Other Microbes Affecting the Brewing Process
Apr. 4	“ “
Apr. 11	Control of Microbes in the Brewery
Apr. 18	“ “
Apr. 25	Review
May 2	Final Exam

Academic Honesty: All students are expected to adhere to the highest standards of academic honesty and to refrain from any actions that are dishonorable or unethical. In all exams, papers, labs, etc., you are expected to turn in your own work entirely. Cheating or aiding another in cheating in any manner will result in a grade of “F” for the class.