Applied Brewing Chemistry (CHMY 170) Fall 2016

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

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Course Emphasis: This course will cover fundamental aspects of malting and fermentation chemistry. Some basic chemical principles will be presented followed by explanations of the underlying chemistry of steps in the brewing process and quality control monitoring.

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

Learning Outcomes: students will:

- Gain an understanding of basic biological chemistry and metabolism related to the brewing process
- Learn techniques of chemical analysis applied to beer process and quality monitoring
- Understand terminology relating to the chemical description of beers

Assessment and Points: Assessment will take the form of assigned exercises and written exams. Assigned exercises will consist of online discussions, graded assignments and laboratory exercises. Laboratory exercises will be graded based on completion of the assigned work. A grading rubric for discussions will be posted on the course homepage.

Homework/laboratory exercises	50 pts
Midterm exam	50 pts.
Final exam	50 pts.
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

Date	Topic
Sept. 13	Brewing History
Sept. 20	Chemistry of Barley/Malt, Enzymatic Processes
Sept. 27	Extraction of Sugars/wort production
Oct. 4	Analytical Techniques (pH, specific gravity, refractive index)
Oct. 11	Basic Metabolism & Nutrition of Yeast
Oct. 18	Fermentations
Oct. 25	**Midterm Exam**
Nov. 1	Color and Flavor Components, Maillard Chemistry
Nov. 8	Trub Formation
Nov. 15	Redox Chemistry of Wort
Nov. 22	Wort Preparation for Brewing
Nov. 29	Hop Chemistry and Analysis, IBU calculation
Dec. 1	Maturation, Different Styles of Beer
Dec. 8	Review
Dec. 15	**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.