Chemical Principles of Fermentation
Spring 2023 Syllabus
CHEM 4383.001

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Course Overview

This course is intended to give the student an understanding of the chemical principles at work in industrial fermentation processes. The course will cover a wide range of fermentation process and techniques with a particular emphasis on those used in production of fermented beverages.

Student Learning Outcomes:

1) Develop an advanced understanding of the chemical principles of domain-specific, microbial fermentations
2) Realize the novel and historical uses of fermentation for scientific advancement
3) Comprehend the basic economics of the various fermentation-related industries around the world
4) Investigate local examples of fermentation-related companies and their respective business models

Required Textbooks and Readings

There are no textbooks required to be purchased for this course. Reading materials will be supplied by the instructor throughout the course.

Time/Locations of Class

Since this is a very small class-size, we will determine weekly meet times after discussing student and instructor availabilities at the start of the semester.

Assignments and weights/point values

1. Attendance 10%
2. Class Discussion 25%
3. Reading Comprehension/Homework 25%
4. Educational material series 20%
5. Final Assessment (format TBD) 20%

Grading Scale:

A	90% or greater
B	80-89%
C	70-79%
D	60-69%
F	<60

Late Work and Assignment Make-Up

Late work may be accepted with approval from the instructor. Please provide an adequate explanation for why work must be submitted after the original due date to receive this approval.

Graded Course Requirements Information

- Academic Article Readings and Comprehension quizzes
- Possible Field Trip to Solugen Inc. in Houston (TBD)
- Production and editing of educational materials
- Comprehensive Assessment of Fermentation Science Majors (Format to be discussed and agreed upon by both instructor and students)

Calendar of Topics, Readings, and Due Dates (REQUIRED COMPONENT)

Week 1: Introductory Readings, A Brief History, and Broad Application. Determine meet times/location/format

Week 2: Academic Article Selection and Class Discussion. Submit Approval for first Educational Material (EM) topic/format

Week 3: Academic Article Selection and Class Discussion. First EM due

Week 4: Article Selection and Class Discussion.

Week 5: Article Reading and Class Discussion. Submit approval for second EM topic/format.

Week 6: Article Reading and Class Discussion.

Week 7: Guest Lecture. EM #2 due

Week 8: Regulation, licensing, safety, profit-margins, and business projections. Literature Research Week.

Week 9: Rules, Regs, and Revenue Presentations. Possible Field Trip.

Week 10: SPRING BREAK. No Class.

Week 11: Article selection and Class Discussion. Submit approval for EM #3 topic/format.

Week 12: Article selection and Class Discussion. Discuss Final Assessment Format

Week 13: Literature Research Week. Final Preparation. EM #3 due

Week 14: Final Assessment due.

Week 15: FINALS WEEK