College of Food Agricultural and Environmental Science
Department of Food Science and Technology

THE OHIO STATE UNIVERSITY

SYLLABUS: FST 2400
INTRODUCTION TO FOOD PROCESSING

SPRING 2018

Instructor

Instructor: Mary Kay Pohlschneider, PhD

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Course description

The course consists of two lectures (Tuesdays and Thursdays 3:00- 3:55 in Parker 118) and one 3 hour laboratory (Wednesdays in Parker 136) per week. Attendance and participation is mandatory, though accommodations will be made if you have an objection or allergy to specific foods. **Please make the instructor aware of such needs.** FST 2400 is a "hands on" course with team based projects. **Attendance is required.** Excused absences **require documentation** and include those caused by illness, family death, and official university function. Unexcused absences will not be allowed to be made up resulting in a zero grade for all assignments connected to that day's work or tests that may have been missed.

This course introduces food processing concepts and equipment.
Areas covered include:

- Fundamentals of food processing;
- Factors associated with product attributes, shelf life and product safety
- Unit operations and unit processes
- Familiarization with food processing equipment, component parts and their function
- Manufacture of selected food products: product ingredients, formulation, and evaluation.
- Emphasis will be placed on processing food to make it safe

Course learning outcomes

By the end of this course, students should successfully be able to:

1. Understand the formulation and processing of foods.
2. Identify major processing equipment, describe its function and identify the major components
3. Given a food product:
   a. Name the unit operations required to make the product
   b. Name the equipment required to make the product
   c. Describe the processes and/or ingredients needed to make the product safe
   d. Describe the major quality attributes of the product and the factors that affect them
   e. Describe several objective measurements of food quality
   f. Conduct a simple sensory analysis

Course materials

Optional Text

- Potter NN, Hotchkiss JH. 1998. Food Science 5th Ed. Springer. New York. http://link.springer.com/book/10.1007%2F978-1-4615-4985-7

This resource can be downloaded as a PDF for free on campus.

Required supplemental materials

- Lab coat

Ideally it should be thigh length. A waist coat will be permitted if you already have one. Special accommodations will be made for those taking microbiology concurrently, please let the instructor know if this is the case.

Your lab coat will be needed January 24th, so you have a little time to order it online and find a better price, but don't delay.

Assignments

Answer sets, homework, field trip summary are due one week after the completion of the lab or field trip. When a product is made and evaluations are the second week, the assignments are due one week after product evaluations. All assignments are to be submitted on Canvas by 11:59 p.m. on the due date. DO NOT email an assignment to the instructor or assistants. If there is an issue with the system other arrangements will be made.

Group project: You will submit your 3 choices for products to make and groups will be assigned accordingly. Each group will chose a variable and 3 levels of that for their product. The groups will submit a formulation and a planning worksheet in preparation. Each group is responsible for contacting Dr. Pohlschneider as well as the respective lab managers for feasibility and specific details for the products. The report is to be done in Journal of Food Science style and each group will present their work at the end of the semester.

Late assignments

Late assignments will be assessed a 25% deduction of the assignment total per day late. EXCEPT pre-labs. If those are not turned in before your lab**, you will not be allowed to participate and will not be eligible to complete the assignments connected with that lab.**

Grades

Assignment or category	Points
Lecture:	
Quizzes 5 for 75 points each	375
Unannounced –?	75
Final	200
Lecture total	650
Lab:	
Pre-lab summaries 8 for 5 points each	40
Picture and Answer sets 10 for 20 points each	200
Formulation HW	15
Field Trip summary	10
Demo 1 Executive Summary	40
Demo 2 Executive Summary	40
Group Project:	
Variable	10
Formulation	20
Planning Worksheet	75
SSOP and HACCP plan	75
Report	75
Presentation	30
Peer Evaluation	20
Lab Total	650
CLASS TOTAL	1300

Grading scale

A	93-100 %	A^-	90-92%	B^+	87-89%	B	83-86%
B^-	80-83%	C^+	77-79%	C	73-77%	C^-	70-72%
D^+	69-67%	D	66-63%	E	< 63		

Academic integrity policy

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor.

Accommodations for accessibility

Requesting accommodations

If you would like to request academic accommodations based on the impact of a disability qualified under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, contact your instructor privately as soon as possible to discuss your specific needs. Discussions are confidential.

In addition to contacting the instructor, please contact the Office for Disability Services at 614-292-3307 or ods@osu.edu to register for services and/or to coordinate any accommodations you might need in your courses at The Ohio State University.

Go to http://ods.osu.edu for more information.

Course schedule

Date	Topics	Additional Reading: Potter and Hotchkiss **Food Science**
Tues. 1/9	Introduction and Unit Operations	
Thurs. 1/11	Attributes and evaluations	Ch. 6 pp 90-112
Tues. 1/16	Fluid Flow, Mixing and Size Adjustment	Ch. 5 pp 69-89
Thurs. 1/18	Heat Transfer, Mass Transfer and Separation	
Tues. 1/23	Unit Processes	
Thurs. 1/25	**QUIZ 1**	
Tues. 1/30	Food Chemistry - Carbohydrates	Ch. 3 pp 24-30
Thurs. 2/1	Food Chemistry – Protein	Ch. 3 pp 30-33
Tues. 2/6	Food Chemistry – Fats	Ch. 3 pp 33-34
Thurs. 2/8	Food Chemistry – Water and more	Ch. 3 pp 35-45
Tues. 2/13	**QUIZ 2** (Intro HW)	
Thurs. 2/15	Food Deterioration Food Preservation/Hurdles Preservatives	Ch. 7 pp 113-137
Tues. 2/20	Packaging	Ch. 21 pp 478-513
Thurs. 2/22	Adding Heat	Ch. 8 pp 138-162
Tues. 2/27	Removing Heat	Ch. 9 pp 163-199
Thurs. 3/1	A_w and pH	Ch. 10 pp 200-244; Ch. 12 pp 264-278
Tues. 3/6	Other Processing Techniques	Ch. 11 pp 245-263
Thurs. 3/8	**QUIZ 3**	
Tues. 3/20	Food Safety and Inspection	Ch. 23 pp 532-558
Thurs. 3/22	Sanitation	
Tues. 3/27	HACCP	Ch. 22 pp 514-530
Thurs. 3/29	Sanitation and HACCP exercise	
Tues. 4/3	**QUIZ 4** (SSOP and HACCP plan due)	

Thurs. 4/5	Laws	Ch. 4 pp 46-68
Tues. 4/10	JIT project processing	
Thurs. 4/12	Labeling	
Tues. 4/17	**QUIZ 5**	
Thurs. 4/19	Review for Final and Evaluations	
Friday 4/27	Final 2:00 p.m. Parker 118	

Date	Lab
1/10	Introductions, Lab safety , Howlett Plant
1/17	Meat Lab and Analytical equipment
1/24	Dairy Plant and Size Adjustment and Separation **(Select products)**
1/31	Fluid Flow and Mixing
2/7	Mass Transfer and Heat Transfer
2/14	**Kroger Bakery Field Trip** **(Variable due)**
2/21	Demo Processing **(HW spreadsheet due)**
2/28	Demo Processing **(Formulation due)**
3/7	Evaluation
3/21	Demo Processing **(Planning due)**
3/28	Evaluate products
4/4	Project processing
4/11	Project Evaluation
4/18	Presentations **(Report due)**