

ANFS 409 - Food Processing Syllabus, Fall 2014

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Office Hours: Feel free to talk to me when my door is open

Lecture: 202 WorriLOW Hall; 8:40AM - 9:55AM WF
Laboratory: 202 WorriLOW Hall; 11:20AM - 1:50PM F

Recommended Texts:

1. Coles, R., McDowell, D., and Kirwan, M.J. 2003. Food Packaging Technology. CRC Press, Boca Raton, Florida.
2. Fellows, P.J. 2009. Food Processing Technology: Principles and Practice, 3rd edition. CRC Press, Boca Raton, Florida.
3. Kilcast, D. and P. Subramaniam. 2000. Stability and Shelf-life of Food. CRC Press, Boca Raton, Florida.
4. Jay, J.M., Loessner, M.J. and Golden, D.A. 2005. Modern Food Microbiology, 7th Edition. Springer Science + Business Media, Inc., New York, NY.

I have the 1th book and you are welcome to borrow it. Books 2-4 are readable and searchable in full text from <http://app.knovel.com/web/index.v?jsp=main&kpromoter=legacy> and <http://link.springer.com/book/10.1007/b100840/page/1>, respectively.

Course Description

This course covers food processing technologies and their application to the manufacture of food products. Areas covered include:

1. Food packaging technology
 - Metal cans
 - Glass
 - Plastics
 - Paper and paper board
2. Food shelf life and stability
3. Thermal processing
 - Blanching
 - Pasteurization
 - Sterilization
4. Low temperature preservation methods
 - Refrigeration
 - Freezing
5. Drying
 - Drying by heating

- Freeze drying
- 6. Advanced and innovative food technologies
 - High pressure processing
 - Irradiation
 - UV
- 7. Modified atmosphere packaging
- 8. Evaporation
- 9. Fermentation
- 10. Case studies of major food processing industries

Attendance Policy and Exams

Class and laboratory attendance is critical to your academic success, and it is a policy of the university. There are two midterm exams and one final exam. Failure to take an exam will result in a zero score for that exam. Makeup exams will not be administered without an acceptable excuse.

Grading System

Laboratory project	15%
Laboratory reports	15%
Peer-evaluation	5%
Presentation project	5%
Quizzes (2)	10%
Midterm Exams (2)	30%
Final Exam	20%
Total	100%

Course letter grade assignment based on the total points: A: 93.0 - 100%; A-: 90.0 – 92.9%; B+: 87.0 – 89.9%; B: 83.0 – 86.9%; B-: 80.0 – 82.9%; C+: 77.0 – 79.9%; C: 70.0 – 76.9%; D: 60.0 – 69.9%; F: < 60.0%.

Academic Integrity

All students are expected to adhere to the Student Code of Conduct and conduct themselves with the highest academic integrity. Students found guilty of academic dishonesty will incur sanctions provided for through the University Undergraduate Student Judicial System.

Laboratory Project

You will work as a group. Your group will develop a laboratory project for all the students in the class to do and give a 15-minute PowerPoint presentation on 9/19/2014. Email your project to Dr. Chen for printing and distribution to the whole class before 9/24/2014. The project should include:

1. Title of the project
2. Introduction: Provide background information and/or concisely present the rationale behind the proposed project.
3. Objective(s)
4. Materials/Equipment
5. Procedure
6. References

Laboratory Reports

You will work as a group. Each group is required to write laboratory reports for all the projects conducted in this class. Laboratory reports must be typed. Note that neatness and spelling and grammar count. The reports should include the following information:

1. Title of the project
2. Names of the people in your group
3. Date submitted
4. Experimental results
5. Discussion of your results
6. Your thoughts on what can be done to improve the project

Presentation Project

Two students will from a group and give a 15-minute presentation on a food processing technology or on how to process a food product on 11/12/2014 and 11/14/2014.

Laboratory Safety

1. Eye protection is required at all times in the laboratory.
2. Dress appropriately. No one will be allowed to work in the laboratory with shorts, short skirts, or open-toed shoes. If you wear contact lenses, it would be a good idea to take them out before lab. Long hair should be tied back out of the way.
3. Do not work in the laboratory alone.
4. Never eat or drink in the laboratory.
5. No mouth pipetting in the laboratory.
6. Inform the instructor of all spills and accidents in the laboratory, no matter how minor.
7. The glassware and equipment used in experiments are to be cleaned at the end of each laboratory period. Please help to maintain a clean work area.

Laboratory Schedule

Date	Topic	Location
8/29/2014	Discussion of laboratory projects	202 Wor
9/5/2014	Meet with instructor to discuss your project	020 TNS
9/12/2014	Search of literature, Statistical analysis and design of experiments	202 Wor
9/19/2014	Presentation of your project	202 Wor
9/26/2014	Conduct experiment	Labs
10/3/2014	Conduct experiment	Labs
10/10/2014	Conduct experiment	Labs
10/17/2014	Conduct experiment	Labs
10/24/2014	Conduct experiment	labs
10/31/2014	Conduct experiment	labs
11/7/2014	Conduct experiment	labs
11/14/2014	Conduct experiment	labs
11/21/2014	Conduct experiment	labs

Dates for Quizzes and Exams

9/17/2014	Quiz 1
10/3/2014	Exam 1
10/24/2014	Quiz 2
11/7/2014	Exam 2

Program Student Learning Outcomes

- Students will demonstrate oral communication skills important for communicating scientific ideas.
- Students will demonstrate written communication skills important for communicating scientific ideas.
- Students will use critical thinking and reasoning, skeptical inquiry and scientific approach to solve problems.
- Students will demonstrate knowledge of the major core concepts in food science.
- Students will be able to work and learn both independently and collaboratively.

Course Student Learning Outcomes

- Understand why different packaging materials are used in the food industry
- Understand factors that affect the food shelf life and stability
- Understand the concepts of commonly used food processing and preservation technologies

- Understand the emerging new food processing and preservation technologies
- Be able to apply these technologies to improve food safety, quality and extend product shelf life
- Have a general idea of major food processing industries
- Be able to come up with a research hypothesis, design experiments, statistically analyze data, write a report and give oral presentation