

FOS 6428C: Principles of Food Engineering

Syllabus

Lecture: M W F 16:05 16:55 @ MCCB 3124
Laboratory: T 12:50-4:55 PM Food Science Pilot Plant

Instructor: Dr. Andrew MacIntosh **Phone:** 352-294-3594
Office: AFPP (Bldg 120) **E-mail:** Andrewmacintosh@ufl.edu
Room 126
Office Hours: MWF 17:00-17:30 Open door policy
TA Savanna Curtis

Description: This course will build upon food processing fundamentals to better understand and apply the available technology. The course is divided among thermal, non-thermal and low temperature technologies. Laboratory sessions will provide students with hands-on experience working with food processing equipment to assess the principles learned in class.

Textbook:

Singh, R.P. and D.R. Heldman. 2013. Introduction to Food Engineering. 4th Edition. Academic Press. New York, NY

Course Outcome: The student will become acquainted with the principles of handling and processing food and agricultural products. Particular emphasis will be given to the principles of operation of equipment used in the processing industry and the response of biological materials to these operations.

Learning Activities: These include classroom lectures, laboratory sessions and reports (with application problems), group discussions, tutorials, guest lectures on selective topics (as available).

Assessment Tools: Written exam, laboratory reports, and performance in term project and presentation will be used to assess students' learning outcomes. In addition, observations during classroom discussion and reflections during laboratory sessions will also be conducted to determine the learning outcomes.

Exams: A midterm and final exam will be given.

Grading Policy:

Lab reports/questions (9)	50%	A: 93 – 100
Term Project	10%	A-: 90-92.99
Midterm	20%	B+: 87 – 89.99
Final	20%	B: 83 -86.99
		B-:80 – 82.99
		C+:77 - 79.99
Total	100%	C: 73 - 76.99
		C-:70 – 72.99
		D+: 67 - 69.99
		D: 63 - 66.99
		D-:60 – 62.99
		E: Below 60

Note: All exams are open book, open notes. Absence from any exam without prior notice/excuse will result in a zero score.

Homework/Lab Report: Homework and lab report are typically due before the initiation of the next laboratory period. A 20% penalty/day will be assigned for late assignments or reports turned in within 3 days after the due date. No homework or lab report will be accepted after 5 days past the due date. Homework and lab report should be started early so that any questions may be asked well in advance of the due date. It is the student's responsibility to ask any questions about the assignment or lab report before the last minute.

Term Project: All students in this course are required to complete a term presentation covering a lab completed during the course.

Other Course Information:

Participation: Students will not be assigned a grade based on their attendance, preparedness for the laboratory is essential and students who have not reviewed the laboratory manual will not be able to participate in the laboratory. Students are expected to provide conduct for discussion, attentiveness, and class participation.

Students with Disabilities Act: The Dean of Students Office coordinates the needed accommodations of students with disabilities. This includes the registration of disabilities, academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faculty-student disability related issues. Dean of Students Office, 202 Peabody Hall, 392-7066.
www.dso.ufl.edu. Students with disabilities can take exams earlier, under special supervision. Every effort will be made to accommodate these students.

Academic Honesty: The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Students are fully expected to adhere to the academic honesty guidelines they signed when they were admitted to UF. As a result of completing the registration form at the University of Florida, every student has signed the following statement:

"I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University." Furthermore, on work submitted for credit by UF students, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is to be assumed all work will be completed independently unless the assignment is defined as a group project as indicated explicitly by the professor. This policy will be upheld at all times in this course.

Software Use: All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources: Students experiencing crisis or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. Both the Counseling Center and Student Mental Health provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. The Counseling Center is located at 301 Peabody Hall

(next to Criser Hall). Student Mental Health is located on the second floor of the Student Health Services in the Infirmary.

Service	Location	Phone	Services provided
University Counseling Center	301 Peabody Hall	392-1575	Personal and career counseling www.counsel.ufl.edu
Student Mental Health	Student Health Care Service	392-1171	Personal counseling www.hsc.ufl.edu/shcc/smhs.htm
Sexual Assault Recovery Services (SARS)	Student Health Care Service	392-1161	Sexual assault counseling
Career Resource Center	Reitz Union	392-1601	Career development assistance, counseling

Class Schedule Summary:

Week:

1	Introduction, course and energy
2	Food Properties and units
3	Micro Growth and Death
4	Temp measure Food Thermal Properties and Cond HT
5	Steam and convective HT
6	Rheology, Reynolds number, Fluid flow, Pumps
7	SS HT & Heat Exchangers (LMTD)
8	EXCEL and regression (include non-linear)
9	USSHT and Blanching
10	Cooking Frying and sous vide (Application OF USSHT)
11	Boiling point depression, Evaporation, Vacuum
12	Alternate heating: Pressure cooking
13	Lethal Rate and Canning
14	Holiday week
15	Retort, sterilization, CIP equipment
16	Exam Prep