FOS6428C: Advanced Food Processing

Syllabus (Fall 2014)

Lecture Time & Location: M W F (12:50-1:40PM) MCCB 3124
Lab Time: M T (1:55-3:50PM) Lab Location: FSHN Pilot Plant
Paper Study and Review: W (2:30-3:20PM) FSHN Room 209

Instructor: Dr. Wade Yang **Phone**: 352-294-3594
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Bldg. 120, Rm 126
Office Hours: Open door policy

Description: This course will introduce novel food processing and preservation technologies as well as build on fundamentals. The course is divided among thermal technologies (thermal processing, aseptic processing, ohmic heating, microwave/RF processing) and non-thermal technologies (high pressure processing, irradiation, pulsed electric fields, pulsed UV light, magnetic fields, ultrasound, dense phase CO_2). Laboratory sessions will provide students with demonstration of the novel food processing principles learned in the class.

Course Outcomes: Students will become familiar with the trends of advanced food processing technology development and will be able to use research literature on the subjects and analyze situations in which the advanced food processing technologies may be utilized.

Assessment Tools: Written exam, homework, quizzes, literature search/review, and performances in term project and oral presentation will be used to assess students' learning outcomes.

Exams: Three 2-hour exams will be given. Quizzes will be given in class or on Sakai.

Textbook: None. Supplemental materials and PPT handouts will be distributed in class or on Sakai.

Class Format: The format for the class will vary from traditional lectures, group discussion in class or on Sakai, paper review/presentation, quizzes, laboratory demonstrations, and tutorials.

Grading Policy:

Homework	20%	A: 90 - 100
Class Project	15%	A-: 87-89.99
Paper review	15%	B+: 85 – 86.99
Quiz	5%	B: 80 - 84.99
Attendance	5%	C+: 75 - 79.99
Mid Term Exam	20%	C: 70 - 74.99
Final Exam	20%	D+: 65 - 69.99
Total	100%	D: 60 - 64.99
		E: Below 60

Homework/Lab Report: Homework and lab report are typically due one week from the date they are distributed in class or on Sakai. A 15% penalty will be assessed for late assignments or reports turned in after the due date. When the graded assignments are given back to the student, any late assignments will no longer be accepted. 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 Paper and Oral Presentation: All students in this course are required to conduct a term project covering a topic related to the class content by using one of the novel processing equipment in the pilot plant and write a term paper in conjunction with a Powerpoint presentation at the end of the class. Evaluation on oral presentations will be conducted by the entire class, while the term paper will be evaluated by the instructor and the TA at the end of the class.

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 instructor. 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:

Week	Date		Topic	Note
1	M6	8/25	Introduction	MCCB 3124
	M7-8		Lab	FSHN Pilot Plant
	W6	8/27	Advanced Thermal Processing	MCCB 3124
	W7		Paper Study and Review (PSR)	FSHN Room 209
	F6	8/29	Advanced Thermal Processing	MCCB 3124
2	M6	9/1	Labor Day Holiday	
	M7-8	9/1	Labor Day Holiday	
	W6	9/3	Advanced Thermal Processing	
	W7	9/3	PSR - Advanced Thermal Processing	Thomas
	F6	9/5	Advanced Thermal Processing	
3	M6	9/8	Aseptic Processing	
	M7-8	9/8	Lab 1: Thermal Processing - Microthermics, Rotary Retort, Flash Pasteurizer	
	W6	9/10	Aseptic Processing	
	W7	9/10	PSR – Aseptic Processing	Roman
	F6	9/12	Oscillating Magnetic Fields	
4	M6	9/15	Ohmic Heating	
	M7-8	9/15	Lab 2: Ohmic heater (Instant Burger Machine)	
	W6	9/17	Ohmic Heating	
	W7	9/17	PSR – Oscil. Magnetic Fields	Manal
	F6	9/19	Microwave Processing	
5	M6	9/22	Microwave Processing	
	M7-8	9/22	Lab 3: Microwave heating	
	W6	9/24	Radio Frequency Processing	
	W7	9/24	PSR – Ohmic Heating	Abeer
	F6	9/26	Radio Frequency Processing	
6	M6	9/29	Infrared Heating	
	M7-8	9/29	Pre-exam tutorial	
	W6	10/1	Infrared Heating	
	W7	10/1	PSR – Microwave/RF processing	Kevin
	F6	10/3	Extrusion	
7	M6	10/6	Extrusion	
	M7-8	10/6	Exam 1	
	W6	10/8	Ozone / novel chemical processing	

	W7	10/8	PSR – Infrared processing	Kane
	F6	10/10	Ozone / novel chemical processing	
8	M6	10/13	Power Ultrasound	
	M7-8	10/13	Lab 4: Extrusion	
	W6	10/15	Power Ultrasound	
	W7	10/15	PSR – Extrusion	Brittany
	F6	10/17	Pulsed UV Light	
9	M6	10/20	Pulsed UV Light	
	M7-8	10/20	Lab 5: Ultrasound/Infrared	
	W6	10/22	Food Irradiation	
	W7	10/22	PSR – Power Ultrasound	Glorida
	F6	10/24	Food Irradiation	
10	M6	10/27	High Pressure Processing	
	M7-8	10/27	Lab 6: Pulsed UV Light	
	W6	10/29	High Pressure Processing	
	W7	10/29	PSR – Pulsed UV light	Thomas
	F6	10/31	Pulsed Electric Fields	
11	M6	11/3	Pulsed Electric Fields	
	M7-8	11/3	Pre-exam tutorial / self study	
	W6	11/5	Electrolyzed Water	
	W7	11/5	PSR – Food irradiation	Roman
	F6	11/7	Electrolyzed Water	
12	M6	11/10	Dense Phase CO_2	
	M7-8	11/10	Exam 2	
	W6	11/12	Dense Phase CO_2	
	W7	11/12	PSR – High Pressure Processing	Manal
	F6	11/14	Supercritical CO_2	
13	M6	11/17	Supercritical CO_2	
	M7-8	11/17	Lab 7 (Demo): Electrolyzed Water	
	W6	11/19	Cold plasma processing	
	W7	11/19	PSR – Pulsed Electric Fields	Abeer
	F6	11/21	Cold plasma processing	
14	M6	11/24	Minimal processing	
	M7-8	11/24	PSR – EW / Dense Phase CO_2	Kevin and Kane
	W6	11/26	Holiday	
	W7	11/26	Holiday	
	F6	11/28	Holiday	

15	M6	12/1	Minimal processing	
	M7-8	12/1	Tutorial / self study	
	W6	12/3	Minimal Processing / Hurdle Technology	
	W7	12/3	PSR – Cold Plasma Processing	Brittany
	F6	12/5	Hurdle Technology	
16	M6	12/8	Project Presentation	
	M7-8	12/8	Project Presentation	
	W6	12/10	Project Presentation	
	W7	12/10	PSR – Supercritical CO_2	Gloria
	F6	12/12	Reading Day	
17	M6	12/15		
	M7-8	12/15	Exam 3	
	W6	12/17		
	W7	12/17		
	F6	12/19		