

**Principles of Food Engineering / Food Engineering Systems (G)**  
**CHE06482 / CHE06582 (G)**

Syllabus and Schedule for Fall 2008

**INSTRUCTOR:** Dr. Mariano J. Savelski  
Office: Rowan Hall 332  
Phone Number: 256-5317  
Email: Savelski@ rowan.edu

**COURSE SESSIONS:** Wednesday 4:45 PM – 7:30 PM (ROW 340)

**REQUIRED TEXTBOOK:** *Introduction to Food Engineering*, 3rd. Edition, R. Paul Singh and Dennis R. Heldman, Academic Press, 2001. ISBN-13: 978-0126463842.

Unfortunately, the 4<sup>th</sup> Edition will not be available until October 23, 2008.

**OFFICE HOURS:** You are free to stop by Dr. Savelski's office as needed. I encourage students to send questions on homework by email or by postings in WebCT. In addition, students should check their email and WebCT for hints on homework based on other students' questions.

**ABSOLUTE GRADING SCALE:** In this course we would like to create an atmosphere of positive cooperation between students. In addition, most of the exercises in this course will require you to work in teams and you will be expected to help each other learn the material. To encourage and support cooperative learning you will be graded on an absolute grading scale as given below. The net result is that it is in your interest to help your classmates become successful engineers. You will learn through teaching others.

Letter Grade ranges	Percentages between	
	A	90
B	80	89
C	70	79
D	60	69

Your final numerical grade in the course will be determined as follows:

Exams (2)	30 %
Comprehensive Final Exam	25 %
Homework <sup>+</sup> and Labs <sup>+</sup>	20 %
Project*	25 %

<sup>+</sup>Special assignments may be given to those students taking the class for graduate credit.

\*The project's scope and its deliverables will be different for those students taking the class for graduate credit.

**TEAM HOMEWORK:** Each student will be assigned to a collaborative study group of 3-4 students. If every member of that group scores above 83 on an exam, each group member will receive four bonus points on the exam.

Homework will be periodically assigned. Each team/study group should only submit one homework assignment, and all listed team members will receive the same grade. Late work of any kind will not be graded. Collaboration on homework is acceptable and encouraged, but all tests must be done independently. All students will periodically be asked to submit evaluations of how well their peers performed as team members. These evaluations will be used at the end of the semester to adjust the final grading. Also, this periodic assessment will help identify problems in teams. The grade received on all team assignments is a "raw score". Raw scores will be adjusted according to each individual's contribution to the overall team effort. Each team member will be evaluated by every member of the team, including him/herself. The adjusted score (not the raw score) will be used in calculation of course grades.

Thus, the student who consistently demonstrates a higher level of effort may be rewarded. Likewise, the student who does not contribute substantially to team assignments may be penalized.

*Please be aware that the adjustment of grades for team assignments can substantially impact the overall course grade, either positively or negatively.*

Since most Homework problems have no unique solution (problems are usually open ended) no solutions will be posted.

**EXAMS:** Two equally weighted exams and a comprehensive final exam will be given. All exams will be open-book and notes unless otherwise announced. Absence at examination time is excusable only in case of illness of the student or similar emergency. An unexcused absence from an exam will result in a zero grade on that exam. If an error has been made in grading your exam, you must resubmit your entire exam for re-grading within 48 hrs of getting your graded exam back.

**PROJECT:** Each team of students will be assigned a particular project. Details about the project will be provided by the instructor by the second week of the semester (September 10, 2008). Graduate students and all those taking the class for graduate credit will have a project with *broader objectives, broader results, and much broader conceptual depth* than the projects to be assigned to the undergraduate offering of this course.

**ATTENDANCE POLICY:** Attendance to lectures is recommended but all labs are mandatory and will be graded. The instructor will also keep track of attendance and participation in class activities, and this information will be used at the end of the semester for borderline grade decisions. If you know that you will be absent from class for a valid reason, let your instructor know 24 hours before the class period. The only exception to this rule is a medical emergency.

**ACADEMIC CONDUCT:** Any student engaged in an act of academic misconduct, which includes but is NOT limited to, cheating, plagiarism, use of written or oral offensive language, tampering with other student's files or computer accounts will receive a grade of F for the course and will be reported to the Provost's Office for appropriate academic sanctions.

If another student is knowingly involved in the offense, he or she will receive the same penalty.

**PROFESSIONAL BEHAVIOR:** All students are expected to behave professionally, unprofessional behavior includes but is NOT limited to, being late to class, walk in and out of class while in session, cell phone ringing in class, working on assignment foreign to the class, sleeping in class, chatting in class, and horseplay.

**STUDENTS WITH DISABILITIES:** If you have a documented disability that may have an impact on your work in this class, please contact the instructors. Students must provide documentation of their disability to the Academic Success Center in order to receive official University services and accommodations. The Academic Success Center can be reached at 856-256-4234. The Center is located on the 3rd floor of Savitz Hall.

**IMPORTANT DATES:**

Date	Time	Room	Event
09-24	TBA		
10-08	4:45 PM	ROW 340	Exam 1
11-05	TBA		
11-19	4:45 PM	ROW 340	Exam 2
11-26	Class in session and special Thanksgiving activities		
12-10	TBA		
12-15	4:50 PM	TBA	Final Exam

**WITHDRAW SIGNATURE SCHEDULE**

Sept 9 to Oct 20	(W)	Student, Professor
Oct 21 to Nov 24	(WP/WF)	Prof, Dept Chair
Nov 25 to Dec 19	(WP/WF)	Prof, Dept Chair, Dean

## **SELECTED COURSE TOPICS**

Beverage Solution: Coffee and Tea.

Water Crystallization: Frozen Desserts

Fats and Oils

Milk, Cream and Milk Products

Cocoa: CHOCOLATE manufacturing, tempering, coating.

Starches and Cereals

Batters: flours, baking powders and baking soda

Drop batters: muffins, cakes.

Doughs: soft doughs (biscuits), stiff doughs (pastry)

Soft dough: Yeast doughs

Soft and Stiff dough: cookies

Stiff doughs: noodles

### **Food Preservation and Safety**

Concepts of Heat Transfer and Thermal Death Times.

Heat Penetration Test and Thermal Process

Blanching and Freezing of Foods.

Ultra-High-Temperature Processing.

Hazard Analysis Critical Control Points (HACCP)

### **Separations in Food Manufacturing**

Membrane Processing of Liquid Foods.

Evaporation Concentration of Liquid Foods.

### **Drying and dehydration of food**

Spray and Drum Drying.

Convective Drying of Foods.

Osmotic Dehydration of Foods.