

TITLE OF COURSE: FS 489 Food Product Development

CREDIT HOURS: 3 HOURS

INSTRUCTOR: Dr. Brennan Smith

PHONE: (208) 885-2082

OFFICE: AG SCI 111B (UI)

E-MAIL: brennans@uidaho.edu

OFFICE HOURS: By appointment

SKYPE ADDRESS: Brennan.smith364

COURSE DESCRIPTION:

This is a capstone course for the WSU/UI School of Food Science. This course has been designed to apply knowledge gained throughout students' academic career in the application of food science. More specifically, this course is structured to promote creative thinking in the field of food science while enhancing interpersonal and intrapersonal skills. Students are expected to have a working knowledge of food safety and microbiology, food processing and preparation, food chemistry, and food regulations prior to taking this course.

TEXT BOOK: Aramouni, F and Deshenes, K. (2015). *Methods for Developing New Food Products: An Instructional Guide*. DEStech Publications, Inc., Lancaster, Pennsylvania.

PREREQUISITES:

FS 302 and 303; FS 416 and FS 460 and Senior standing.

GRADING:

All assignments, grading, and scheduling is tentative and subject to change.

Assignment 1: Chemistry Review	25 Points
Assignment 2: Market Screening	100 Points
Assignment 3: Focus Group	100 Points
Exam 1: Take Home Exam	100 Points
Exam 2: In Class Exam	100 Points
Quizzes/executive summaries	125 Points
Lab Participation	50 Points
Product Prototype and Package	100 Points
Final Report:	
<i>Oral presentation</i>	100 Points
<i>Written Group Report</i>	100 Points
Final Exam	100 Points
Total	1000 points

GRADING:

<u>Grades:</u>	<u>Total Points</u>	<u>Percentile</u>	<u>Final Grade</u>	
			WSU	UI
	475 – 500	95 – 100%	A	A
	450 – 474	90 – 94%	A–	A
	430 – 449	86 – 89.9%	B+	B
	415 – 429	83 – 85%	B	B
	400 – 414	80 – 82%	B–	B
	380 – 399	76 – 79.9%	C+	C
	365 – 379	73 – 75%	C	C
	350 – 364	70 – 72%	C–	C
	330 – 349	66 – 69.9%	D+	D
	300 – 329	60 – 65%	D	D
	<300	<60%	F	F

EVALUATION:

Exams: Exams will use a variety of question types including multiple choice, true/false, matching, short answer, and/or essay. **Please bring a blue or black pen for all in class exams.** The first exam is take home in nature. It is quite long, so please give yourself ample time to complete it. The first exam will be made available on January 26, 2015 and will be due on February 9, 2014. The in class exam is scheduled during regular class time on **April 1, 2015**. The **final exam** is tentatively scheduled on Thursday, May 7, 2015 from 3:10 – 5:10 pm.

Assignments: Assignments will be given during the course of the semester. They are designed to aid in the completion of student projects. Assignments are expected to be turned in on the assigned due date without exceptions (excluding emergencies). **Broken printers or computers are NOT excuses for missing an assignment deadline.**

Quizzes: Quizzes can be given without notice on any day of lecture or lab. In general, advance notice will be given.

Lab Participation: Will be based on instructor observations and peer evaluations.

Product Prototype and Package: Evaluation will based on students ability to apply information learned throughout their academic career in the creation of new food products.

Final Report: Completed as part of a product development group, students will be graded as individuals and as a group on the overall quality of their written reports and group presentations.

You are expected to attend every class: Attendance is mandatory! Exceptions will only be given for illnesses and emergencies (doctor notes are required). Other absences for scholarly activities or career progression may be given. **This will only occur when there is no major conflict with this course, and upon advanced approval by the instructor.**

If ample notice is not given, it is at the discretion of the instructor whether or not to allow for absence without consequence. The ability to take makeup exams, quizzes, and assignments is also at the discretion of the instructor.

I no longer give attendance points in any of my courses. Instead, if you miss class and it is not approved, points may be deducted from your grade. **5 or more absences will result in failure of the course.** You may miss one unexcused lecture without consequence on your grade.

STUDENT LEARNING OUTCOMES (SLOs): Successful completion of the course should enable the student to:

- A. Describe all aspects of researching and developing new food products
 - a. Technical feasibility, including ingredient functionality and processing methods
 - b. Regulatory aspects, including labeling and state/federal mandates
 - c. Product quality, safety (including HACCP plans) and shelf-life testing
 - d. Packaging materials and options
 - e. Manufacturing procedures from bench-top development to scale-up of operations
 - f. Warehousing and distribution systems
 - g. Sales, promotion, and market share
 - h. Economic feasibility and costing analysis
 - i. Idea protection: patenting and copyrights
- B. Think creatively to generate ideas and concepts for new food products
- C. Work as part of a team to conduct feasibility studies, including prototype development, focus groups, and planning for market testing
- D. Locate critical data and information from various resources, including trade journals, publications, computer software, and the internet, to assist in the product development process
- E. Develop the interpersonal skills needed to work with a group of people on a project.
- F. Effectively communicate with others about food product development and related issues.
 - a. Students will be able to use correct terminology and spelling of food science vocabulary on exams, quizzes, and assignments
 - b. Present ideas in a clear, concise manner verbally and in writing.

Students with Disabilities

WSU students: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center (Washington Building 217) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

UI students: Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 306 (Phone 885---6307; Email dss@uidaho.edu; website at www.uidaho.edu/dss) in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.

Academic Regulations & Student Affairs Policy Regarding Absences

It is the policy of the Office of Student Affairs to assist students during crisis situations where they are unable to notify their instructors prior to a hurried emergency departure. The Office of Student Affairs will send professors an "Emergency Notification" in those instances where the student will be away for more than two days. The Office of Student Affairs will not issue notifications retroactively or for "one-day emergencies."

Academic Etiquette: Please keep cellular phones silent during class and lab sessions. Cell phones are a distraction, especially in laboratory settings.

Students are also expected to be kind, courteous, and professional towards instructors, teaching assistants, university staff, and other students at all times without exception.

WSU Safety Statement: Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community the University has developed a Campus Safety Plan, <http://safetyplan.wsu.edu>. It is highly recommended that you visit this web site as well as the University emergency management web site at <http://oem.wsu.edu/emergencies> to become familiar with the information provided.

University of Idaho Classroom Learning Civility Clause: In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in teaching, and in learning. Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center's confidential services (5-6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285).

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions: <http://conduct.wsu.edu/policies/standards-of-conduct/>

Plagiarism and Academic Integrity Addendum:

University of Idaho, Student Code of Conduct Article II—Academic Honesty

1. Cheating on classroom or outside assignments, examinations, or tests is a violation of this code.
2. Plagiarism, falsification of academic records, and the acquisition or use of test materials without faculty authorization are considered forms of academic dishonesty and, as such, are violations of this code.
3. Because academic honesty and integrity are core values at a university, the faculty finds that even one incident of academic dishonesty seriously and critically endangers the essential operation of the university and may merit expulsion. [rev. 7-98]
4. The operation of UI requires the accuracy and protection of its records and documents. To use, make, forge, print, reproduce, copy, alter, remove, or destroy any record, document, or identification used or maintained by UI violates this code when done with intent to defraud or misinform.
5. All data acquired through participation in UI research programs is the property of the university and must be provided to the principal investigator. In addition, collaboration with the University Research

Office for the assignment of rights, title, and interest in patentable inventions resulting from the research is also required [see 5400 A through E].

6. Entrance without proper authority into any private office or space of a member of the faculty, staff, or student body is a violation of this code.
7. It is also a violation to hack or make unauthorized use of any computer or information system maintained by the university or a member of the faculty, staff, or student body. [rev.7-05]
8. Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course. The instructor should attempt to notify the student of the suspected academic dishonesty and give the student an opportunity to respond. The notice and the opportunity may be informal and need not be in writing. Penalties for any disciplinary infraction must be judicially imposed. [See 1640.02 C-5] [rev. 7-98]
9. Instructors may report incidents of academic dishonesty to the dean of students. Upon receiving such a report, the dean of students shall provide the student with written notice that a report has been made and an opportunity to meet with the dean to discuss the report. The dean of students shall maintain the report and any record of the meeting for a period of time deemed appropriate by the dean. The dean of students may file a complaint against the student after the meeting has taken place or the student has elected, either affirmatively or through inaction, not to meet with the dean. [add. 7-98]

For more information on academic integrity and academic dishonesty, please visit:

<http://www.uidaho.edu/DOS/academicintegrity/Student%20Resources>

Statement of Firearm Regulations:

The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder's firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property.

TENTATIVE LECTURE SCHEDULE

Week	Date	Subject
1	Jan12	Course introduction, distribution of outline, grading system Chapter 1: Overview of Food Product Development Chapter 2: Consumer Preferences, Market Trends, and creativity <i>Lab: Set up of laboratories work areas</i> Assignment 1: Chemistry assessment Assignment 2: Market screening
1	14	Chapter 3: Functionality of Food Components <i>Lab: Review of physical, chemical and microbial methods of food analysis</i> Assignment 1 Due
2	19	<u>Martin Luther King, Jr. Day</u>
2	21	Chapter 3: Functionality of Food Components <i>Lab: oral presentations of Market Screenings (dress accordingly)</i> Assignment 2 Due
3	26	Chapter 4: Physical & Chemical Properties of Food <i>Lab: Instructor approval of initial product concepts. Searching references for formulas, processes, and suppliers</i> Exam 1: Take Home Exam
3	28	Chapter 5: Sensory Evaluation (focus groups) Presentation: Writing professional letters and emails <i>Lab: Draft letters and emails to send to suppliers asking for samples and product information. In class discussion and review of letters and emails.</i>
4	Feb2	Chapter 6: Food Additives Presentation: Focus Groups <i>Lab: Prototype development</i> Assignment 3: Focus Group
4	4	Chapter 8: Experimental Design in Food Product Development <i>Lab: Prototype development</i>
5	9	Chapter 7: Formulation and Process Development <i>Lab: Class project</i>

5	11	Chapter 9: Basic Unit Operations <i>Lab: Class project</i>
6	16	<u>Presidents Day</u>
6	18	Chapter 9: Basic Unit Operations <i>Lab: Class project</i>
7	23	Chapter 10: Regulatory Considerations <i>Lab: Class Project</i>
7	25	<i>Lab: Class project</i> Assignment 3: Focus Group Due Exam 1: Take Home Exam Due
8	Mar2	Chapter 11: Packaging <i>Lab: Updates on projects/short presentations and discussions. Work on class project</i>
8	4	Chapter 14: Shelf-Life Testing and Date Coding <i>Lab: Class Project</i>
9	9	Chapter 16: Labeling <i>Lab: Class Project</i>
9	11	Chapter 12: Economic Feasibility <i>Lab: Take turns learning labeling software. Work on class projects</i>
10	16	Spring Break
10	18	Spring Break
11	23	Chapter 13: Confidentiality and Intellectual Property Rights <i>Lab: Class Project</i>
11	25	<i>Lab: Class Project</i>
12	30	Chapter 15: Essentials of Marketing Food Products <i>Lab: Class Project</i>
12	Apr1	<i>Lab: Class Project</i> Exam 2: In class Exam

13	6	Chapter 17: Controlling the Quality of New Food Products <i>Lab: Class Project</i>
13	8	<i>Lab: Class Project</i>
14	13	Chapter 18: Safety Concerns for New Food Products
14	15	<i>Lab: Class Project</i>
15	20	Chapter 19: Pre-Requisite Programs, HACCP, and Audit Systems
15	22	<i>Lab: Class Project</i>
16	27	Final Report's Oral presentation <i>Lab: Tie up all loose ends</i>
16	29	Final Report's Oral Presentations

Final written reports due by noon Friday, May 1st, 2015

**The final exam is tentatively scheduled on Thursday, May 7, 2015
from 3:10 – 5:10 pm**