

“You Are What You Eat: A Course in Food Chemistry”

First Year Seminar Syllabus

Room: 323 SGM

Time: 12-1:50 MW

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Office Hours: M 2-3pm, W 10-11am. Email for other times.

Introduction and Learning Outcomes:

During this course we will be part of an intellectual community and learn through critical thought and scientific reasoning. The main goal of this course is to *learn how to approach complex problems* – ones you do not know the answers to, where the answers may not be clear, and you will need to research to come with a logical solution. We will use in class discussions, presentations, and writing to communicate our point of view and back up our conclusions with scientific evidence.

Online Materials: You are responsible for materials posted on Blackboard: <http://blackboard.du.edu/>

Reading Materials:

- ✓ On Food and Cooking by Harold McGee (\$26.40 at Amazon), on reserve at the library
- ✓ Tomorrow's Table by (\$16.78 at Amazon for paperback, \$9.99 for Kindle e-book), on reserve at the library, *needed by 10/1/2010*. We will read most of this book. Please BUY this book!
- ✓ Principles of Food Chemistry (3rd Edition) by John M. deMan, available electronically through the library
- ✓ New York Times – Science Times on Tuesdays, Dining on Wednesdays. Available free at DU.

Grade Evaluation is based on:

A. Papers (3): There will be one paper due covering each of the debate topics. You will argue one side of the debate topic and support your argument with science from reputable journals. 5-6 pages double spaced, Times New Roman, size 12 font, 1” margins. References do not count as part of the 5 pages. These are due the class period of the discussion (see dates below). Submit them on paper *and* electronically as a word document. Due the day of the debate.

Your honesty and integrity matter. Plagiarism will not be tolerated in any form. If you plagiarize you will receive a 0 and will not be able to make up the assignment. See me if you do not know what counts as plagiarism.

B. Exams (3): There will be three exams and the lowest grade will be dropped. No make-up exams will be given. Exams will be a combination of short answer and multiple choice, based on the lecture, problem sets, discussions, labs, and reading material. Dates: 10/4, 11/1, 11/19

C. Problem Sets (6): These will provide example questions for the exam and will be graded for completion. You can work in groups, but each person must complete their own work.

D. Presentations (2):

- In groups of three, prepare a presentation (10m) discussing your first experiment.
- Working alone, prepare a 10-12 minute presentation on a topic of your choice. I will suggest topics and provide guidance many times during the term. Use the news articles as a source of topic ideas!

E. Debates: Groups of five students will be assigned.

Topic #1 (9/29): The US should not allow unpasteurized milk products.

Topic #2 (10/20): All food should be grown organically.

Topic #3 (11/3): Genetically modified (GM) foods should be banned.

One pair of students will argue one side, another pair will argue the other. Examples and rules of debate will be given. The fifth person will act as a moderator, introduce the topic, keep people on time, encourage the rest of the class to participate, and invite audience questions.

If you are in the audience, you will need to do the following before class:

1. Look up additional information that supports an argument for or against the topic. Choose a side and back it up.
2. Record your information sources so that you can reference them if asked to.
3. Think of at least 1 question that you think is pertinent to the discussion. Be prepared to answer your own question.
4. PARTICIPATE! Everyone's participation is expected. At the end of each discussion we will vote which side won the debate and discuss why we think so.

F. Discussion: We will begin every Wednesday with a discussion of recent news or science articles that discuss food related topics. Read current popular news sources (the NY times, the Denver Post, magazines) and bring in at least two articles *that you have read* each week. You don't have to believe what the article says. We will investigate whether news claims are valid. You are graded on participation in this course.

G. Experiments: All will be done in groups of 3. You choose your group.

- Lab #1: Testing 5 common kitchen myths
- Lab #2: Bio-availability of iron
- Lab #3: How much caffeine is in my drink?
- There will also be several in-class cooking events that pertain to the day's lecture material.

Evaluation and Grades:

<i>Assignment</i>	<i>points</i>
Papers (3)	150 (50 pts each)
Problem sets (5)	50 (10 pts each)
Debate	50
Lab #1 presentation	50
Final Presentation	50
Exam #1	100
Exam #2	100
Exam #3	100
Class involvement	50
<i>Total (drop low exam)</i>	<i>600</i>

Course Outline:

<i>Topic</i>	<i>Reading Material</i>
Introduction to food molecules, water, chemistry and bonding	McGee: Ch 15 and Appendix, deMan: Ch1
Fats and oils	deMan: Ch 2
Proteins	deMan: Ch 3
Carbohydrates	deMan: Ch 4
Small molecules: vitamins and minerals, additives	deMan: Ch 5-6 , 11
Pesticides	Ronald: Ch1-3
Milk and dairy	McGee: Ch 1
Heat and browning	McGee: Ch14
Food safety	deMan: Ch 12,
GM techniques and uses	Ronald: Ch 4-5, 7-9 (for debate 3)
Sense of taste and enzymes	deMan: Ch 10
Metabolism	TBA
The role of genes and bacteria in metabolism	TBA
Food allergies (optional)	TBA

deMan's book is well beyond the level of the course, but we will read portions of it and use it as a reference. You will only need to cover what I cover in class or in the problem sets. Additional online materials and journal articles will be provided for all topics and posted on Blackboard.