

First-Year Seminar

Spring 2010

Kitchen Chemistry: The Science Behind the Food We Eat

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Office Hours: 11:00 am – 11:50 am M, W, and F 12:00 – 1:00 pm W
8:30 am – 9:20 am R and by appointment

Course Materials (required) Corriher, Shirley O. *CookWise*, HarperCollins Publishers, 1997, ISBN-13: 9780688102296, ISBN: 0688102298
Assigned Reading materials – most are available through NetLibrary, at Simpson Library, or selections are posted on Blackboard
Access to Blackboard and the Internet
UMW Blog account

Course Description

This course is designed to introduce first year students to the pursuit of intellectual inquiry. Students will develop the intellectual skills necessary for liberal learning; skills need to participate actively in the academic program of the university and subsequently over the rest of one's life as one pursues serious endeavors.

Everyone must eat to survive, but do you ever think about the food you are eating. What gives it flavor? Why is it cooked in a specific manner? This first-year seminar course will explore the science of food and molecular gastronomy. Our class will enter into a conversation about kitchen chemistry by exploring a variety of questions (we will identify these as a group and the list below is a starting point for our discussion):

- What is molecular gastronomy? What is the history of molecular gastronomy and food science?
- Why affects the color and texture of cooked vegetables?
- What are the chemical changes that occur in food during cooking?
- What determines the flavor of food? What effects how food tastes?
- What are the health benefits of certain foods?
- What are superfoods?
- How do organic foods differ from commercially processed foods?

We will begin to answer these questions and others by reading and discussing various texts, news articles, and television programs. Students are expected to participate in discussions (both in class and on class blogs) as much as possible.

This course assumes that students have an interest in science and of course food. Prior classroom knowledge of the material is not expected.

After completing the course, a student should

- gain an appreciation and understanding of food chemistry/science
- be able to participate in active, discussion-based, participatory learning
- begin to develop the skills for analysis and argumentation
- will learn how to conduct library research, inquire critically, and write within the scientific community
- be able to read, think, speak, and write using a variety of media including electronic
- learn to critically read a variety of texts and sources
- be able to use writing as a tool for exploration and expression of ideas and arguments
- learn to synthesize materials from several sources in order to construct and defend an argument
- be able to perceive, analyze, and value the perspectives of other thinkers, while recognizing and critiquing one's own
- understand the validity and uses of different kinds of evidence, including quantitative data
- formulate meaningful questions and pose significant problems within the topic area of the seminar

Resource List

Kitchen Chemistry Video Clips, Royal Society of Chemistry, 2002, Discovery Communications Inc.

<http://www.rsc.org/education/teachers/learnnet/kitchenchemistry/>

Food Science Video Clips, ON Network

<http://www.onnetworks.com/videos/food-science>

Parson, Russ. *How to Read a French Fry and Other Stories of Intriguing Kitchen Science*. Houghlin Mifflin, 2001 (available on NetLibrary)

McGee, Harold. *On Food and Cooking. The Science and Lore of the Kitchen*. Scribner, 2004.

Wolke, Robert. *What Einstein Told His Cook: Kitchen Science Explained. And What Einstein Told His Cook 2*. Norton, W. W. & Company, 2002 and 2005.

Brown, Alton *I'm Just Here for the Food: Food + Heat = Cooking*, Harry N. Abrams, 2002.

Emsley, John, *Vanity, Vitality, and Virility: The Science Behind the Products You Love to Buy*, Oxford University Press, 2004

Hillman, Howard, *The New Kitchen Science: A Guide to Knowing the Hows and Whys for Fun and Success in the Kitchen*, Houghlin Mifflin, 2003.

Popular press news items and clips from the Food Network and Discovery Channel

Selections from *Journal of Chemical Education* and *Journal of Agricultural and Food Chemistry*

Grading

The grade in the course will be determined by the following assignments:

Class Participation/Discussion	100 points
Online Writing Assignments	100 points
In-class Writing Assignments	90 points
Blog Participation	100 points
Individual Research Papers	360 points
Final Poster or Oral Presentation	150 points
Final Reflective Paper	100 points
Total Points	1000 points

The final course grade will be based on the following point scale:

Points accrued	Letter grade	Points accrued	Letter grade
≥ 930 points	A	769-730 points	C
929-900 points	A-	729-700 points	C-
899-870 points	B+	699-670 points	D+
869-830 points	B	669-600 points	D
829-800 points	B-	≤ 599 points	F
799-770 points	C+		

A mid-semester report of unsatisfactory (U) will be reported if you have a C- or below in the course thus far.

Honor System

Any assignment for which you will receive a grade must be completed and pledged as your own work. The honor pledge must be written in full: *I hereby declare upon my word of honor that I have neither given nor received unauthorized help on this work. (Signature).* I will not grade an assignment without a signed pledge.

Class Attendance

Class attendance is required. Class attendance is essential since this course is discussion based. During the class time, we will be discussing, completing in-class writing assignments reflecting on the readings or discussions. Absences will detract from your ability to meaningfully participate in the discussions and develop skills that will be useful in additional courses and in life. You will be allowed three absences during the course of the semester. **Beginning with the fourth absence**, your grade will be affected by a 20 point reduction for each absence. Lateness to the course is distracting to others and students should attempt to be on time. Out of courtesy to your fellow classmates, please turn off all cellular phones or pagers. You are required to attend your section of the course. You may not attend the other section of the class.

Please contact me as soon as possible if you are absent from class. You need to notify me immediately of such an emergency.

Course Units – Tentative Outline of the Course

The class will discuss the specific topics that will be covered in the course. The following is a brief outline of what will be covered. More specific details will be posted on blackboard, following class discussions.

Unit 1: Introduction to the course and to food science and molecular gastronomy
FSEM topic 1 – Class Discussion and Rules
FSEM topic 2 – Electronic Resources and Uses
FSEM topic 3 – Library Research and Sources
Formal Paper 1 – What is Food Science?

Unit 2: Flavor Chemistry
FSEM topic 4 – Plagiarism and Citation
FSEM topic 5 – Research and Organization
Formal Paper 2 – What is Flavor?

Unit 3: Cooking of Food and Cooking Myths
FSEM topic 6 – Writing at the College Level
FSEM topic 7 – Creating and Delivering Good Presentations
Formal Paper 3 – What is Cooking?

Unit 4: Food for Thought – the truths behind what we eat
Formal Paper 4 – Analysis of Research Articles

Final project: General Description: Research and present the science behind your favorite food product, family recipe, or develop your own Jelly Belly flavor, Jones Soda flavor, or other product flavor. Consider creating an all natural type of product that would appeal to children but lacks artificial flavors. Prepare a power point presentation, poster presentation, video, or web-based presentation about your product.