GENERAL EDUCATION COURSE PROPOSAL
UNIVERSITY OF MARY WASHINGTON

Use this form to submit **EXISTING** courses for review. If this course will be submitted for review in more than one category, submit a separate proposal for each category.

COURSE NUMBER:	**FSEM 100**			
COURSE TITLE:	**KITCHEN CHEMISTRY**			
SUBMITTED BY:	Kelli Slunt	**DATE:**	1/9/08	
This course proposal is submitted with the department's approval. (Put a check in the box to the right.) ***If part of a science sequence involving two departments, both departments approve.***				**X**

THIS COURSE IS PROPOSED FOR (check one).

First-Year Seminar ***(indicate in the rationale if this will also count for major credit)***				**X**
Quantitative Reasoning				
Global Inquiry				
Human Experience and Society				
Experiential Learning				
Arts, Literature, and Performance: Process		**or**	**Appreciation**	
Natural Science ***(include both parts of the sequence)***				

NOTE: See the report entitled "General Education Curriculum as Approved by the Faculty Senate," dated November 7, 2007, for details about the general education categories and the criteria that will be used to evaluate courses proposed. The report is available at www.jtmorello.org/gened.

RATIONALE: Using only the space provided in the box below, **briefly** state why this course should be approved as a general education course in the category specified above. *Attach a course syllabus*. **Submit this form and attached syllabus electronically as one document to John Morello (jmorello@umw.edu).** All submissions **must** be in electronic form.

This First-year seminar will explore Food Science and Molecular Gastronomy. The course is designed to introduce students to topics that are of interest to them, such as the chemistry of flavor and chemical changes during cooking. The students will also consider nutritional information, diets, and role of marketing. Students will utilize resources, both primary and secondary sources, along with their own personal experiences to prepare for discussions in class and/or in papers. Although prior scientific knowledge is not necessary, students will learn how to describe chemical molecules involved in the processes of odor and taste. Through these experiences, students should be able to answer such questions as Why is salt used in cooking? What other flavor pairs well with chocolate?

First-Year Seminar
Kitchen Chemistry: The Science Behind the Food We Eat

Instructor:	Kelli M. Slunt		
Office:	Jepson 341	654-1406	kslunt@umw.edu
Office Hours:	9:00 am – 10:00 am M,W,F and by appointment		1:00 – 1:50 pm M, W

Lecture	11:00-11:50 am MWF, Jepson 201
Course Materials (required)	Assigned Reading materials Access to Blackboard and the Internet

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:

- 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 is "asparagus pee" and what is the cause?

We will begin to answer these questions and others by reading and discussing various texts, news articles, and television programs. If possible, we will also have visits by professional in the field. Students are expected to participate in discussions 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
- 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

Reading List – subject to change – will probably add to this list

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

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.

Parsons, Russ, *How to Read a French Fry: And Other Stories of Intriquing Kitchen Science*, Houghlin Mifflin, 2001

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

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

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

Class Participation	30%
Journal	20%
Individual Research Papers	30%
Final Poster or Oral Presentation	20%

A mid-semester report of unsatisfactory (U) will be reported if you have a C- or lower in the course at the mid-term time.

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. 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.

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 and Reading Assignments

Unit 1: Introduction to the course and to food science and molecular gastronomy

Unit 2: Flavor Chemistry
- a) What is taste and smell? How do chemicals structure and shape affect taste and smell? Why do onions make us cry? What makes chili peppers hot?
- b) How do flavors pair together?
- c) Does the water solubility of a substance affect its taste?

Unit 3: Cooking of Food and Cooking Myths
- a) The use of salt in cooking
- b) Chemical changes during cooking
- c) Fried foods

Unit 4: Food for Thought – the truths behind what we eat
- a) Health/nutritional benefits of food – chocolate? Antioxidants? Garlic?
- b) Fat and cholesterol
- c) Vitamins
- c) What is asparagus pee?

Final project: Research and present the science behind your favorite food product or develop your own Jelly Belly flavor or Jones Soda flavor. Prepare a power point presentation, poster presentation, or web-based presentation about your product.