

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:	CHEM 493		
COURSE TITLE:	CHEMICAL OUTREACH		
SUBMITTED BY:	Kelli Slunt	DATE:	2/6/18
<i>This course proposal is submitted with the department's approval. (Put a check in the box to the right.)</i>			X
<i>If part of a science sequence involving two departments, both departments approve.</i>			

THIS COURSE IS PROPOSED FOR (check one).

Quantitative Reasoning	
Global Inquiry	
Human Experience and Society	
Natural Science (include both parts of the sequence)	
Arts, Literature, and Performance: <u>Process</u>	or
	<u>Appreciation</u>
Experiential Learning	
Community Engagement (a course may be submitted EL and CE concurrently)	X

NOTE: See the reports entitled "General Education Course Category Descriptions" and "General Education Requirements Learning Outcomes" for details about the general education categories and the criteria that will be used to evaluate courses proposed. See the report entitled "Community Engagement Learning Outcomes" for information on the criteria that will be used to evaluate courses submitted for Community Engagement designation. All reports are available at <http://ufc.umw.edu/committees/gened>.

RATIONALE: Using the space provided in the box below, state why this course should be approved for the designation of the category specified above by addressing how it fulfills the goals and descriptions of that general education category or designation, with primary reference to the Student Learning Outcomes. **Attach a course syllabus. Submit this form and attached syllabus electronically as one document to Nicole Crowder (ncrowder@umw.edu).** All submissions **must** be in electronic form.

The chemistry department offers CHEM 493 as an experiential learning opportunity for our students. Some chemistry majors participate in outreach experiences including elementary school demonstrations and participation in high school enrichment programs. These opportunities are beneficial for both the UMW students and the communities that are served by the program. UMW students learn how to effectively communicate about science, work with diverse populations of members of the local community, and reflect on the public state of scientific knowledge and understanding. The CHEM 493 course is already approved as an experiential learning course and meets the proposed outcomes for a CE course.

- **Diversity of Communities/Cultures:** Demonstrates evidence of adjustment in own attitudes and beliefs because of working within and learning from diversity of communities and cultures. Promotes others' engagement with diversity.
Students enrolled in CHEM 493 will be explaining chemical concepts in different educational environments which could involve diverse populations of students; either cultural or socioeconomic diverse backgrounds that may be different from those of the UMW students.
- **Analysis of Knowledge:** Connects and extends knowledge (facts, theories, etc.) from one's own academic study/ field/ discipline to community engagement and to one's own participation in community life, politics, and government.
- **Academic impact:** Uses community engagement experience to inform one's academic study/field/discipline.
CHEM 493 students will increase scientific literacy and engagement with scientific concepts to students in the local community. Often public school students or even teachers are not as knowledgeable about scientific topics and seek engagement with or new ways to learn or teach STEM topics; the UMW students can provide information about STEM through the course of working with the community.
- **Identity/Commitment:** Provides evidence of experience in community-engagement activities and describes what she/he has learned about her or himself as it relates to a reinforced and clarified sense of one's identity and continued commitment to public action.
- **Action and Reflection:** Demonstrates independent experience, accompanied by reflective insights or analysis about the aims and accomplishments of one's actions.
In the updates to the faculty member and in the final reflection, students enrolled in CHEM 493 will reflect on the experience of working with community members, ways in which science is explained to others, and how the experiences relates to their education.
- **Communication:** Tailors communication strategies to effectively express, listen, and adapt to others to establish relationships to further community action. – *students will be completing exercises or lessons that will require active communication with members of the community.*

Course Description

This course is designed to expose students to opportunities for sharing their chemical knowledge with members of the local community or other UMW groups. As a Chinese proverb states “Tell me, I’ll forget. Show me, I’ll remember. Involve me, I’ll understand.” Teachers know that they learn as much as their students through explaining concepts to others. This experience will help students understand chemical/scientific principles through developing lessons and hands-on experiences for other individuals. In addition, the students will improve their critical thinking skills, sharpen literature search skills, and hone their scientific communication, both oral and written.

Expectations

Each credit represents approximately 2 to 3 hours of work per week during the academic year (either readings, development of exercises, and/or the actual outreach program participation) as established by prior verbal agreement between the instructor and student and as indicated on the registration form obtained by the student and completed by him/her, the instructor and department chair), such that

credits	hours
1	2 - 3
2	4 - 6

The outreach program must be approved by the instructor. Ideas for outreach programs could include Wild Science Enrichment Program at Wilderness Elementary School or Mad About Science at Ni River Middle School (directed by Kelli Slunt), James Farmer Scholars Program (see Janet Asper), Governor’s School, or others approved by the instructor, student, and department chair. By the end of the second week of the semester, a written contract outlining a plan for the outreach program must be completed and approved by the instructor and the department chair. A blank contract is attached to this syllabus.

It is the responsibility of the student to arrange to meet with the instructor at least once a week to discuss progress, difficulties, etc. The time for these meetings should be indicated on the contract.

Grading

Grades will be established by the instructor based on the following criteria: consulting meetings, participation in the outreach program, time spent developing exercises or searching the literature for readings, quality of the work accomplished, presentation of the activity to the target audience, final portfolio and reflection. These factors vary depending on the student and the nature of the scientific investigation/project.

The overall grade scheme will reflect the following from the *Dictionary of Academic Regulations*:

A	excellent
A-	
B+	
B	commendable
B-	
C+	
C	acceptable

C-	
D+	
D	marginal
F	failure

Honor System

All graded work (i.e., proposal, handouts for the outreach, and final report) must be your own and pledged according to the Honor Code: *I hereby declare upon my word of honor that I have neither given nor received any unauthorized help on this work.* *Signature*

In addition, it is expected that the work(s) of others are properly referenced in any written report according to the guidelines and style of the American Chemical Society. (A copy of the *ACS Style Guide* is available in Jepson 308.) Submission of a report devoid of appropriate referencing presupposes that all of the ideas/statements are your own and therefore constitutes plagiarism.

Expectations

- develop age appropriate and topic appropriate handout materials for outreach groups
- create hands-on materials/experiments to illustrate the concepts – sample exercises, activities are available for review
- discover if you enjoy teaching or interacting with public groups
- become self-motivated (I expect that you will push yourself in the development of the project and will contact me as needed *for guidance*)
- gain confidence in own hands-on abilities and problem solving skills, oral and written communication skills

Through the community engagement activities, the student will meet the following outcomes:

- Diversity of Communities/Cultures: Demonstrates evidence of adjustment in own attitudes and beliefs because of working within and learning from diversity of communities and cultures. Promotes others' engagement with diversity.
- Analysis of Knowledge: Connects and extends knowledge (facts, theories, etc.) from one's own academic study/ field/ discipline to community engagement and to one's own participation in community life, politics, and government.
- Identity/Commitment: Provides evidence of experience in community-engagement activities and describes what she/he has learned about her or himself as it relates to a reinforced and clarified sense of one's identity and continued commitment to public action.
- Action and Reflection: Demonstrates independent experience, accompanied by reflective insights or analysis about the aims and accomplishments of one's actions.
- Communication: Tailors communication strategies to effectively express, listen, and adapt to others to establish relationships to further community action
- Academic impact: Uses community engagement experience to inform one's academic study/field/discipline.

In addition to meeting the requirements for a Community-Engagement Course, this course meet the expectations of an Experiential Learning Experience. After completing CHEM 493:

- Students will be able to apply what was learned in coursework to new scenarios outside standard university courses.
- Students will be able to identify their personal values and learning goals and direct themselves by creating personalized learning experiences that may include alternative means of learning
- Students will be able to clarify and refine their understanding of their strengths and weaknesses in content of relevant disciplines and in skills such as time management, organization, professionalism, and so forth.
- Students will be able to recognize their knowledge and lack of knowledge.
- Students will be able to connect their undergraduate experiences and their postgraduation lives

Project Contract

The project contract is a formal written agreement between the student and the course advisor. Specified within it are the number of credits and hours per week expected to be devoted to the project, the due dates for the assignments for the course.

CHEMISTRY OUTREACH CONTRACT

I, _____, have enrolled in Chem 493, Chemistry Outreach, under the direction of _____ during _____ semester 20____. The outreach program in which I will participate is _____.

I have elected to enroll in this course for ____ credits, fully cognizant of the fact that I will be expected to complete _____ hours of independent work/research (library, preparation, laboratory, etc.), participation in the outreach each week. I understand that I need to meet once a week with the instructor. The meetings will occur each week on _____ from _____.

I will participate in the outreach at the following dates and times: _____

I understand that, if applicable, transportation to the activity must be provided by the student.

Having received a copy of the CHEM 493 syllabus, I am aware that I am responsible for submitting various assignments to the instructor. Details for each of these assignments can be found in the syllabus.

I will submit these on the following dates:

Proposal	Due date:
Draft of Outreach Exercises	Due date:
Final Copy of Outreach Exercises	Due date:
Reflection Paper	Due date:

I understand that if the assignments are late, a penalty to the report grade will occur.

I am also fully aware of the safety rules that exist in all chemistry courses (including this one) and will abide by them in the laboratory. In addition, I may be permitted to work in the laboratory on my own during normal building hours after I have been adequately trained in the techniques/instrumentation I will be using. (I must use the "buddy" system at all other times.)

Through this experience I hope to develop my own strategies for problem-solving, troubleshooting and critical thinking. The instructor will not complete the exercises for me; however, she is more than willing and expects to assist me when questions/problems arise. I have read the syllabus and completed this contract and understand the expectations for the course.

Student signature: _____

Faculty Advisor: _____

Department Chair: _____

Date: _____

Date: _____