Course Outcomes Guide

Directions: Please complete this form to document your progress toward improving student learning. For each item, indicate your progress and your anticipated next steps. Thank you!

Course/Program Title: **CHM 203 & 204 Organic Chemistry 1 & 2** **Date: May 21, 2012**

Course/Program Team: **Nancy Thorpe and Veronica Stein**

Expected Learning Outcomes

1. Apply both quantitative and qualitative thinking processes and reasoning skills to core content for organic chemistry.
2. Communicate organic chemistry concepts in writing and by use of appropriate technology and proper terminology and nomenclature to both scientists and non-scientists (e.g. maintain a laboratory notebook).
3. Collect, analyze, and evaluate empirical data to substantiate chemical concepts.
4. Apply course content to environmental and health-related issues (e.g., pollution, global warming, toxicology, pharmacology, environmental health).

Assessment (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)

1. In-class exams with combination of multiple-choice, short answer, problem solving and essay.
2. Formal written laboratory reports with a grading rubric.
3. Written laboratory mid-term and final exams.
4. Research papers on environmental and human health issues.
5. American Chemical Society (ACS) standardized final exam **for the first semester only.**

Validation (What methods have you used or will you use to validate your assessment?)
The ACS exams are nationally normalized exams. I will be using the 1st semester exam for CHM203 in the fall semester.

Results (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)
I have been implementing the ACS exam and collecting data for Fall '09, '10', and '11. Please see attached results.

Follow-up (How have you used or how will you use the data to improve student learning?)
After the first two years of using the exam, I tried a new style of teaching (Mastery Learning). The third year has some mixed results, so I will analyze and see what aspects of the new learning style needs to be improved and changed. Overall, the course statistics remain about the same, the results of the ACS exam have improved each semester, but retention and success rate are down a little. We are now in the new STEM building and have purchased an NMR spectrophotometer which will enhance our students' technology-based learning. Additional training for staff and faculty will be needed to ensure proper use and educational learning. We will continue to use the 1-semester ACS final exam and continue to search for a similar common

exam for the second semester. I would also like to update the gas chromatograph and FT-IR, to help improve the laboratory portion of the course.

Budget Justification (What resources are necessary to improve student learning?)
I will need resources to purchase the ACS exams, at least 20 exams. The enrollment has been increasing so additional exams will need to be purchased. Money for NMR training is also requested.

CHM203 Assessment – Dr. Thorpe

	Fall 2009	Fall 2010	Fall 2011
1. Total # of A, B, C, P, D, F and W grades at the end of the semester	10	15	16
2. Total number of A, B, C, D and F grades at the end of the semester (Row 2 should be less than row 1 unless there were no W)	10	13	15
3. Total number of A, B, C grades	8	12	13
4. Retention Rate (Row 2/Row 1)	100%	86.7%	93.75%
4. Enrollee success rate (Row 3/Row 1)	80%	80%	81.25%
5. Completer success (Row 3/Row 2)	80%	92.3%	86.7%
6. % Walk away F's (how many students were still enrolled in class, but didn't take the final)	0	0%	6.25%
7. Mean Score on Cumulative Exam	ACS Exam – 1st year Mean Raw Score: 35.70 National Mean: 38.61	ACS Exam – 2nd year Mean Raw Score: 36.17 National Mean: 38.61	ACS Exam – 3rd year Mean Raw Score: 36.00 National Mean: 38.61
8. Mean Course Grade	77.6%	79.73%	80.57%

CHM204 Assessment – Dr. Thorpe

	Spring 2010	Spring 2011	Spring 2012
1. Total # of A, B, C, P, D, F and W grades at the end of the semester	8	12	15
2. Total number of A, B, C, D and F grades at the end of the semester (Row 2 should be less than row 1 unless there were no W)	8	11	14
3. Total number of A, B, C grades	6	10	12
4. Retention Rate (Row 2/Row 1)	100%	91.7%	93.3%
4. Enrollee success rate (Row 3/Row 1)	75.0%	83.3%	80.0%
5. Completer success (Row 3/Row 2)	75.0%	90.9%	85.7%
6. % Walk away F's (how many students were still enrolled in class, but didn't take the final)	0.0%	8.0%	7.1%
7. Mean Score on Cumulative Exam	Common Final Exam: 72.5%	Common Final Exam: 80.0%	Common Final Exam: 72.8%
8. Mean Course Grade	76.7%	81.1%	80.99%