

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 204
Organic Chemistry 2
Course/Program Team: Nancy Thorpe
Date: May 2017

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. Laboratory research project.

Validation (What methods have you used or will you use to validate your assessment?)

The final exam for this semester has been developed by the instructor and no outside validation exam is used. The possibility of keeping a portfolio of written lab reports will be investigated.

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 same final exam for the past several semesters and the Spring '13 semester was taught as a hybrid course for the first time and results were much improved, as well as the overall class average. Course grades and lab grades continue to improve, especially with the inclusion of the final capstone laboratory project.

Follow-up (How have you used or how will you use the data to improve student learning?)

Overall, the course statistics remain about the same but retention and success rate are down a little, due to the online nature. The instrumentation added to the course, NMR spectrophotometer, FT-IR, and gas chromatograph have enhanced our students' technology-based learning. Additional training for staff and faculty will be needed to ensure proper use and educational learning. The capstone laboratory project that was implemented in Spring 2014, as a final culmination of our chemistry program has been successful. The project utilizes most of the

skills learned during the two years of chemistry and the students were very excited about the project and their results. The project has worked well and I will continue to use it in future semesters.

I used a new textbook (McGraw-Hill) with more online features and a better online homework system that integrates well with Moodle.

Budget Justification (What resources are necessary to improve student learning?)

Money for GC and NMR training is also requested.

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SLOA Data

Faculty Team: N. Thorpe

	SP 2010	SP 2011	SP 2012	SP 2013	SP 2014	SP 2015	SP 2016	SP 2017			
# Active students	8	12	15	11	5	14	9	15			
%W	0	8.3	6.7	9.0	0	0	11.1	20			
*% walk-away Fs No final exam/grade = F	0	8.0	7.1	0	0	7.1	0	0			
% Success (A,B,C)	75.0	90.9	85.7	100	75	92.3	88.9				
Mean Lab I Score				85.4	78.0	73.7	83.8	81.5			
Common Comprehensive Final Exam Score	72.5	80.0	72.8	77.4	68.0	74.8	75.5	72.3			
Mean course grade	76.7	81.1	80.99	81.9	78.7	76.5	78.9	79.4			
Item Analysis Weakest Content Areas							**Reaction Mechanisms And Stereochem.	**			

*% Walk-away Fs = Did not take the final exam and received a grade of F.

Content Areas

**Nomenclature and drawing structures, 3-D aspects of molecules, reaction types, reaction products
Spectroscopy in lab