

Course Assessment Report  
Washtenaw Community College

Discipline	Course Number	Title
Chemistry	211	CEM 211 02/19/2013-Organic Chemistry I
Division	Department	Faculty Preparer
Math, Science and Health	Physical Sciences	Nagash Clarke
Date of Last Filed Assessment Report		Sp/Su 2007

### I. Assessment Results per Student Learning Outcome

Outcome 1: Classify and name organic compounds based on their functional groups.

- Assessment Plan
  - Assessment Tool: Standardized common questions on unit test.
  - Assessment Date: Fall 2010
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored:
  - Standard of success to be used for this assessment:
  - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2013	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
45	15

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students were assessed in only one section of the course. Assessment was given to all students in section 01 present at the end of the semester.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Students from only one section (face-to-face) were assessed. In the future, all sections of the course will be assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A standardized departmental test for organic chemistry was given to the students and scored against an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

**Met Standard of Success: Yes**

Assessment results were collected using the departmental standardized exam. 78% of the students achieved the departmental standard (70% of the students will correctly answer the outcome-related questions.)

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did very well with simple organic nomenclature but were more challenged by complex structures. Overall, students demonstrated understanding of how to name and recognize organic functional groups and nomenclature.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students tended to miss the nuances around stereochemistry, cis, trans etc. More in class time dedicated to practice with these different nuances is needed. Also, some functional groups were only mentioned as a part of a list for them to memorize (e.g. esters) but not used extensively during the semester.

Outcome 2: Describe organic chemical reaction mechanisms and their energy diagrams.

- Assessment Plan
  - Assessment Tool: Standardized common questions on unit test.
  - Assessment Date: Fall 2010
  - Course section(s)/other population: All

- o Number students to be assessed: All
- o How the assessment will be scored:
- o Standard of success to be used for this assessment:
- o Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2013	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
45	15

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students were assessed in only one section of the course. Assessment was given to all students in section 01 present at the end of the semester.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Students from only one section (face-to-face) were assessed. In the future, all sections of the course will be assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A standardized departmental test for organic chemistry was given to the students, and scored against an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

**Met Standard of Success: No**

Data was collected using the departmental standardized exam. 68% of students met the departmental standard. (70% of the students will correctly answer the outcome-related questions.)

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students can recognize reaction based on different functional groups, and list reagents fairly well. Electron pair movement concept appeared to be fairly understood.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Reaction mechanisms is a harder fruit to catch. They may get the big picture, but the little nuances in multi-step reactions escape some. Specifically product based on regiochemistry. 68% of students achieved the standard. More in-class examples will be done.

Outcome 3: Relate stereochemistry of reactants to reaction type and products.

- Assessment Plan
  - Assessment Tool: Standardized common questions on unit test.
  - Assessment Date: Fall 2010
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored:
  - Standard of success to be used for this assessment:
  - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2013	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
45	15

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students were assessed in only one section of the course. Assessment was given to all students in section 01 present at the end of the semester.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Students from only one section (face-to-face) were assessed. In the future, all sections of the course will be assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A standardized departmental test for organic chemistry was given to the students and scored against an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

**Met Standard of Success: Yes**

Data was collected using the departmental test described above. 72% of the students achieved the departmental standard (70% of the students will correctly answer the outcome-related questions).

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students do a great job identifying stereochemistry whether R or S or cis/trans. 72% of students achieved the standard.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students tended to struggle more with identifying stereochemical changes from reactants to products.

Outcome 4: Perform laboratory procedures related to stereochemistry, recrystallization, distillation, chromatography, synthesis, isomerization, and physical characterization.

- Assessment Plan
  - Assessment Tool: Departmental lab practical exam.
  - Assessment Date: Fall 2010
  - Course section(s)/other population: All
  - Number students to be assessed: All
  - How the assessment will be scored:
  - Standard of success to be used for this assessment:

- o Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2013	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
45	0

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

We did not assess this outcome. We will be revising outcomes and will make changes to this one.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

We did not assess this outcome. We will be revising outcomes and will make changes to this one.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

We did not assess this outcome. We will be revising outcomes and will make changes to this one.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No  
 We did not assess this outcome. We will be revising outcomes and will make changes to this one.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

We did not assess this outcome. We will be revising outcomes and will make changes to this one.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish

to identify your plans for continuous improvement.

We did not assess this outcome. We will be revising outcomes and will make changes to this one.

## II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

I believe the course is meeting the needs of the students. Students who take this course and do well, will also succeed in the subsequent course here at WCC. Student performance can be improved by more in-class examples and online homework.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This information will be shared at a department meeting during fall inservice

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Revise or remove outcome #4	We do not currently gather this information.	2013
Assessment Tool	Perform item analysis on questions to identify ones that need to be improved or instruction added.	Continuous improvement	2013
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	We will investigate online homework options.	This will help students rehearse the material in a meaningful way.	2014

4. Is there anything that you would like to mention that was not already captured?
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## III. Attached Files

### Assessment Data

**Faculty/Preparer:**

Nagash Clarke

**Date:** 10/21/2013

**Department Chair:**

Kathleen Butcher

**Date:** 10/21/2013

**Dean:** Martha Showalter  
**Assessment Committee Chair:** Michelle Garey

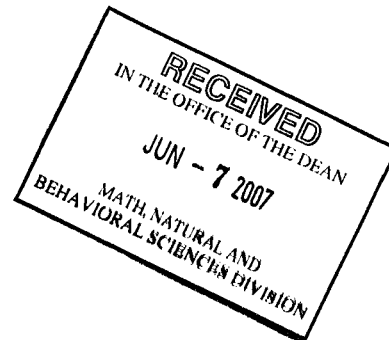
**Date:** 11/01/2013  
**Date:** 12/05/2013



**COURSE ASSESSMENT REPORT**

**I. Background Information**

1. Course assessed:  
 Course Discipline Code and Number: CEM 211  
 Course Title: Organic Chemistry I  
 Division/Department Codes:
  
2. Semester assessment was conducted (check one):  
 Fall 2006  
 Winter 20\_\_  
 Spring/Summer 20\_\_
  
3. Assessment tool(s) used: check all that apply.  
 Portfolio  
 Standardized test  
 Other external certification/licensure exam (specify):  
 Survey  
 Prompt  
 Departmental exam  
 Capstone experience (specify):  
 Other (specify):
  
4. Have these tools been used before?  
 Yes  
 No



If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

5. Indicate the number of students assessed/total number of students enrolled in the course.  
 20/40
  
6. Describe how students were selected for the assessment.  
 1 section was assessed.

**II. Results**

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.  
 Not applicable as this is the first time the test was used.
  
2. State each outcome (verbatim) from the master syllabus for the course that was assessed.  
 Outcomes:
  - a. Classify and name organic compounds based on their functional groups.
  - b. Describe and interpret organic chemical reaction mechanisms and their energy diagrams.
  - c. Relate stereochemistry of reactants to reaction type and products.
  
3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. ***Please attach a summary of the data collected.***  
 Overall, students scored an average of 84.81% on the test. The standard was set at 70% of students should score 70% or higher, so it was achieved. See attached excel sheet with raw data.
  
4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. ***Please attach the rubric/scoring guide used for the assessment.***  
 Outcome 1 had an average score of 86.1%  
 Outcome 2 had an average score of 87.5%  
 Outcome 3 had an average score of 73.3%

**COURSE ASSESSMENT REPORT**

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

Strengths: All of the outcomes were met or exceeded.

Weaknesses: Outcome 3, stereochemistry was the weakest area but this could have been caused by the small number of questions on this topic.

**III. Changes influenced by assessment results**

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.

No weaknesses found in student mastery of the outcomes. However, the test used did not weigh each of the outcomes equally.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
- a.  Outcomes/Assessments on the Master Syllabus  
Change/rationale: No changes to outcomes on Master Syllabus. However, the assessment tool will be changed to a more updated and course specific version of the ACS test.
  - b.  Objectives/Evaluation on the Master Syllabus  
Change/rationale:
  - c.  Course pre-requisites on the Master Syllabus  
Change/rationale:
  - d.  1<sup>st</sup> Day Handouts  
Change/rationale:
  - e.  Course assignments  
Change/rationale:
  - f.  Course materials (check all that apply)
    - Textbook
    - Handouts
    - Other:
  - g.  Instructional methods  
Change/rationale:
  - h.  Individual lessons & activities  
Change/rationale:
3. What is the timeline for implementing these actions? Next Assessment cycle in Fall 2009

**IV. Future plans**

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

The tool was effective although a newer version will be used in the future. This version may not be for this level organic chemistry class.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?

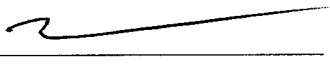
All \_\_\_\_\_ Selected: Outcomes 1-3 were assessed; outcomes 4 will be assessed Fall 2009.

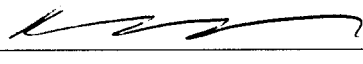
**COURSE ASSESSMENT REPORT**

If "All", provide the report date for the next full review: \_\_\_\_\_.

If "Selected", provide the report date for remaining outcomes: Fall 2009 \_\_\_\_\_.

**Submitted by:**

Name: Breege Concannon  Date: 6/7/07  
Print/Signature

Department Chair: Rob Hayes  Date: 6/7/07  
Print/Signature

Dean: Marty Showalter M. Showalter Date: 6-11-07  
Print/Signature

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