

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Chemistry	101	CEM 101 03/25/2023- Introductory Chemistry
College	Division	Department
	Math, Science and Engineering Tech	Chemistry
Faculty Preparer		Breege Concannon
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

Yes

Winter 2017

2. Briefly describe the results of previous assessment report(s).

Students met the standards for all outcomes.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

There were no changes as the outcomes had been achieved.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize the concepts and principles of general chemistry relating to matter and changes, including fundamental measurements, density, stoichiometry, types of chemical reactions, electronic structure, acids/bases, gases, basic atomic theory, chemical bonding and intermolecular forces at an introductory level.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam
 - Assessment Date: Winter 2020
 - Course section(s)/other population: All
 - Number students to be assessed: All

- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 70% of the students will score 75% or higher
- Who will score and analyze the data: Departmental faculty

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)
2022		

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

# of students enrolled	# of students assessed
462	189

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.

The number listed as enrolled in the course is not correct as the lecture and lab had separate sections that semester, so students are being double counted. 94 students did not complete this assessment, so the total number of students actually still in the course is 283, out of which we have data for 189. So students either just didn't complete this assessment or had already dropped out of the course but hadn't withdrawn officially yet.

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.

All sections were assessed; all sections are on the main campus. There were day, evening and weekend sections.

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

A multiple-choice assessment test is given at the end of the semester. There are 20 questions pulled from the test bank used on the unit tests in the course. The test is administered in Blackboard and scored there, using the goals tool.

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

Only 61.9% of students (117/189) scored above the 75% standard. So the standard was not met. Although the average score here was 78.2% the number of students who fell below the 75% threshold was high. In CEM 101 there is a high failure rate although many of the students take a W instead of the failing grade. The course reports do not reflect the true failure rate as they don't use a W as a fail. In chemistry we will give a W instead of a final grade if the student asks for one.

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

Students did well on knowing what ph makes a substance an acid, knowing what makes a substance a pure compound, and a question on the periodic table.

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.

Some of the questions students did poorly on were concepts covered at the beginning of the semester such as the number of subatomic particles. Also a gas law question was mostly poorly answered as it involves not only a calculation, but also knowledge of the gas law and significant figures for the correct answer. Apparently they often take this assessment test before they cover the gas unit in class.

Honestly the results are not a huge surprise as we are still getting over the effects of the covid pandemic. Students are still struggling with basic math concepts they may have covered remotely. Most of the students in CEM 101 probably had the last few years of their high school remotely and it is just going to be a while before they catch up. If we looked at the average % scores on this outcome then 6/8 sections met the 75% standard, but the number of students still struggling is high.

Outcome 2: Perform laboratory procedures related to science processes and apply basic math concepts, chemical calculations and dimensional analysis to collecting data and calculating results.

- Assessment Plan
 - Assessment Tool: Sample of laboratory reports
 - Assessment Date: Winter 2020
 - Course section(s)/other population: All
 - Number students to be assessed: Random sample of 25% of students in each section

- How the assessment will be scored: Departmentally-developed rubric
- Standard of success to be used for this assessment: 75% of the students will score 7 out of 9 (77%) or higher
- Who will score and analyze the data: Departmental faculty

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)
2022		

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

# of students enrolled	# of students assessed
462	35

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.

A random selection of five lab reports from each section was collected. One section was cancelled that week for an infrastructure day so they didn't have lab.

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.

All classes were face-to-face on the main campus. There were day, evening and weekend sections.

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

A rubric was used for each lab report and is attached, the one used is slightly different to the one used on the previous report and had a 10-point maximum.

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
 All students scored 9 or above on the 9/10 rubric so they met the standard of success.

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

This lab report is written during week 10 of the semester and students are doing a great job completing the lab, and writing the lab report. The reports were consistent throughout the different sections so instructors are doing a great job teaching the students how to do the experiment and write a correct report.

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.

Honestly this was the only outcome where I can see nowhere to improve; the lab reports were well written and correct.

Outcome 3: Apply the basic concepts of dimensional analysis, exponential notation and significant figures to calculate stoichiometric quantities, solution concentrations and temperature, and pressures and volumes of gases.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam
 - Assessment Date: Winter 2020
 - Course section(s)/other population: All
 - Number students to be assessed: All
 - How the assessment will be scored: Answer key
 - Standard of success to be used for this assessment: 70% of the students will score 75% or higher
 - Who will score and analyze the data: Departmental faculty

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)
2022		

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

# of students enrolled	# of students assessed
462	189

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.

The number listed as enrolled in the course is not correct as the lecture and lab had separate sections that semester, so students are being double counted. Another 94 students did not complete this assessment, so the total number of students actually still in the course is 283, out of which we have data for 188. So students either just didn't complete this assessment or had already dropped out of the course but hadn't withdrawn officially yet.

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.

All sections were assessed, all sections are on the main campus. There were day, evening and weekend sections.

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

A multiple-choice assessment test is given at the end of the semester. There are 20 questions pulled from the test bank used on the unit tests in the course. The test is administered on Blackboard and scored there, using the goals tool.

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
65.6% of students (124/189) scored 75% or higher on this outcome so the standard of success was not met.

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

Students did well on exponential notation, a % concentration question and recognizing the number of significant figures in a number. Most of these do not involve solving a math problem.

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 did badly on anything involving a math calculation. This is the outcome with the most math. So once again I will blame covid; students are coming in without the math knowledge they need for CEM 101 even though they have the required prerequisite courses. Many of the courses they had were remote either in high school, as CEM 101 is the first science class many of them meet in college, or they also had the courses remotely in college as this is the first semester many classes were finally offered back to students fully face-to-face.

Our plan moving forward is that we will reinforce many of the math concepts, also students will be more face-to-face now so they should hopefully have actually learned the math concepts needed.

Outcome 4: Classify compounds as ionic, molecular, or acids, and apply nomenclature rules to recognize correct chemical names, formulas and balanced chemical equations.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam
 - Assessment Date: Winter 2020
 - Course section(s)/other population: All
 - Number students to be assessed: All
 - How the assessment will be scored: Answer key
 - Standard of success to be used for this assessment: 70% of the students will score 75% or higher
 - Who will score and analyze the data: Departmental faculty

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

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

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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.

The number listed as enrolled in the course is not correct as the lecture and lab had separate sections that semester, so students are being double counted. And another 94 students did not complete this assessment, so the total number of students actually still in the course is 283, out of which we have data for 189. So students either just didn't complete this assessment or had already dropped out of the course but hadn't withdrawn officially yet.

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.

All sections were assessed, and all sections are on the main campus. There were day, evening and weekend sections.

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

A multiple-choice assessment test is given at the end of the semester. There are 20 questions pulled from the test bank used on the unit tests in the course. The test is administered in Blackboard and scored there, using the goals tool.

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

68.3% of students (129/189) scored above the 75% threshold on this outcome so the standard was not met on this outcome.

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

Although students again did not meet the outcome here, this was the best of the three test outcomes. This outcome is more memorization rather than math type questions so it seems that students do better on this.

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 did poorly on a question that used a polyatomic ion, and another involving a calculation, so once again, math and applying math to chemistry lets the students down. However this was the closest to meeting the standards we had.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

There were no changes from the previous assessment report.

2. 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 this course is still meeting the needs of students but not all students as is obvious from the number of students who didn't meet the standards. I know blaming covid is a bit obvious but I can't think of any other reason the standards went down so much. The last assessment was pre-covid and also done during a summer semester and several things about that report were a little strange. Out of 82 students enrolled in the course, 76 students were assessed which means that during the semester only 6 students dropped or just didn't do the final assessment, that is very low number if you compare it to the numbers here, we had 189 students complete the final assessment and a further 94 students who did not, so over 33% of the students didn't get to, or complete the final assessment while in the previous it was only 7.3%.

Also on the outcomes we didn't meet the standard on, prior math and science knowledge is really essential and these students clearly either didn't have this prior knowledge or didn't have the skills needed to catch up during the course. Chemistry at this level is very math- heavy and students who lack the basic math skills will do badly. The math level needed is math level 3, so if a student got to math level 3 virtually or online they may not have fully understood the concepts needed.

My last thing is that CEM 101 has a high failure rate with usually 20-25% of students either dropping, failing or withdrawing from the course so with this high a number our results are quite good...

On outcome 2, the lab report, students are performing at a high level, this may sound a little surprising given the other scores, but the lab is done in-person with an instructor giving clear instructions, and often helping with the math required. Also the students are instructed from week one on how to write a correct lab report and as long as they follow the directions, they will do well on the lab report. In fact we often find students will have a very high score on the lab part of the course and will still fail the lecture part of the course, as there is no instructor helping out during tests.

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

We will discuss this report during a department meeting.

4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
<p>Course Materials (e.g. textbooks, handouts, on-line ancillaries)</p>	<p>Homework will be implemented in the course, and it will be worth enough points to make it worthwhile for students to do it.</p> <p>The number of unit tests and how they are formatted will also change.</p> <p>The Blackboard site for this course has been completely updated with new PowerPoint slides, new handouts, new practice problems for the students and instructors to use. Videos have also been added so students can view these in addition to attending class.</p>	<p>Practice is so important in chemistry. Students often follow along with the instructor during class and think they know how to do the problems, but they don't, as clearly shown in these assessment results. Having students do problems similar to the ones they will encounter on tests will help them understand the concepts properly.</p> <p>Most of the unit tests, of which there are 11, are multiple-choice, and with the availability of practice tests, the students were taking almost the same test by the time they got to the testing center, as there are only so many questions in the test bank. Now there will be fewer tests, and they will be more on paper and not multiple-choice which forces</p>	<p>2023</p>

		<p>students to write their answers out and also allows for partial credit. It also makes sure that students are not just blindly learning off all of the possible multiple-choice questions and then doing well on the test based on this. My own son told me this was his strategy in a science class he took, not this one, but he kept doing the practice tests instead of trying to learn by going over lecture notes and doing examples, and he did get an A in the course.</p> <p>The course materials have been updated and made more consistent between sections, hopefully this will mean all students have much the same experience in the course.</p>	
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5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

[lab report rubric](#)
[Assessment data](#)

Faculty/Preparer: Breege Concannon **Date:** 03/29/2023
Department Chair: Breege Concannon **Date:** 03/29/2023
Dean: Tracy Schwab **Date:** 03/29/2023
Assessment Committee Chair: Shawn Deron **Date:** 05/11/2023

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Chemistry	101	CEM 101 11/06/2017- Introductory Chemistry
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Physical Sciences	Kathleen Butcher
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Recognize the concepts and principles of general chemistry relating to matter and changes, including fundamental measurements, density, stoichiometry, types of chemical reactions, electronic structure, acids/bases, gases, basic atomic theory, chemical bonding, and intermolecular forces at an introductory level.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam.
 - Assessment Date: Winter 2017
 - Course section(s)/other population: All
 - Number students to be assessed: All
 - How the assessment will be scored: answer key
 - Standard of success to be used for this assessment: 70% of the students will score 75% or higher.
 - Who will score and analyze the data: Departmental faculty

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)
		2017

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

# of students enrolled	# of students assessed
82	76

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.

In all but two cases, students had already withdrawn from the course.

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.

There were 4 actual sections included in this assessment: 2 day sections which were F2F sections, and two Saturday sections which were MM.

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

A final assessment exam is given at the end of the course. Each student received an exam containing 20 multiple choice questions. Questions cover units 1-11 and are randomly selected as well as graded via our departmental program. Student scoring is based solely on the number of correct answers divided by 20 (the number of total questions), multiplied by 100, so the final score is the percentage of questions answered correctly.

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

The average score for Outcome #1 was 89%, for 89% of students taking this exam.

Standard of success to be used for this assessment: 70% of the students will score 75% or higher.

The standard of success was met for Outcome #1.

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

6 questions from the final assessment exam related directly to Outcome #1. They are included in the attached report. The average percent score was 89%.

Students performed far above the standard of success set out for Outcome #1.

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.

As no real weaknesses were found we plan to go forward teaching the course as we have been doing. Though this report does not specifically ask for differences, if any, found in terms of mode of delivery, I do want to address that. We were surprised to note that students in the MM class performed on par with our F2F students. This was unexpected but nice to know.

Finally, I do attribute most of this success to a very good course design and an amazing set of full-time and part-time faculty who truly deserve most of the recognition and congratulations for the success of these students in this course.

Outcome 2: Perform laboratory procedures related to science processes and apply basic math concepts, chemical calculations and dimensional analysis to collecting data and calculating results.

- Assessment Plan
 - Assessment Tool: Sample of laboratory reports
 - Assessment Date: Winter 2017
 - Course section(s)/other population: All sections
 - Number students to be assessed: Random sample of 25% of students in each section
 - How the assessment will be scored: departmentally-developed rubric
 - Standard of success to be used for this assessment: 75% of the students will score 6 out of 9 (66% or higher).
 - Who will score and analyze the data: Departmental faculty

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)
		2017

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

# of students enrolled	# of students assessed
82	20

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.

A random sample of 25% of students in each section were assessed.

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.

Basically, 5 student laboratory reports were randomly selected from each of the 4 sections and assessed.

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

Departmentally-developed rubric - see rubric attached to course syllabus. The four faculty members from the 4 sections of this course sat together and each then randomly assessed 5 reports. The faculty then reviewed each other's assessments. If there was not agreement on scoring, the faculty would discuss it and come to an agreement on the final score.

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

Standard of success to be used for this assessment: 75% of the students will score 6 out of 9 (66% or higher).

Happily, 19 out of the 20 reports reviewed scored 66% or higher. Actually, most scored 90 to 100%.

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

More than 90% of the lab reports assessed met or exceeded the standard of success for Outcome #2!

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.

As no real weaknesses were found, we plan to go forward teaching the course as we have been doing. In the case of Outcome #2, there were no differences in terms

of mode of delivery. For all sections of the course, the lab experience remains exactly the same.

All students come to the college to and do the same exact labs. I would not expect any significant difference between sections in terms of student success/performance, and in fact, none was found. All students did a great job in terms of both lab performance as well as lab reporting.

Finally, I do attribute most of this success to a very good course design and an amazing set of full-time and part-time faculty who truly deserve most of the recognition and congratulations for the success of these students in this course.

Outcome 3: Apply the basic concepts of dimensional analysis, exponential notation and significant figures to calculate stoichiometric quantities, solution concentrations and temperature, pressures and volumes of gases.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam.
 - Assessment Date: Winter 2017
 - Course section(s)/other population: All
 - Number students to be assessed: All
 - How the assessment will be scored: answer key
 - Standard of success to be used for this assessment: 70% of the students will score 75% or higher.
 - Who will score and analyze the data: Departmental faculty

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)
		2017

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

# of students enrolled	# of students assessed
82	76

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.

Basically any students who did not complete the course did not take the exam. A number of these were students who received a W in the course. This exam is required for all students taking the course. It is stated in the syllabus that students must take this exam.

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.

This assessment covered 4 sections. 2 were F2F sections during the day and 2 were MM.

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

This was a multiple choice test covering material for the entire semester. Questions were included to specifically assess Outcomes #1, #3 and #4. 20 questions made up the test. 6 questions addressed Outcome #1, and 7 questions specifically addressed Outcomes #3 and #4.

For all students who took the test, the number of students who got each of the questions right were counted. Then for each individual question, the total number of students who answered the questions correctly was divided by the total number of students taking the test. That value was then multiplied by 100 to give the percent of students who answered that question correctly.

For each learning outcome, the overall percent of students answering correctly was determined and those values were then compared to the standard of success for each outcome.

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

The average score for Outcome #3 was 86% for 89% of students taking this exam.

Standard of success to be used for this assessment: 70% of the students will score 75% or higher.

The standard of success was met for Outcome #3.

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

7 questions from the final assessment exam related directly to Outcome #3. They are included in the attached report. The average score was 86%.

Students performed far above the standard of success set out for Outcome #3.

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.

As no real weaknesses were found, we plan to go forward teaching the course as we have been doing. Though this report does not specifically ask for differences, if any, found in terms of mode of delivery, I do want to address that. We were surprised to note that students in the MM class performed on par with our F2F students. This was unexpected but nice to know.

Finally, I do attribute most of this success to a very good course design and an amazing set of full-time and part-time faculty who truly deserve most of the recognition and congratulations for the success of these students in this course.

Outcome 4: Classify compounds as ionic, molecular, or acids, and apply nomenclature rules to recognize correct chemical names, formulas and balanced chemical equations.

- Assessment Plan
 - Assessment Tool: Multiple-choice departmental exam
 - Assessment Date: Winter 2017
 - Course section(s)/other population: All
 - Number students to be assessed: All
 - How the assessment will be scored: answer key
 - Standard of success to be used for this assessment: 70% of the students will score 75% or higher.
 - Who will score and analyze the data: Departmental faculty

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)
		2017

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

# of students enrolled	# of students assessed
------------------------	------------------------

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.

Basically any students who did not complete the course did not take the exam. A number of these were students who received a W in the course. This exam is required for all students taking the course. It is stated in the syllabus that students must take this exam.

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.

This assessment covered 4 sections. 2 were during the day F2F and 2 were MM.

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

This was a multiple choice test covering material for the entire semester. Questions were included to specifically assess outcomes #1, #3 and #4. 20 questions made up the test. 6 questions addressed learning outcome #1, and 7 questions specifically addressed learning outcomes #3 and #4.

For all students who took the test, the number of students who got each of the questions right were counted. Then for each individual question, the total number of students who answered the questions correctly was divided by the total number of students taking the test. That value was then multiplied by 100 to give the percent of students who answered that question correctly.

For each learning outcome, the overall percent of students answering correctly was determined and those values were then compared to the standard of success for each outcome.

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

The average score for Outcome #4 was 90% for 89% of students taking this exam.

Standard of success to be used for this assessment: 70% of the students will score 75% or higher.

The standard of success was met for Outcome #4.

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

7 questions from the final assessment exam related directly to Outcome #3. They are included in the attached report. The average score was 95%.

Students performed far above the standard of success set out for Outcome #4.

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.

As no real weaknesses were found, we plan to go forward teaching the course as we have been doing. Though this report does not specifically ask for differences, if any, found in terms of mode of delivery, I do want to address that. We were surprised to note that students in the MM class performed on par with our F2F students. This was unexpected but nice to know.

Finally, I do attribute most of this success to a very good course design and an amazing set of full-time and part-time faculty who truly deserve most of the recognition and congratulations for the success of these students in this course.

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?

Clearly, from the strong results in all areas assessed, this course is doing a very good job of meeting student needs. Not really surprised but very pleased.

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

To be shared with department as well as with the Chemistry 101 part-time instructors.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
No changes intended.			

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

5.

III. Attached Files

[final assessment](#)

[doc 2](#)

[documents for !01](#)

[doc 3](#)

[doc 4](#)

Faculty/Preparer: Kathleen Butcher **Date:** 11/27/2017
Department Chair: Kathleen Butcher **Date:** 01/25/2018
Dean: Kristin Good **Date:** 01/25/2018
Assessment Committee Chair: Michelle Garey **Date:** 02/26/2018