

GBC Class/Course Assessment Report

Course Prefix, Number, and Title: CHEM100 (Molecules & Life in Modern World) - all online course

Section Number(s): 1001/1002

Department: Science

Instructor: Daniel Bergey

Academic Year: 2020-2021

Semester: SPR2021

Is this a GenEd class? Yes ___ No X

- Complete and submit your assessment report electronically to the Dean of Arts & Sciences by May 31st. As needed, please attach supporting documents and/or a narrative description of the assessment activities. You may use as many or as few outcomes as necessary.

Class/Course Outcomes	Assessment Measures	Assessment Results	Outcome Results Analysis
In the boxes below, summarize the outcomes assessed in your class or course during the last year. If this is a GenEd class, include the appropriate GenEd objectives.	In the boxes below, summarize the methods used to assess course outcomes during the last year. Include the criterion you'll use to judge whether or not students have achieved the expected outcome.	In the boxes below, summarize the results of your assessment activities during the last year. Include your judgement as to whether or not the criterion for student achievement has been met.	In the boxes below, please reflect on this outcome's results, and summarize how you plan to use the results to improve student learning.
Outcome #1: <ul style="list-style-type: none"> Discuss the states and properties of matter 	Assessment Measure: <ul style="list-style-type: none"> Quizzes, Exams, Homework Criterion for achievement: <ul style="list-style-type: none"> 70% of class with 70% or higher 	Results: <ul style="list-style-type: none"> 14/16 Criterion Met: <ul style="list-style-type: none"> Yes 	1. Results Analysis: <ul style="list-style-type: none"> Students had little problem grasping this essential content 2. Action Plan: <ul style="list-style-type: none"> None required.
Outcome #2: <ul style="list-style-type: none"> Describe the basic structure of atoms and ions, and relate them to their location in the Periodic Table, their charge, and the number of fundamental particles. 	Assessment Measure: <ul style="list-style-type: none"> Quizzes, Exams, Homework Criterion for achievement: <ul style="list-style-type: none"> 70% of class with 70% or higher 	Results: <ul style="list-style-type: none"> 13/16 Criterion Met: <ul style="list-style-type: none"> Yes 	1. Results Analysis: <ul style="list-style-type: none"> Most students readily mastered these fundamental skills and general content 2. Action Plan: <ul style="list-style-type: none"> None required

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<p>Outcome #3:</p> <ul style="list-style-type: none"> Discuss the basics of chemical bonding including polarity of diatomic molecules. 	<p>Assessment Measure:</p> <ul style="list-style-type: none"> Quizzes, Exams, Homework <p>Criterion for achievement:</p> <ul style="list-style-type: none"> 70% of class with 70% or higher 	<p>Results:</p> <ul style="list-style-type: none"> 12/16 <p>Criterion Met:</p> <ul style="list-style-type: none"> Yes 	<p>1. Results Analysis:</p> <ul style="list-style-type: none"> Some students found these concepts abstract, and hard to grasp initially <p>2. Action Plan:</p> <ul style="list-style-type: none"> Include brief video supplements
<p>Outcome #4:</p> <ul style="list-style-type: none"> Scientific Reasoning Proficiency in the use of scientific terminology. Effectively interpret and apply scientific principles. Utilize the scientific method to arrive at informed conclusions. 	<p>Assessment Measure:</p> <ul style="list-style-type: none"> Quizzes, Exams, Practice problems <p>Criterion for achievement:</p> <ul style="list-style-type: none"> 70% of class with 70% or higher 	<p>Results:</p> <ul style="list-style-type: none"> 12/16 <p>Criterion Met:</p> <ul style="list-style-type: none"> Yes 	<p>1. Results Analysis:</p> <p>2. Action Plan:</p> <ul style="list-style-type: none"> Include additional practice quiz and worksheet
<p>Outcome #5:</p> <ul style="list-style-type: none"> Data Interpretation and Generation Effectively apply mathematical principles and quantitative methods to collect and analyze scientific data. Effectively read and interpret graphs and data to arrive at informed conclusions. 	<p>Assessment Measure:</p> <ul style="list-style-type: none"> Quizzes, Exams, Homework <p>Criterion for achievement:</p> <ul style="list-style-type: none"> 70% of class with 70% or higher 	<p>Results:</p> <ul style="list-style-type: none"> 12/16 <p>Criterion Met:</p> <ul style="list-style-type: none"> Yes 	<p>1. Results Analysis:</p> <ul style="list-style-type: none"> Not surprisingly, there are always some students in the class that have weak math backgrounds, and find these concepts more difficult to grasp than others. <p>2. Action Plan:</p> <ul style="list-style-type: none"> Include brief video supplements and more worked example problems for reinforcement

Notes:

(1) The COVID adjustments had very little impact on this course since it is an “all on-line” course. I have not had a chance to carefully review all my student evaluations for this course yet, but judging from my frequent email interactions with students during the semester, the vast majority of students seemed to know exactly what was expected of them and appeared to have few concerns and anxiety about the course. By necessity, chemistry, even non-majors chemistry, is a fairly math-intensive (basic algebra) course. Consequently, the cause of virtually any student struggling with CHEM100 is due to poor basic math skills. Although basic algebra is a pre-req for this course, every semester there is a handful of students that enroll who clearly have not acquired proficiency in basic algebra, and consequently struggle during the course, or withdraw by the third week. Factors contributing to the lower levels of student anxiety in CHEM100 during the last two semester are (1) my efforts to anticipate students concerns and post frequent updates and reminders in

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the webcampus course website, and (2) to ensure all lecture notes, assignments, reading, etc. are posted on the course website at least a week before the relevant chapters are formally covered, according to the syllabus schedule. Making course content available well in advance also gave motivated students opportunities to access information well in advance of formal scheduled coverage. In the syllabus, and during the first week of the class, I stress the importance of reviewing and honing basic algebra skills to be used throughout the entire semester. I also provide ample worked examples and video tutorials covering these basic math skills. This early emphasis has seemed to quell a lot of initial student apprehension in the course. I will continue these strategies all future courses.

(2) I did not see a significant change in the student performance from last semester. I teach CHEM100 every semester, and consistently find that over 90% of my students are pursuing a career in a health sciences-related profession (e.g., nursing, medicine, radiology, physical therapy). Students pursuing another biological sciences-related degree often take this course as a preparatory introduction to chemical principles before going on to take the more rigorous CHEM121 (majors chemistry). This is a valuable and relevant course for our students, and I continue to greatly enjoy teaching it.

(3) I had 4 students earn “D” grades in the course. However, each of these students put little effort into the course, and missed multiple quizzes and assignments. On the other hand, I had two students earn over 97% for their final course point average. There are always a few exceptional students in CHEM100 every semester, and there are always a few students (typically 3-4) who simply do not show up, and end up with “F” grades at the end of the semester. The rest of the students are in between, and the overall class average in my CHEM100 course every semester is consistently between 75-78%.

I have reviewed this report:

Department Chair

Date _____

Dean

Date _____

Vice President of Academic Affairs and Student Services

Date _____