UNIVERSITY OF ARKANSAS
PULASKI TECH

Course-Level Assessment Report
Course: CHEM 1303
Fundamentals of Chemistry I
Academic Year: 2020-2021

1. Name of course: CHEM 1303 Fundamentals of Chemistry I

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3. Date of submission: 2021 Sept 27

4. Academic year: 2020-2021

Course-Level Learning Outcomes

What are the Course-Level Outcomes (CLOs)?

Upon completion of this course, the student should be able to:

1. Student will describe measureable properties of matter by applying the metric and American systems of measurement, correct significant figures and scientific notation.
2. Student will apply the knowledge of the structure of the atoms and compounds, by utilizing the periodic table, different types of bonds, and nomenclature.
3. Student will apply the knowledge of thermodynamics, activation energy, equilibrium and stoichiometric quantities to a variety of reaction types.
4. Student will apply the chemical principles of compounds and reactions, using correct terminology and concepts, as related to gases, solutions, acids and bases, and radioactive materials.

1. Which CLOs were addressed for the academic year?

Number 1: Student will describe measureable properties of matter by applying the metric and American systems of measurement, correct significant figures and scientific notation.

2. Which CLOs are being addressed in your assessment plan in the upcoming academic year?

Number 2: Student will apply the knowledge of the structure of the atoms and compounds, by utilizing the periodic table, different types of bonds, and nomenclature.

Specifically addressing issue of converting compound names into correct formulas.

3. Explain the assessment cycle.

CLOs are assessed every semester with major changes in assessment occurring annually. New assessment efforts start in the spring semester, with follow-up in the fall. Instructors meet at the beginning of each semester to analyze old results, develop changes to curriculum and assessment, and determine how assessment will be carried out.

4. What are the assessment methods? Are they direct or indirect?

We use a direct method of a final exam given to all students in all sections. The exam has 8 questions pertaining to the first CLO. Questions can be improved in the fall semester, however questions for new topics selected for assessment are substituted in during the spring semester.

Exam questions must be taken for a score or points, and must not be shared beforehand.

5. What are the assessment goal(s), including benchmarks?

The goal is for 70% of the students to pass the CLOs with 70% rate.

Besides the CLOs themselves, Fundamentals of Chemistry I requires completion of College Algebra. Assessment topics include mathematical concepts introduced in the earlier course upon which we have added application of the concepts. Therefore these assessments include assessing how much students learned and retained in earlier courses.

6. What were the findings for the academic year?

5. Student will describe measurable properties of matter by applying the metric and American systems of measurement, correct significant figures and scientific notation.

Pass rate = 86% (N = 66)

7. What is your analysis of the findings?

Student pass rates on this essential, early skill have improved since the standardization of assessment across all sections three years ago. There was no difference in pass rate among online and in-person sections. This is pleasantly surprising given the shift to more online instruction and assessment processes in general since the start of the pandemic.

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Instruction of students in the principals of conversion of units is sufficient to shift focus to more advance, dosage-style questions many will encounter in nursing programs. This will become the focus of course improvement at a later date.

9. What is the action plan for the upcoming academic year? Explain.

Faculty are developing an assessment of CLO 2, focusing on concept of compound bonding, naming, and formulas. The tool will be first used in the Spring 2022 semester, with a follow-up with any improvements in fall 2022. Spring 2023 will also utilize this assessment, with the hope of completing the use of this tool that semester upon meeting all goals.

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