



PROGRAM ASSESSMENT REPORTING

2015-2016

Indiana University Kokomo

2300 S. Washington Street
Kokomo, IN 46902-9003



Hisako Masada School of Sciences (Chemistry/BioChemistry)

Learning Outcome

Briefly describe the learning outcome(s) you are reporting on for this cycle. If you have submitted a full copy of your program assessment plan to the Director of Assessment, you may use your numbering system from that document to identify the learning outcome of interest (i.e., We are reporting on learning outcome 2.4, Writing Effectively, described on page 7 of our assessment plan). You may also note specific components of learning outcomes in your description.

Goal II Laboratory work and performance

Outcome 1: Students will demonstrate the understanding and ability to carry out laboratory procedures effectively and safely.

Outcome 2: Students will collect, analyze, and draw relevant conclusions from experimental data.

Outcome 3: Students will design procedures appropriate to the goal of an investigation.

Assessment Date(s)

If you have previously assessed that/those learning outcome(s), when did that assessment occur, and what was your main conclusion from that assessment? What change(s) did you implement in teaching, curriculum, or other aspects of your program to address any weaknesses your assessment revealed?

Method of Measurement

Briefly describe how you measured student learning on the program learning outcome(s) you noted, in this cycle. Also, describe the course(s) or setting(s) where the assessment took place. For example, quizzes/tests/exams (or selected questions on quizzes/tests/exams), written papers, or presentations from specific courses, or standardized tests given at specific points in the program, are common student artifacts that are used in learning assessment.

C329 / L329

Outcome 1: from lab report 4, protein purification

Outcome 2: from lab report 3, protein denaturation efficiency

Outcome 3: from lab practical, Generation of standard curve to determine the concentration of an unknown sample

Student Sample

Briefly describe the student sample (i.e., sample size, typical year in college at time of enrollment) to aid interpretation.

Chemistry/Biochemistry majors: 4 students

Biology majors: 6 students

BIPH majors: 2 student2
 Psychology major: 1 student

Quantitative Results

Please report the quantitative findings resulting from your data analysis. For example, you might report the percentage of students who met an acceptable level of performance, or average student performance on a particular measure, or the percentile rank achieved by a group of students in comparison to a larger pool (such as on a standardized assessment tool).

Outcome 1: Chemistry/Biochemistry (100%)
 Others (100%)
 Outcome 2: Chemistry/Biochemistry (75%)
 Others (78%)
 Outcome 3: Chemistry/Biochemistry (100%)
 Others (78%)

Interpretation

Please state your interpretation of these findings, and your Action Plan for future improvement of student learning.

C329/L329: 100% of students successfully purified recombinant protein, which was later submitted as a part of lab report 4. The skills needed to successfully complete data analysis for lab report 3 were to denature proteins and to analyze the rate of protein denaturation using an image-analysis program. Students were asked to design experiments to accurately determine the concentration of unknown protein samples in the lab practical. On average, more than 78% of students successfully completed these tasks, reaching our goals.

Actions

Are there actions that IU Kokomo can take to support implementation of your Action Plan? Are there institutional challenges that your program faces that will make improvement of student learning on this outcome difficult? If so, you can describe those challenges and needs here.

NA

Sharing

Please describe how you have shared these findings (for example, with current and prospective students, faculty, specific accrediting bodies, or other relevant parties). If you have not yet shared your findings, please describe your plan for dissemination.

We have not shared this information and do not plan to at the present time.

Comments

If you have other comments about assessment to share with the Committee, please do so here.

Consultation

Do you wish for the Director of Assessment, Dr. Julie Saam (jsaam@iuk.edu), to consult with your faculty regarding this result? That is, are you wishing for assistance at this time with your next steps?

No

Sara Deyo School of Sciences (Chemistry)

Learning Outcome

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Outcome 2: Students will collect, analyze, and draw relevant conclusions from experimental data.

Assessment Date(s)

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For C126

Outcome 1: Lab exercise, determining the hardness of water, successfully perform titration.

Outcome 2: Exam 2, question 9, successfully perform titration calculations

Student Sample

Briefly describe the student sample (i.e., sample size, typical year in college at time of enrollment) to aid interpretation.

Chemistry Majors/Minors/Biochemistry Majors: 4/4//2 students

Quantitative Results

Please report the quantitative findings resulting from your data analysis. For example, you might report the percentage of students who met an acceptable level of performance, or average student performance on a particular measure, or the percentile rank achieved by a group of students in comparison to a larger pool (such as on a standardized assessment tool).

Outcome 1: 9/10

Outcome 2: average score of 7.2 / 10 points

Interpretation

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Actions

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Sharing

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We do not plan to share this information at this time.

Comments

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Consultation

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No

Denise Chauret School of Sciences (Chemistry)

Learning Outcome

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Goal 2 (Laboratory Work and Performance)

Outcome 2 (Students will collect, analyze, and draw relevant conclusions from experimental data)

Assessment Date(s)

If you have previously assessed that/those learning outcome(s), when did that assessment occur, and what was your main conclusion from that assessment? What change(s) did you implement in teaching, curriculum, or other aspects of your program to address any weaknesses your assessment revealed?

Method of Measurement

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Component 1. Collection and organization of relevant data.

-Chromatography technique lab: the ability to run TLCs (thin layer chromatograms) and transfer accurate images of them into the lab notebook.

Component 2. Analyze experimental data appropriately.

-Final Exam, question 5a: correctly calculating Rf values for spots on a TLC plate.

Component 3. Interpretation of processed data.

-Final Exam, questions 5bc: compound polarity determinations and practical implications with respect to TLC and column chromatography.

Component 4. Identification of experimental errors.

-Final Exam, question 1a: issues resulting from improperly performed hot filtration during recrystallization.

Student Sample

Briefly describe the student sample (i.e., sample size, typical year in college at time of enrollment) to aid interpretation.

Of 24 students in the two lab sections, 6 were chemistry or biochemistry majors.
These students ranged from sophomore to senior.

Quantitative Results

Please report the quantitative findings resulting from your data analysis. For example, you might report the percentage of students who met an acceptable level of performance, or average student performance on a particular measure, or the percentile rank achieved by a group of students in comparison to a larger pool (such as on a standardized assessment tool).

Component 1: 100% of chemistry/biochemistry students and
100% of other students

were able to spot and run TLCs properly, and transfer images of them
into their lab notebooks.

Component 2: The Final Exam question regarding Rf value calculation was
answered 79% correctly by chemistry/biochemistry students and
90% correctly by other students.

(Answering the question at least 70% correct: 67% of chem/biochem students
89% of other students)

Component 3: The Final Exam question regarding compound polarity determinations, with practical
implications was answered

67% correctly by chemistry/biochemistry students and
86% correctly by other students.

(Answering the question at least 70% correct: 50% of chem/biochem students
78% of other students)

Component 4: The Final Exam question regarding identification of errors resulting from improperly
performed hot filtration was answered

67% correctly by chemistry/biochemistry students and
81% correctly by other students.

(Answering the question at least 70% correct: 50% of chem/biochem students
78% of other students)

Interpretation

Please state your interpretation of these findings, and your Action Plan for future
improvement of student learning.

Make an effort to ensure continued motivation of chemistry/biochemistry students
to perform at their highest possible level, and encourage them to ask questions
when they do not understand a technique or concept.

Actions

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NA

Sharing

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We do not plan to share this data at the current time.

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Kasem Kasem School of Sciences (Chemistry)

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Outcome 1: Labs 2,3,4, 5,6,10,11

Ability to carry out laboratory procedures effectively and safely.

Outcome 2: Labs 2,3,10,11

collect, analyze, and draw relevant conclusions from experimental data

Outcome 3: ICP experiment (lab9)

Student were able to produce a standard curve to determine the concentration of an unknown metal ion

Student Sample

Briefly describe the student sample (i.e., sample size, typical year in college at time of enrollment) to aid interpretation.

Course Number C311
Chemistry/Biochemistry majors: 6 students
BIPH majors: 2 student

Quantitative Results

Please report the quantitative findings resulting from your data analysis. For example, you might report the percentage of students who met an acceptable level of performance, or average student performance on a particular measure, or the percentile rank achieved by a group of students in comparison to a larger pool (such as on a standardized assessment tool).

Outcome 1: Chemistry/Biochemistry (100%)
Others (50%)
Outcome 2: Chemistry/Biochemistry (80%)
Others (50%)
Outcome 3: Chemistry/Biochemistry (100%)
Others (50%)

Interpretation

Please state your interpretation of these findings, and your Action Plan for future improvement of student learning.

C311 : 100% of chem. /Biochem. students successfully performed the given procedure in given lab manual, learn how to operate analytical instrumentations and be aware of the sources of errors . Students were asked to present a lab report using the guidance on how to make an excellent lab report. Students were also able to derive logical conclusion of the obtained experimental data. The goal III with its outcomes was achieved with more than 80%.

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