

Course Student Learning Outcomes Assessment

BIOL 229 General Microbiology

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General Information (Course Student Learning Outcomes Assessment)

Standing Requirements

Course Description

Introduction to microorganisms their classification structure biochemistry growth control and their interactions with other organisms and the environment. Designed for biology preprofessional and prenursing (BSN) majors. This course may also include an optional field trip.

Course Student Learning Outcomes

BIOL 229 General Microbiology Outcome Set

Outcome	
Outcome	Mapping
Outcome 1 Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.	Institutional Student Learning Outcomes: Act 3, Learn 1, Think 1, Think 3
Outcome 2 Employ the principles of the scientific method to both laboratory and conventional investigations.	Institutional Student Learning Outcomes: Learn 3, Think 1, Think 3
Outcome 3 Conduct laboratory investigations according to given experimental procedure, collect and analyze resulting experimental data, and formulate valid conclusions based on the results.	Institutional Student Learning Outcomes: Act 3, Communicate 3, Learn 3, Think 1, Think 2

2014-2015 Assessment Cycle

Measurements

Outcomes and Measures

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: 10 Embedded questions in exam 1 relating to the topic

Criteria for Success: Individual & Collective Student Criterion: Based on previous data, I have set my benchmark for success at 50% correct answers on the post test.

Cycle of Assessment: Fall 2015

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course

Outcome 2

Employ the principles of the scientific method to both laboratory and conventional investigations.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations.

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Outcome 3

Conduct laboratory investigations according to given experimental procedure, collect and analyze resulting experimental data, and formulate valid conclusions based on the results.

▼ **Measure:** Means of assessment 229
Course level; Direct - Other

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings

Finding per Measure

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: 10 Embedded questions in exam 1 relating to the topic

Criteria for Success: Individual & Collective Student Criterion: Based on previous data, I have set my benchmark for success at 50% correct answers on the post test.

Cycle of Assessment: Fall 2015

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course

Findings for Means of assessment 229

No Findings Added

Outcome 2

Employ the principles of the scientific method to both laboratory and conventional investigations.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations.

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings for Means of assessment 229

Summary of Findings: 17/43 (39.5%) students demonstrated an unflawed, logical progression from their hypothesis to their conclusion. 23/43(53.5%) included a minor flaw while only 3 (7%) students had a major flaw in their logical progression to a conclusion.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Most students understand the process of the scientific method and can apply logical reasoning. Minor errors often resulted from interpreting the results of a test incorrectly, but overall they could still arrive at a logical conclusion despite their error. Only 3 students in the class had major problems, which resulted from incomplete analysis of their results.

Recommendations: This project is almost ideal in engaging students in the scientific process. I will continue to use this project.

Outcome 3

Conduct laboratory investigations according to given experimental procedure, collect and analyze resulting experimental data, and formulate valid conclusions based on the results.

▼ **Measure:** Means of assessment 229
Course level; Direct - Other

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings for Means of assessment 229

Summary of Findings: 22/43 students interpreted all the experimental results correctly 20/43 had an error in a test interpretation. 1/43 had several errors in interpreting results.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Most students are performing well. This group of students appeared to struggle more than previous classes but I had difficulty getting them to ask for help. The result of this was that more students had some errors in interpretation than previous classes but the overall performance as still satisfactory.

Recommendations: The identification of an unknown microorganism is a very good exercise for gauging an individual student's ability to apply what they have learned. They are very engaged in the process and work diligently to arrive at a conclusion. This project will continue to be utilized.

Overall Recommendations

No text specified

Plans of Action

Status Reports

2013-2014 Assessment Cycle

Measurements

Outcomes and Measures

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: 10 Embedded questions in exam 1 relating to the topic

Criteria for Success: Individual & Collective Student Criterion: Based on previous data, I have set my benchmark for success at 50% correct answers on the post test.

Cycle of Assessment: Fall 2013

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course

Outcome 2

Employ the principles of the scientific method to both laboratory and conventional investigations.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations.

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Outcome 3

Conduct laboratory investigations according to given experimental procedure, collect and analyze resulting experimental data, and formulate valid conclusions based on the results.

▼ **Measure:** Means of assessment 229
Course level; Direct - Other

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations

Cycle of Assessment: Fall 2015

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings

Finding per Measure

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: 10 Embedded questions in exam 1 relating to the topic

Criteria for Success: Individual & Collective Student Criterion: Based on previous data, I have set my benchmark for success at 50% correct answers on the post test.

Cycle of Assessment: Fall 2013

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course

Findings for Means of assessment 229

Summary of Findings: Of 63 students who took the exam, only 22% (n=14) answered ½ of the questions correctly. 50% correct was my benchmark that I set because of past experience with the course.

Results: Criteria for Success Achievement Status: Not Met

Analysis of Findings: The students did not meet the benchmark. This pass rate looks much more like the pre-test score of the previous semesters. Despite being an exam, the measurement of SLO success is very low. This may relate to timing in the semester. SLO assessment probably should only be done at the end of the semester.

Recommendations: I performed the analysis differently to try the new PAR system. I did not do the pre-post test as before but used questions in the first exam. If I use the system again, I need to assess SLOs only at the end of the semester, perhaps in the final or as a stand alone exam. I may return to the pre-post test.

Outcome 2

Employ the principles of the scientific method to both laboratory and conventional investigations.

▼ **Measure:** Means of assessment 229
Course level; Direct - Exam

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations.

Cycle of Assessment: Fall 2014

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings for Means of assessment 229

Summary of Findings: 44/50 assessed students 88% demonstrated an unflawed, logical progression from their hypothesis to their conclusion.

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Most students understand the process of the scientific method and can apply logical reasoning. 6/50 made a minor error which affected their outcome.

Recommendations: The identification of an unknown microorganism is still a successful undertaking with the vast majority of students successfully employing scientific investigation. This project will continue to be utilized.

Outcome 3

Conduct laboratory investigations according to given experimental

▼ **Measure:** Means of assessment 229
Course level; Direct - Other

procedure, collect and analyze resulting experimental data, and formulate valid conclusions based on the results.

Description of Measurement Tool: Rubric used to score unknown reports.

Criteria for Success: Individual & Collective Student Criterion: The expectation is that greater than 80% of the students will be scored as successfully meeting the expectations

Cycle of Assessment: Fall 2015

Who is Responsible for Assessment Activity?: Biology faculty currently teaching the course.

Findings for Means of assessment 229

Summary of Findings: 40/50 (80%) of students interpreted all the experimental results correctly and documented ALL necessary evidence for their conclusion

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: 10/50 students made an error in test interpretation which affected their conclusions. The percent of students successfully achieving this outcome is slightly lower than expected but still acceptable.

Recommendations: This project is almost ideal in engaging students in the scientific process. I will continue to use this project and assess the outcome.

Overall Recommendations

No text specified

Plans of Action

Actions

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

Action: Plan of action 229 SLO #1

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Details of Plan of Action: I performed the analysis differently to try the new PAR system. I did not do the pre-post test as before but used questions in the first exam. If I use the system again, I need to assess SLOs only at the end of the semester, perhaps in the final or as a stand alone exam. I may return to the pre-post test.

Plan of Action Timeline: Until next assessment of the cycle.

Who is responsible for carrying out the Plan of Action?: Biology faculty teaching the course.

How will you determine if the Plan of Action has been effective?: Actual meets or exceeds the expected.

Additional Resources Required (if any):

Budget request amount: \$0.00

Priority:

Status Reports

Action Statuses

BIOL 229 General Microbiology Outcome Set

Outcome

Outcome 1

Demonstrate knowledge of the diversity of microorganisms and their role in the biosphere.

▼ Action: Plan of action 229 SLO #1

Details of Plan of Action: I performed the analysis differently to try the new PAR system. I did not do the pre-post test as before but used questions in the first exam. If I use the system again, I need to assess SLOs only at the end of the semester, perhaps in the final or as a stand alone exam. I may return to the pre-post test.

Plan of Action Timeline: Until next assessment of the cycle.

Who is responsible for carrying out the Plan of Action?: Biology faculty teaching the course.

How will you determine if the Plan of Action has been effective?: Actual meets or exceeds the expected.

Additional Resources Required (if any):

Budget request amount: \$0.00

Priority:

Status for Plan of action 229 SLO #1

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2012-2013 Assessment Cycle

 **Measurements**

 **Findings**

 **Plans of Action**

 **Status Reports**