

Assurance of Student Learning 2019-2020	
Ogden College of Science and Engineering	Biology Department
Biology - 056	

Use this page to list learning outcomes, measurements, and summarize results for your program. Detailed information must be completed in the subsequent pages.

Student Learning Outcome 1: Graduates will demonstrate a level of biological content knowledge appropriate to their degree level.

Instrument 1	Biology Assessment Exam (taken during BIOL 500).
Instrument 2	
Instrument 3	

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.	Met	Not Met
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Student Learning Outcome 2: Graduates will demonstrate the ability to apply scientific methodology and field/laboratory/analytical skills to a biological question.

Instrument 1	Representative biology process paper selected by the graduate student (either MS thesis or BIOL 516 project).
Instrument 2	
Instrument 3	

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.	Met	Not Met
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1. **Student Learning Outcome 3:** Graduates will demonstrate an understanding of research ethics and the responsible conduct of research.

Instrument 1	CITI Responsible Conduct of Research modules.
Instrument 2	
Instrument 3	

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.	Met	Not Met
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Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)

Overall, the results from this assessment indicates that the program has reached and/or exceeded the self-reported assessment goals in all of the SLOs.

The following recommendations came out of this year's assessment:

- The Biology Assessment Exam will be revamped with new questions broken into specific subject areas from the PRAXIS Biology exam and will be put in a digital format that will make data collection automated and easier so the weaknesses in specific subject areas can be detected.
- The Biology Assessment Committee will develop an AAC&U LEAP-based assessment rubric to score Master's theses and BIOL 516 research process papers.

Student Learning Outcome 1

Student Learning Outcome	Graduates will demonstrate a level of biological content knowledge appropriate to their degree level.		
Measurement Instrument 1	DIRECT MEASURE: Biology Assessment Exam All Biology graduate students are now required to take BIOL 500 (Introduction to Graduate Studies and Research in Biology) as a requirement for the Master's Degree in Biology. As part of this course, each student is required to take the Biology Senior Assessment Exam in Blackboard, which has questions randomly chosen for each student from a pool of 500 questions from the Biology Subject Graduate Record Exam. Results are given to the Biology Assessment Committee.		
Criteria for Student Success	75% of the graduate students will score a 70% or higher		
Program Success Target for this Measurement	75%	Percent of Program Achieving Target	93%
Methods	In the Fall of 2019, 4 out of 5 students passed the Biology Assessment Exam with a 70% or higher (average of 74.2). In the Spring of 2020, all 8 students passed with 70% or higher (average of 81.6). The total success rate for the 2019/2020 academic year was 13/14 or 92.9%.		
Measurement Instrument 2			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			
Measurement Instrument 3			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			

Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 1.	Met	Not Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)		
1) The proportion of the BIOL 500 grade that comes from taking the Biology Assessment Exam and the subsequent score, will be increased so that students will put more effort into performing their best on the exam to more accurately reflect their knowledge. 2) The Biology Assessment Exam questions will be coded by biological category (e.g., cell biology, genetics, evolution, ecology, etc.) in the future so that student success can be quantified in terms of areas of strengths and weaknesses. In addition, the questions will be updated to use vetted questions from the Praxis Biology exam.		
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)		
Changes to the Biology Assessment Exam (see above) will be incorporated in the Fall 2020 or Spring 2021 semester.		

Student Learning Outcome 2

Student Learning Outcome	Students will apply scientific methodology and field/laboratory/analytical skills to a biological question.		
Measurement Instrument 1	DIRECT MEASURE 1: Representative biology process paper selected by the graduate student (either MS thesis or BIOL 516 project paper)		
Criteria for Student Success	Students will successfully defend their master's thesis or pass their BIOL 516 project paper.		
Program Success Target for this Measurement	90%	Percent of Program Achieving Target	100%
Methods	All Biology graduate students must submit a process paper as a requirement for graduation. For regular thesis students, this paper is their master's thesis, which must be defended successfully. For non-thesis track students, this is a research paper required in BIOL 516. As this is a requirement for graduation, all graduating students successfully completed this criteria.		
Measurement Instrument 2			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			
Measurement Instrument 3			
Criteria for Student Success			
Program Success Target for this Measurement		Percent of Program Achieving Target	
Methods			
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 2.			Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)			Not Met
The Biology Assessment Committee will develop an AAC&U LEAP-based assessment rubric: 75% of graduate students will score 80% or higher. Students already complete either a Master's thesis or a BIOL 516 research paper. In the future, these writing samples will be scored using a standard rubric that will be developed based on AACU&U LEAP principles.			
Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)			
A new rubric for assessing this SLO with a direct measure as an instrument will be implemented during the Fall 2020 or Spring 2021 semester.			

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Student Learning Outcome 3				
Student Learning Outcome	Graduates will demonstrate an understanding of research ethics and the responsible conduct of research.			
Measurement Instrument 1	DIRECT MEASURE: CITI Responsible Conduct of Research Modules.			
Criteria for Student Success	WKU uses the Collaborative Institutional Training Initiative (CITI) to train students and faculty in research ethics and the responsible conduct of research, including safety and this training is required before students can access research laboratories. Thus, we require CITI training (at least the Responsible Conduct of Research Module) in BIOL 500 for each graduate student.			
Program Success Target for this Measurement	100% of graduate students demonstrate competency.	Percent of Program Achieving Target	100%	
Methods	All 2019/2020 graduate students passed the CITI Responsible Conduct of Research Module and earned their CITI certificate.			
Measurement Instrument 2				
Criteria for Student Success				
Program Success Target for this Measurement		Percent of Program Achieving Target		
Methods				
Measurement Instrument 3				
Criteria for Student Success				
Program Success Target for this Measurement		Percent of Program Achieving Target		
Methods				
Based on your results, circle or highlight whether the program met the goal Student Learning Outcome 3.			Met	Not Met
Actions (Describe the decision-making process and actions planned for program improvement. The actions should include a timeline.)				

There is no plan to change this SLO or its rubric at this time as the CITI program is a well-respected national training program for research ethics and the responsible conduct of research

Follow-Up (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.)