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| **Assurance of Student Learning Report****2021-2022** |
| *Ogden College of Science and Engineering* | *Department of Biology* |
| *Biology (0493)* |
| *Jarrett Johnson, Program Coordinator; Kerrie McDaniel, Doug McElroy, Assessment Coordinators* |

***Is this an online program***? [x]  Yes [ ]  No

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| ***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 |
| **Based on your results, check whether the program met the goal Student Learning Outcome 1.** | **[ ]  Met** | **[ ]  Not Met** |
| **Program Summary (Briefly summarize the action and follow up items from your detailed responses on subsequent pages.)**  |
| During 2020-21 and consistent with it’s five-year assessment plan, the Department of Biology Program Review/Assessment Committee (the ‘Committee’) and faculty originally intended to (1) assess 2020-21 artifacts for the SLO and analyzed results from those assessments; and (2) develop and approve recommendations for program improvements based on assessment findings. However, prior to the onset of the assessment cycle, the decision was made by the program faculty to revise the program curriculum – more pertinent – revise the content and delivery of the BIOL 500 course in which the SLO will be assessed. In order to alow the curriculum change process to be completed, the decision was made to defer assessment of the SLO until the curricular and course revision processes were completed. This is now done, and the revised curriculum and BIOL 500 will be implemented in Fall 2022, at which time assessment of the SLO will be undertaken. |

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| **Student Learning Outcome 1** |
| **Student Learning Outcome**  | **Graduates will demonstrate a level of biological content knowledge appropriate to their degree level.** |
| **Measurement Instrument 1**  | **Biology Assessment Exam**The Biology Assessment Exam is an instrument, newly developed in 2020-21, designed to assess content knowledge within the program discipline. The exam is constructed around 12 vignettes, 2 each representing the six major areas of emphasis in our core curriculum (Cells, Metabolism, Genetics, Ecology, Evolution, Diversity). These major areas are literally the elements introduced in our required introductory course sequence (BIOL 120/121 and BIOL 122-123), and reinforced in our restricted elective core choices at the 200-level (BIOL 222/223, 224/225, or 226/227) and 300-level (BIOL 319/322 or 327/337 and BIOL 315 or 316). Free elective courses at the 300- and 400-levels provide students the opportunity to further master these topics in more specific contexts aligned with their individual professional interests. Within each area of emphasis, there are 2 vignettes that are associated with 9 multiple-choice questions. Three (3) questions each test student content knowledge at the introductory, developing, and mastery level. In each area, several questions require interpretation of tables and/or figures, and assess students’ ability to apply the scientific process. This exam design allows for redundant assessment of knowledge by area of emphasis as well as mastery level; in addition, it provides the ability to carry out a meta-analysis of higher-order knowledge and skills such as correct interpretation of data and application of the scientific process.The exam is given either electronically or in-person as part of BIOL 500, our required program course that is taken by students during their first semester at WKU. This is an appropriate time to deliver this assessment, as performance on the assessment exam is used by the program and a student’s graduate advisor as a basis for determining the extent and nature of any remedial coursework that will be required in order for a student to complete the program, as well as design the student’s Program of Study. |
| **Criteria for Student Success** | Students will score at least 60% or higher, with the score on Introductory-level items at least 60%. |
| **Program Success Target for this Measurement** | At least 75% of students will attain the criterion level of success. | **Percent of Program Achieving Target** | N/A – data to be assessed in 2022-23 |
| **Methods**  | All students enrolled in the BIOL 500 course are intended to be assessed. This will generate a sample size of 5-10 each assessment year. This is a relatively new program, so the projected number of graduates has not yet been fully realized. |
| **Based on your results, highlight whether the program met the goal Student Learning Outcome 1.** | **[ ]  Met** | **[ ]  Not Met** |
| **Actions** (Describe the decision-making process and actions for program improvement. The actions should include a timeline.) |
| 1. The program faculty undertook revisions to both the program curriculum and BIOL 500 course in which the SLO will be assessed. As such, the decision was made to defer assessment of the SLO until these processes were completed and revisions implemented. This implementation will occur in Fall 2022.2. The Committee moved from an in-person to electronic delivery format for the assessment exam. This electronic delivery system was piloted during the 2021-22 AY, in preparation for the collection of mid-cycle assessment data during 2022-23, for inclusion in the 2023/24 report. |
| **Follow-Up** (Provide your timeline for follow-up. If follow-up has occurred, describe how the actions above have resulted in program improvement.) |
| 1. Based on assessment findings from other biology programs, the Committee will develop and implement an additional 9-question module within the assessment exam to focus on topics related to molecular biotechnology, immunology and microbiology, and clinical applications; this module will address deficiencies in coverage identified during analysis of 2020-21 assessment data. (Fall 2022). |
| **Next Assessment Cycle Plan** (Please describe your assessment plan timetable for this outcome) |
| 2022-23 academic year |

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| **CURRICULUM MAP TEMPLATE** |  |
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| **Program name:** | 0493 Biology Certificate |
| **Department:** | Biology |
| **College:** | Ogden |
| **Contact person:** | Jarrett Johnson |
| **Email:** | jarrett.johnson@wku.edu |
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| **KEY:** |  |  |
| **I = Introduced** |  |  |
| **R = Reinforced/Developed** |  |  |
| **M = Mastered** |  |  |
| **A = Assessed** |  |  |
|  |  |  | **Learning Outcomes** |
|  |  |  | **LO1:** |
|   |  |  | Graduates will demonstrate a degree of biological content knowledge appropriate to their degree level. |
| **Course Subject** | **Number** | **Course Title** |   |
| BIOL | 500 | Introduction to Graduate Studies and Research in Biology (First Semester) | R,M |
| BIOL | 532 | Behavioral Ecology | M |
| BIOL | 543 | Enivronmental Science Concepts | M |
| BIOL | 545 | Animal Communication | M |
| BIOL | 411G | Cell Biology | M |
| BIOL | 446G | Biochemistry I | M |
| BIOL | 495G | Molecular Genetics | M |
| BIOL | 516 | Investigations/Biology (Last Semester) | M,A |