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| **Assurance of Student Learning Report**  **2022-2023** | | |
| *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***?  Yes  No | Please make sure the Program Learning Outcomes listed match those in CourseLeaf . Indicate verification here  Yes, they match! (If they don’t match, explain on this page under **Assessment Cycle)** | |

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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. Add more Outcomes as needed.*** | | | |
| **Program 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** |
| **Assessment Cycle Plan:** | | | |
| During 2022-23 and consistent with its five-year assessment plan, the Department of Biology Program Review/Assessment Committee (the ‘Committee’) and faculty (1) implemented follow-up activities identified in its 2021-22 ASL Report, and (2) collected artifacts for the next round of bi-annual assessment of the SLO. These assessment data will be analyzed and form the basis of the 2023-24 ASL Report. | | | |

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| **Program Student Learning Outcome 1** | | | | | |
| **Program 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.  This exam is given electronically via the Biology Certificate Blackboard Organization site during the term in which students complete the program.    In 2022-23, the assessment exam was expanded to include a 9-question module addressing topics related to molecular biotechnology, immunology, and microbiology. | | | | |
| **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 – this was not an assessment year | |
| **Methods** | N/A. This was not an assessment year. During 202-23, the program implemented follow-up activities identified during the last assessment cycle and in the 2021-22 ASL Report. | | | | |
| **Based on your results, highlight whether the program met the goal Student Learning Outcome 1.** | | | | **Met** | **Not Met** |
| **Results, Conclusion, and Plans for Next Assessment Cycle (Describe what worked, what didn’t, and plan going forward)** | | | | | |
| Results: In the 2021-22 ASL Report, the program developed 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 addressed deficiencies in coverage identified during analysis of 2020-21 assessment data.  Conclusions: This activity was completed. These new questions were included in the Fall 2022 and Spring 2023 adminsitrations of the assessment, and will be analyzed as part of the 2023-24 ASL Report.  Plans for the Next Assessment Cycle: Analyze and report on assessment data collected during 2022-23, and develop follow-up activities based on the findings. Only students who have a catalog year of 2022-23 or later are required to complete the assessment exam. As the typical student matriculates over the course of several semesters, we anticipate that students who began the program in Fall 2022 may begin taking the assessment exam as early as Spring or Summer 2023 | | | | | |

**\*\*\* Please include Curriculum Map (below/next page) as part of this document**

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| **CURRICULUM MAP TEMPLATE** | | |  |
|  |  |  |  |
| **Program name:** | 0493 Biology Certificate | | |
| **Department:** | Biology | | |
| **College:** | Ogden | | |
| **Contact person:** | Jarrett Johnson | | |
| **Email:** | [jarrett.johnson@wku.edu](mailto: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 |