**ASSESSMENT REPORTING FORM**

**(To be Completed by Faculty)**

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| **Program or Course: BIO 205 Microbiology (Science Division)** |
| **Date: 10/21/2020 and 1/12/2020** |
| **Number of Student Participants: 108 and 94** |
| **Number of Faculty/Staff Participants: 4 (D. Fraley, S. Park, F. Sioris, C. Stevenson)** |
| **Name of person completing report: Fotini Sioris** |
| **Assessment Reporting Form:** This report is to show that assessment is occurring and that the results are being used to make changes to improve student learning. The assessment being reported could be an assessment of a Program Learning Outcome (PLO) or a Measurable Student Level Outcome (MSLO). Each program should be assessing and gathering data for at least two PLOs OR two MSLOs that contain CSLOs each year.  |
| **1. What PLOs and/or MSLOs and CSLOs did you assess this year?** 1. (Analysis Level) Outline the history of microbiology as a science and explain the contributions of various scientists in promoting the advances made in the field of microbiology. (CSLO 2 & 4) 2. (Analysis Level) Distinguish between the various types of microbes through laboratory exercises. (CSLO 2 & 4) 3. (Analysis Level) Explain the major differences between prokaryotic and eukaryotic cells. (CSLO 2) 4. (Evaluation Level) Evaluate and interpret the various metabolic pathways of prokaryotic cells and relate those pathways to what occurs in eukaryotic cells. (CSLO 2 & 4) 5. (Analysis Level) Outline and explain the patterns of microbial growth through laboratory exercises. (CSLO 2, 3 & 4) 6. (Comprehension Level) Identify and describe the action of the various methods used to control microbial growth. (CSLO 2, 3 & 4) 7. (Comprehension Level) Identify and explain the principles of microbial genetics. (CSLO 2) 8. (Comprehension Level) State and describe the concepts of biotechnology and recombinant DNA technology and identify how this technology is being used in various fields of study today. (CSLO 2 & 4) 9. (Comprehension Level) Identify and explain the principles involved in classification of microbes. (CSLO 2 & 4) 10. (Comprehension Level) Identify and explain the diversity of prokaryotic organisms. (CSLO 2) 11. (Comprehension Level) Explain the basic principles of viruses, viroids, and prions as biological entities. (CSLO 2) 12. (Comprehension Level) Identify and describe the fundamentals of disease and epidemiology and explain the application of these fundamentals to public health. (CSLO 2) 13. (Analysis Level) Analyze and discuss the various mechanisms by which microbes cause disease. (CSLO 2 & 4)

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| 14. (Analysis Level) Analyze how host immune defenses act against invading microbes. (CSLO 2 & 4) 15. (Analysis Level) Categorize antimicrobial drugs by their mechanisms of action on microbial cells. (CSLO 2 & 4) 16. (Comprehension Level) Identify and explain the role that microbes have in biogeochemical cycles. (CSLO 2) 17. (Application Level) Apply the foundations of microbiology by demonstrating and explaining a specific set of lab skills. (CSLO 2, 3 & 4) 18. (Application Level) Demonstrate and explain the use of aseptic technique to work with live micro-organisms in a safe and appropriate manner. (CSLO 2, 3 & 4)  |

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| **2. Describe the assessment method used and criteria for successful achievement of student learning outcomes. (e.g., rubrics, licensing exam, internship, portfolio, exam, research paper, performance exam, EAC, etc.)**Students are asked to answer questions related to the eighteen MSLOs above. The assessment method includes an EAC Assessment Exam uploaded in Blackboard. The Exam has 18 multiple choice questions. Students were asked to complete Assessment Exam in class for Spring 2019 and Fall 2019, but online for Spring 2020 due to COVID closures. Next Assessment will be conducted online for Fall 2020. Data were compiled anonymously by our division assistant Debbie Nichols and were evaluated by our four faculty members who teach Microbiology. There were eight learning outcomes (#3,4,5,7,11,14,16,18) where our students scored low, below 70%. Our faculty discussed the possible reasons students scored low on these outcomes by providing feedback on the clarity of the assessment questions and the answer choices, and by evaluating question alignment to the MSLOs. Faculty also evaluated the clarity of the MSLOs and shared teaching ideas that could improve student responses to these outcomes.  |
| **3. How many students were proficient in the PLOs OR MSLOs and CSLOs and how many were not? What was determined as proficient? (i.e. 70% = proficient)** Overall, our students scored an average of 51% correct on the MSLOs in Spring 2019, 54% in Fall 2019, 70% in Spring 2020 and 75% in Fall 2020. It was noted that MSLO performance improved on most MSLOs. It was also noted that Fall 2020 students were completing Assessment online and not in class as previous semesters, with some instructors using Respondus during COVID. For Fall 2020 MSLOs 4,7,8,11 and 18 were below 70% success rate (proficient rate=70%).  |
| **4. What changes/improvements were made or will be made in response to the outcomes of the assessment process?**Our Microbiology faculty team decided that the Assessment Questions needed clarification and some of the Learning Outcomes did not reflect our true objectives taught in the course. We decided to revise our Learning Outcomes since the Curriculum Review process for BIO 205 is due by March 1st. We are now working on new Course Assessment Questions that are more clear and fit the learning outcomes of the course. The new Course Assessment will be administered in May 2021 for Spring 2021 data analysis. |

***Feel free to attach your PLOs OR MSLOs and CSLOs and indicate which were assessed***