

PLOs	SLOs	Courses where each SLO is directly assessed	Assessed Core Competency or Strategic Vision	Assessment activity (signature assignment) used to measure each SLO.	Assessment tool used to measure outcome success	How assessment data will be reported as evidence SLO performance criteria have been met	Designated personnel to collect, analyze, and interpret student learning outcome data for the program	Student learning outcome data dissemination schedule	Closing the loop strategies
PLO1: Demonstrate mastery in understanding and applying major biological concepts.	SLO 1. Students will demonstrate an understanding of core concepts spanning scales from molecules to ecosystems, by analyzing biological scenarios and data from scientific studies. Students will correctly identify and explain the core biological concepts involved relative to: biological evolution, structure and function, information flow, exchange, and storage, the pathways and transformations of energy and matter, and biological systems.	Every course in the program contributes to this SLO. It will be assessed: Pre-program: Beginning of Bio 1210 (every fall) End of introductory series: End of Bio1220 (every spring) Before graduation (every spring) every year in one of the following courses. • Bio 4320/L Molecular Biology Techniques • Bio 4460 Physiology II • Bio 4020 Developmental biology • Bio 4380 Bioinformatics • Bio 4480 Plant physiology • Bio 3250/L Ecology lab	Critical Thinking	Machine scored exam aligned to major themes of the biological sciences	GenBio-MAPS: A Programmatic Assessment to Measure Student Understanding of Vision and Change Core Concepts across General Biology Programs.	Descriptive statistics on student performance overall and within the five major themes of biology will be compared pre-program, after the introductory series, near graduation and from similar time points for institutions across the country	Assessment scored externally by GenBio-MAPS team, reported by assessment committee		
PLO2: Apply scientific competencies, including conducting biological inquiries, and applying the processes of science consistent with professional expectations.	SLO 2. Students will select and competently use laboratory equipment, field equipment, and technologies to collect and manage data, consistent with professional expectations in the biological sciences.	Every lab course in the program contributes to this SLO. It will be assessed • Bio 4180/L - Marine Ecology • Bio 4320/L Molecular Biology Techniques • Bio 4450/L- Physiology I • Bio 4480/L Plant physiology • Bio 4020/L Developmental biology • BIO 4490/L Marine Botany • Bio 4570/L Plants and the Environment • BIO 4800/L Entomology • BIO 4820/L Biology of Fishes • BIO 4680/L Microbial Ecology	Oral Communication, Problem Solving	Student oral presentations of completed experiments	University-approved rubrics for Core competencies and Strategic Vision and a rubric similar to the Rubric for General Education Outcome IIa (Scientific Reasoning)			Each Fall term, Assessment committee submits an annual assessment report to Department, which includes the direct assessment data and indirect assessment (surveys) data collected during the previous academic year.	After Department receives annual assessment report, in a department meeting, an improvement plan will be discussed and approved by the department. Starting Spring term, the improvement plan will be implemented.
	SLO 3. Students will demonstrate the ability to ask and answer questions in the biological sciences by applying the process of science to designing and conducting experiments. To this end, students will appropriately use models and simulations, construct explanations based on evidence derived from the analysis of data, and explain the interdisciplinary nature of science as appropriate.	Every lab course in the program contributes to this SLO. It will be assessed in • Bio 4180/L - Marine Ecology • Bio 4320/L Molecular Biology Techniques • Bio 4450/L- Physiology I • Bio 4480/L Plant physiology • Bio 4020/L Developmental biology • BIO 4490/L Marine Botany • Bio 4570/L Plants and the Environment • BIO 4800/L Entomology • BIO 4820/L Biology of Fishes • BIO 4680/L Microbial Ecology	Information Literacy, Written Communication, Innovation and Creativity	Student written scientific papers of completed experiments	University-approved rubrics for Core competencies and Strategic Vision and a rubric similar to the Rubric for General Education Outcome IIa (Scientific Reasoning)	Descriptive statistics on student performance overall and across the three majors in the department will be reported	Multiple course instructors (usually tenured, tenure-track faculty) collect the data after training from Assessment Committee. Assessment Committee summarizes, analyzes and presents to Department.		
PLO3: Pursue careers or advanced degrees in biological sciences, or degrees in related disciplines leading to professional careers.	SLO 4. When given problems or proposing, designing and analyzing biological research questions, students will demonstrate competency in critical thinking, quantitative, analysis and oral and written communication skills essential to career development in the biological sciences by presenting their work both orally and in writing in a manner consistent with professional expectations.	Every course in the program contributes to this SLO. It will be assessed in • Bio 4180/L - Marine Ecology • Bio 4320/L Molecular Biology Techniques • Bio 4450/L- Physiology I • Bio 4480/L Plant physiology • Bio 4020/L Developmental biology • BIO 4490/L Marine Botany • Bio 4570/L Plants and the Environment • BIO 4800/L Entomology • BIO 4820/L Biology of Fishes • BIO 4680/L Microbial Ecology	Quantitative Reasoning and Civic Engagement	Student written scientific papers, or oral presentations of completed experiments, selected exam questions. For program, graduating senior survey	University-approved rubrics for Core competencies and Strategic Vision and a rubric similar to the Rubric for General Education Outcome IIa (Scientific Reasoning), Exit survey from students applying for graduation will assess professional preparation and civic engagement				