

Assessment Report
BIOL Major 2020-2021 Academic Year

Dear Colleagues on the Assessment Committee,

The faculty of the Biology & Health Sciences Department have completed our annual assessment work for the BIOL major and herein report on our findings and the actions we are taking as we move forward. This year, we are assessed Learning Goals 2 and 3 of the BIOL major. Learning Goal 2 states that “**Biology majors will be able to explain the process of science, evaluate and critique its products, and implement it to develop hypotheses and models for experimentation in the context of biology.**” Learning Goal 3 states that “**Biology majors will be able to produce and deliver clear and effective oral and written communications of biological concepts and discoveries to a variety of audiences.**” Students complete the direct and indirect instruments we use to assess these learning goals during their senior year. The direct assessment instruments are the Comprehensive Capstone Exam, a set of three Critiques of Primary Literature across a range of biological fields, a Primary Literature Review paper that goes in-depth on a particular topic of the student’s choosing, a Research Proposal that requires the student to extend the research they discussed in the review paper, and a formal oral presentation that combines the Review Paper and Research Proposal. The indirect assessment instrument for all of our learning goals is a subsection of questions on the Senior Survey, where the graduating students provide feedback as to the quality of their educational experience at Hendrix.

The department discussed the BIOL major and Learning Goals during two meetings in April 2021. The Biology major had an unusually low number of majors with only 12 graduating 2021. A total of 26 students completed all three direct assessment assignments and are represented in the data. Please see the 2021 Assessment Report for the methods we use to assess our teaching effectiveness as these were not modified for the 2020-21 academic year.

	Capstone	Milestone	Benchmark	Below Expectation
Comprehensive Exam	0	6	6	0
%	0.0	50.0	50.0	0.0
Literature Critiques and Review	4	4	4	0
%	33.3	33.3	33.3	0
Presentation	0.0	5.0	5.0	2.0
%	0.0	41.6	41.6	16.7

The Capstone Exam was intended to be approximately as challenging as the MFT (Major Field Test, our previously used assessment tool) and no student correctly answered more than 70% or less than 46.5% of the questions. This range of results is lower on the high end than previous years; most years we have a considerable number of students who score above 80% on the exam. As in the previous year, any student who correctly answered at least 80% of the core course questions was placed in the Capstone category (none this year). Students who correctly

answered 60-79.9% of the core course questions were placed in the Milestone category. Students who correctly answered 40-59.9% of the core course questions were placed in the Benchmark category. No student answered fewer than 40% of the questions. One drawback of using our own exam (something we were required to do because of budget cuts) is that we have no way of comparing our results to other schools as we used to do when using the MFT. For our other direct measurements (Senior Seminar activities), students scored within a similar range, although we had several higher performers in the Literature Review and two low performers in the Presentation.

The indirect assessment tool that we use for our learning goals is a set of survey items that we include on the Senior Survey (included as an attachment along with this report) that graduating seniors are asked to complete just prior to the end of their last semester at Hendrix. The results of that survey that relate to our two learning goals are shown in Table 2 below with four most relevant questions to our two assessed learning goals highlighted in red.

TABLE 2. Student evaluation of the BIOL major 2021.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	N/A
Describe, interpret, and integrate the fundamental principles and theories that underlie our understanding of the living world, and the empirical evidence that supports that understanding.	58%	42%				
Explain the process of science	87%	17%				
Evaluate and critique scientific products (e.g. original research, grant proposal, review paper, theory etc...)	75%	25%				
Implement the scientific process to develop testable models and/or hypotheses	75%	25%				
Produce and deliver clear and effective oral and written communications of biological concepts and discoveries to a variety of audiences.	58%	33%		8%		
Discuss and investigate how fields of biology are interconnected and engage with other scientific disciplines, including the growing role of interdisciplinarity in scientific research.	42%	42%	16%			
Relate skills and knowledge of biology to other disciplines in the liberal arts and evaluate the ways in which the life sciences interface with various aspects of our society, including ethics and governance.	50%	25%	17%	8%		

The assessment criteria being evaluated this year (Learning Goals 2 & 3) most closely related to our Senior Seminar assessment tools of the presentation and literature review plus the three highlighted questions the student exit survey. In these two assessment categories, the Department self-evaluated at a **Milestone** for both items. We recognize that the unusually small class size and somewhat historically lower scores complicates our assessment. We do believe that the pandemic and associated move to remote learning had a detrimental effect on our seniors (as expected) so that many of them did not perform up to their potential. It is comforting though that the students themselves rate the department highly in these areas. Data from subsequent years, presumably post pandemic, should help clarify whether this year was an anomaly (in testing) or part of a larger pattern.