

2014-2015 Biology Department Assessment of Core Competencies

Core Competency: Quantitative Literacy

Outcome Measure: Senior Seminar (BIO 497) Signature Assignment: Graphing Activity

Criteria for Success: 80% of students will be at “3” or higher

Longitudinal Data (only data from 2015):

Quantitative Literacy skill	% of students achieving “3” or higher (N=41)
Interpretation	70%
Representation	80%
Calculation	83%
Application/Analysis	73%
Assumptions	46%
Communication	68%

Conclusions Drawn from Data:

Students are able to complete calculations and to represent the data at or above the criterion; however, interpretation, application, and communication skills are areas where improvement is needed. In addition, the scores for students’ ability to identify important assumptions are particularly concerning.

Changes to be Made Based on Data:

- 1) Students take an upper-division, calculus-based statistics course (MTH362) and a research methods course (BIO 301) as part of the requirements for the Biology major. These data indicate that a more comprehensive, 3 unit statistics course should be considered.
- 2) While some seniors took both MTH 362 and BIO 301 in previous years, others were in the courses this semester and were still learning the material when this assessment was conducted. We recognize the importance of students taking both courses as early as possible to help them in all of their labs, and we will work (via advising) to encourage students to complete these courses as soon as possible.
- 3) While the students’ performance on “Assumptions” is of concern, this problem could be partially due to a difference between the terminology used on the assessment and the terminology used in biology classes. An effort will be made in classes to use terminology consistent with the assessment.

Rubric used: ACC&U Quantitative Literacy Rubric

Core Competency: Written Communication

Outcome Measure: Senior Seminar (BIO 497) Signature Assignment: Science/Faith position paper

Criteria for Success: 80% of students will be at “3” or higher

Longitudinal Data (only data from 2015):

Written Communication skill	% of students achieving “3” or higher (n=27)
Context/Purpose	96%
Content Development	74%
Genre/Disciplinary Conventions	93%
Sources & Evidence	67%
Syntax & Mechanics	85%

Conclusions Drawn from Data:

The students are generally doing well with written communication. The lowest score was in sources and evidence.

Changes to be Made Based on Data:

In the courses that require students to write lab reports and other documents, we will place a greater emphasis on sources and evidence, including having students articulate why particular sources were chosen based on credibility, currency, and relevance

Rubric used: ACC&U Written Communication Rubric

Core Competency: Oral Communication

Outcome Measure: Senior Seminar (BIO 497) Signature Assignment: Bioethical Issue Presentation

Criteria for Success: 80% of students will be at “3” or higher

Longitudinal Data (only data from 2015):

Oral Communication skill	% of students achieving “3” or higher
Organization	100%
Language	98%
Delivery	83%
Supporting material	90%
Central message	95%

Conclusions Drawn from Data:

Students are performing well in all aspects of oral communication except for delivery, but even that skill is meeting the criteria.

Changes to be Made Based on Data:

No changes are necessary.

Rubric used: ACC&U Oral Communication Rubric

Core Competency: Critical thinking

Outcome Measure:

Senior Seminar (BIO 497) Signature Assignment: Bioethical Issue Presentation

Senior Seminar (BIO 497) Signature Assignment: Science/Faith position paper

Criteria for Success: 80% of students will be at “3” or higher

Longitudinal Data (only data from 2015):

Critical Thinking skill	% of students achieving “3” or higher on the Bioethical Issue presentation (n=41)	% of students achieving “3” or higher on the Science/Faith position paper (n=27)
Explanation of issues	93%	89%
Evidence	80%	70%
Influence of context & assumptions	-	85%
Student’s position	-	93%
Conclusions and related outcomes	-	93%

Conclusions Drawn from Data:

The students are generally doing well with critical thinking. Again, as in written communication, the lowest score was for evidence.

Changes to be Made Based on Data:

In the courses that require students to write lab reports, we will place a greater emphasis on sources and evidence, including having students articulate why particular sources were chosen based on credibility, currency, and relevance.

Rubric used: ACC&U Critical Thinking Rubric

Core Competency: Information Literacy

Outcome Measure:

Senior Seminar (BIO 497) Signature Assignment: Bioethical Issue Presentation

Senior Seminar (BIO 497) Signature Assignment: Science/Faith position paper

Criteria for Success: 80% of students will be at “3” or higher

Longitudinal Data (only data from 2015):

Information Literacy skill	% of students achieving “3” or higher on the Bioethical Issue presentation (n=41)	% of students achieving “3” or higher on the Science/Faith position paper (n=27)
Determine Information needed	-	-
Access Information	-	-
Evaluate Information & Sources	92%	56%
Use Information	95%	78%
Access & Use Info Legally & Ethically	-	94%?

Conclusions Drawn from Data:

No conclusions as yet due to incomplete data.

Changes to be Made Based on Data:

The position paper assignment directions should be improved to allow for more effective assessment of the students’ skills in determining information needed, accessing information, and using information legally and ethically.

Rubric used: ACC&U Information Literacy Rubric