

BIOLOGY
Core Competencies, F2022-S2023

Core Competency: Critical Thinking

Students will be able to examine, critique and synthesize information in order to arrive at reasoned conclusions.

Outcome Measure:

ETS Proficiency Profile Exam

Criteria for Success (how do you judge if the students have met your standards):

85% of the students will be marginal or proficient at Level 2 Reading/Critical Thinking.

Aligned with DQP Learning Areas (circle one or more but not all five):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Students Marginal or Proficient						
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
ETS Proficiency Profile Level 2 Critical Thinking	94%, N=55	90%, N=40	91%, N=55	79%, N=81	86%, N=70	83%, N=60	89%, N=62

Conclusions Drawn from Data:

Biology students scored near or above the criteria for success for critical thinking, except in 2019-20.

Changes to be Made Based on Data:

No changes to the program, but we will be using a different measure of critical thinking in the future due to cultural bias in the ETS test.

Rubric Used

No rubric. We use the ETS Proficiency Profile test results.

Core Competencies

Core Competency: Writing

Students will be able to effectively express ideas and information to others through written communication.

Outcome Measure:

ETS Proficiency Profile Exam

Criteria for Success (how do you judge if the students have met your standards):

85% of the students will be marginal or proficient at Level 2 Writing.

Aligned with DQP Learning Areas (circle one or more but not all five):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Students Marginal or Proficient						
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
ETS Proficiency Profile Level 2 Writing	92%, N=55	85%, N=40	86%, N=55	84%, N=81	86%, N=70	75%, N=60	79%, N=62

Conclusions Drawn from Data:

Biology students scored near or above the criteria for success for written communication, except for the last two years. We will further monitor these results to see if this trend continues.

Changes to be Made Based on Data:

No changes to the program, but we will be using a different measure of writing in the future due to cultural bias in the ETS test.

Rubric Used

No rubric. We use the ETS Proficiency Profile test results.

Core Competencies

Core Competency: Quantitative Reasoning

Students will be able to solve problems that are quantitative in nature.

Outcome Measure:

ETS Proficiency Profile Exam

Criteria for Success (how do you judge if the students have met your standards):

90% of the students will be marginal or proficient at Level 2 Math.

Aligned with DQP Learning Areas (circle one or more but not all five):

1. Specialized Knowledge
2. Broad Integrative Knowledge
3. Intellectual Skills/Core Competencies
4. Applied and Collaborative Learning, and
5. Civic and Global Learning

Longitudinal Data:

	Percentage of Students Marginal or Proficient						
	2016-17	2017-18	2018-19	2019-20	2020-21	2020-22	2022-23
ETS Proficiency Profile Level 2 Math	100%, N=55	93%, N=40	95%, N=55	91%, N=81	91%, N=70	95%, N=60	95%, N=62

Conclusions Drawn from Data:

Biology students scored above the criteria for success for quantitative reasoning.

Changes to be Made Based on Data:

No changes to the program, but we will be using a different measure of quantitative reasoning in the future due to cultural bias in the ETS test.

Rubric Used

No rubric. We use the ETS Proficiency Profile test results.

Core Competency: Oral Communication

Students will be able to present biological information orally.

Outcome Measure: Senior Seminar (BIO 4097) Signature Assignment: Bioethical Issue Presentation

Criteria for Success: 80% of students will score at a level of 3 or higher in each skill area.

Longitudinal Data:

Oral Communication Skill	% of students achieving “3” or higher				
	2023, n=47	2022, n=55	2021, n=33	2019, n=53	2018, n=38
Command of Material	83%	98%	100%	100%	95%
Organization	85%	96%	97%	100%	76%
Oral Presentation Skills	83%	98%	100%	98%	100%
Use of Presentation Tools	81%	88%	97%	100%	97%

Oral Communication Skill	% of students achieving “3” or higher		
	2017, n=46	2016, n=45	2015, n=42
Organization	89%	98%	100%
Language	96%	100%	98%
Delivery	89%	96%	83%
Central message	96%	100%	95%
Explanation of issues	100%	Not assessed	Not assessed

Conclusions Drawn from Data:

We changed the rubric in 2018 to be more aligned with the skills we want students to achieve. The Biology Department majors are performing well in most aspects of oral communication. (This competency was not measured in 2020 due to complications of COVID-19.)

Changes to be Made Based on Data: No changes are necessary.

Rubric used: See attached rubric.

Core Competency: Information Literacy

Students will be able to use information effectively.

Outcome Measure: Senior Seminar (BIO 4097) Signature Assignments: Bioethical Issue Presentation and Science/Faith Position Paper

Criteria for Success: 80% of students will score at a level of 3 or higher in each skill area.

Longitudinal Data:

Information Literacy Skill	% of students achieving "3" or higher					
	2023	2022	2021	2020	2019	2018
Evidence (Oral assignment, annotated bibliography)	66%, n=47	80%, n=55	94%, n=33	Not assessed due to complications of COVID-19	96%, n=53	92%, n=37
Use information effectively (Essay assignment, information literacy rubric)	81%, n=48	78%, n=55	85%, n=62	94%, n=65	100%, n=53	97%, n=35

Conclusions Drawn from Data: In general, the Biology Department majors are performing well in the area of information literacy, although in 2023 they did not score as well on the oral presentation assignment.

Changes to be Made Based on Data: No changes to program.

Rubric used: See attached portions of rubrics.

BIO 4097 Bioethical Issue INDIVIDUAL Oral Presentation Assignment Grading Rubric (rev 1/2018)

	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Command of background material	<ul style="list-style-type: none"> □ Issue/problem to be considered critically was stated clearly and described comprehensively, delivered all relevant information necessary for full understanding. □ Excellent expansion on PPT slides. □ Content appropriate for audience 	<ul style="list-style-type: none"> □ Issue/problem to be considered critically was stated, described, and clarified so that understanding was not seriously impeded by omissions. □ Some expansion on PPT slides. □ Partial content adaptation for audience 	<ul style="list-style-type: none"> □ Issue/problem to be considered critically was stated but description left some terms undefined, ambiguities unexplored, and/or backgrounds unknown. □ No expansion of PPT slide content. □ Little content adaptation for audience 	<ul style="list-style-type: none"> □ Issue/problem to be considered critically was stated without clarification or description. □ Dependent on notes. □ Lacked content adaptation for audience
Organization	<ul style="list-style-type: none"> □ Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) was clearly and consistently observable and <u>was skillful and made the content of the presentation cohesive.</u> 	<ul style="list-style-type: none"> □ Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) <u>was clearly and consistently observable</u> within the presentation. 	<ul style="list-style-type: none"> □ Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) <u>was intermittently observable</u> within the presentation. 	<ul style="list-style-type: none"> □ Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) <u>was not observable</u> within the presentation.
Oral Presentation skills	<ul style="list-style-type: none"> □ Clearly had practiced several times; smooth transitions □ Free of disfluencies (ah, uhm) □ Was clearly heard in the room and made and used inflection for emphasis □ Engaged audience through eye contact □ Presentation was 6-8 min. 	<ul style="list-style-type: none"> □ Had practiced but transitions are not smooth □ A few disfluencies (ah, um) □ Could be understood most of the time and used some inflection □ Some engagement of audience through eye contact □ Presentation was 5-6 min. or 8-9 min. 	<ul style="list-style-type: none"> □ Had practiced presentation but cannot verbally make transitions between slides □ Many disfluencies (ah, umh) □ Was sometimes understood, and used little inflection □ Infrequent eye contact □ Presentation was under 5 min. or over 9 min. 	<ul style="list-style-type: none"> □ Clearly did not practice presentation; Did not anticipate content of next slide □ Disfluencies (ah, umh, er) detract from presentation □ Could not be heard and/or spoke in a monotone □ Little audience awareness or eye contact □ Presentation too long or too short to be effective
Use of Presentation Tools	<ul style="list-style-type: none"> □ PPT background was matched to content, legible font, seamless transitions □ Several graphics imbedded and all were matched to topic □ Appropriate and concise wording on slides 	<ul style="list-style-type: none"> □ Appropriate PPT slide backgrounds, transitions & font □ Some graphics imbedded and most or all were matched to topic □ A few slides with too much/little information or words (not concise) 	<ul style="list-style-type: none"> □ Distracting PPT slide backgrounds and transitions, font hard to read □ Some inappropriate graphics or use of PPT embellishments □ Too much/little information or words on many slides (not concise) 	<ul style="list-style-type: none"> □ No attention given to PPT slide backgrounds and transitions, font illegible □ Distracting use of PPT tools, graphics not connected to topic □ Generally too much/little information or words

<p>Annotated Bibliography (per individual)</p>	<ul style="list-style-type: none"> ▫ Annotated bibliography with 3 appropriate and related sources submitted to Canvas and on slides ▫ At least 3 sources less than 7 years old ▫ At least 3 sources are from journals or books (not web pages) ▫ Annotations clearly indicate why each article was chosen and value provided ▫ Scores here on Info Literacy section 	<ul style="list-style-type: none"> ▫ Annotated bibliography with 3 appropriate, but not clearly related, sources on Canvas and slides. ▫ 3 sources less than 7 years old, but not 3 from journals. ▫ Annotations give some indication as to why each article was chosen. ▫ Scores here on Info Literacy section below. 	<ul style="list-style-type: none"> ▫ Bibliography with 3 sources with minimal annotations submitted to Canvas and slides. ▫ Less than 3 sources 7 years old or less. Only 1 source from a journal. ▫ Scores here on Info Literacy section below. 	<ul style="list-style-type: none"> ▫ Bibliography with fewer than 3 sources and no (or incomplete) annotations on Canvas and slides. ▫ Sources are older than 7 years old ▫ No journal sources ▫ Scores here on Info Literacy section below.
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BIO 4097 Grading Rubric for *Integration of Science & Faith* annotated bibliography

Grading aspect	Capstone 4	Milestones 3	Milestones 2	Benchmark 1
Number of references 0 – 10 points	<input type="checkbox"/> At least 5 references <input type="checkbox"/> At least 3 references are journal articles or books.	<input type="checkbox"/> 3-4 references <input type="checkbox"/> 2 or fewer references are journal articles or books.	<input type="checkbox"/> 2 or fewer references, <input type="checkbox"/> No references are journal articles or books	<input type="checkbox"/> No references
Choice of references 0 – 15 points	<input type="checkbox"/> Annotated bibliography includes 1 – 2 sentences describing choice, use, and purpose of each reference (including bias) <input type="checkbox"/> Particular aspects (chapter, pages, figures) of each source are indicated for which the student anticipates using. <input type="checkbox"/> Sources are of more than one type such as websites, books, and journal articles. <input type="checkbox"/> Sources include multiple books or journal article references.	<input type="checkbox"/> Some mention of choice, use and purpose <input type="checkbox"/> Particular aspects of source are mentioned, but use is vague <input type="checkbox"/> Sources are all of same type	<input type="checkbox"/> Use and purpose of each reference is not fully clear. <input type="checkbox"/> Obvious that the student has not yet put a lot of thought into the use of these sources.	<input type="checkbox"/> Little evidence of thought and consideration towards the use, purpose, and ideas derived from each source.