

**Biology Department Assessment of Program Learning Outcomes**  
**MA and MS in General biology**  
**2014-2015**

**Learning Outcome:**

PLO #1: Discuss major concepts and theories in biology.

**Outcome Measures:**

MA exam questions on description of major course topics

MS written version of thesis

**Criteria for Success (if applicable):**

100% of students will score at “developed” or higher on rubric

**Longitudinal Data:**

Measure	% of students achieving “developed” or “highly developed”		
	2012-2013	2013-2014	2014-2015
MA exam questions	100% (n=5)	100% (n=3)	100% (n=3)
MS thesis (written)	100% (n=2)	100% (n=1)	100% (n=3)

**Conclusions Drawn from Data:**

All graduating students, both MA and MS, are performing very well and meeting the criterion.

**Changes to be Made Based on Data:**

No changes to program

**Rubric used:**

Appendix A: Rubric for MA exam, Part II: Description of summer course major concepts

Appendix B: Rubric for MS thesis (written) – shaded row

**APPENDIX A: Rubric for MA exam, Part II: Description of summer course major concepts**

Summer course	Aspect of answer	Initial (fail)	Emerging (fail)	Developed (pass)	Highly Developed (pass)
#1	<b>Choice of topic</b>	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
#1	<b>Topic description</b>	Inaccurately described	Accurately described, with minimal/no use of vocabulary from the course	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
#2	<b>Choice of topic</b>	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
#2	<b>Topic description</b>	Inaccurately described	Accurately described, with minimal/no use of vocabulary from the course	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
#3	<b>Choice of topic</b>	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
#3	<b>Topic description</b>	Inaccurately described	Accurately described, with minimal/no use of vocabulary from the course	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course
#4	<b>Choice of topic</b>	Topic not addressed in course	Topic of minor importance in course	One of several main topics from course	Clearly a central topic from course
#4	<b>Topic description</b>	Inaccurately described	Accurately described, with minimal/no use of vocabulary from the course	Accurately described, with some use of vocabulary from the course	Accurately described using appropriate vocabulary from the course

**Appendix B: Rubric for MS thesis (written) – selected row pertaining to PLO #1**

<b>Component</b>	<b>Initial (70%)</b>	<b>Emerging (80%)</b>	<b>Developed (90%)</b>	<b>Highly Developed (100%)</b>
<b>Problem, question and/or hypothesis</b>	<ul style="list-style-type: none"> <li>• Fails to identify or summarize problem accurately</li> <li>• No indication of purpose of the research</li> </ul>	<ul style="list-style-type: none"> <li>• Summarizes the problem, though some aspects are incorrect or confusing</li> <li>• Some indication of purpose of the research</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly identifies the problem</li> <li>• Clearly articulates the purpose of the research</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly identifies the problem as well as nuanced aspects or key details</li> <li>• Clearly articulates the purpose of the research, beyond the narrow field</li> </ul>
<b>Choice of and use of relevant literature</b>	<ul style="list-style-type: none"> <li>• References not appropriately integrated into the paper</li> </ul>	<ul style="list-style-type: none"> <li>• Fewer than 35 references appropriately integrated into the paper</li> </ul>	<ul style="list-style-type: none"> <li>• 35-50 references appropriately integrated into the paper</li> </ul>	<ul style="list-style-type: none"> <li>• 50+ ref. appropriately integrated into paper</li> </ul>
<b>Knowledge of major biology theories</b>	<ul style="list-style-type: none"> <li>• Inadequate evidence of understanding of relevant biology concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Basic evidence of understanding of relevant biology concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Clear and adequate evidence of understanding of relevant biology concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Clear and comprehensive evidence of understanding of relevant biology concepts</li> </ul>
<b>Methods (data collection/anal)</b>	<ul style="list-style-type: none"> <li>• No explanation or justification of research design</li> <li>• Methodology is unclear and incomplete</li> </ul>	<ul style="list-style-type: none"> <li>• Some explanation of research design, but no justification</li> <li>• Methodology is basic, but incomplete</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly explains research design, but no justification</li> <li>• Explains methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly justifies and explains research design</li> <li>• Clearly explains methodology</li> </ul>
<b>Results</b>	<ul style="list-style-type: none"> <li>• Graphs and tables are poorly/inaccurately done</li> <li>• One or more pieces of data inaccurately interpreted in text with many opinion statements.</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs and tables are inaccurate/missing labels with some errors</li> <li>• Usually accurately summarizes tables and graphs in text with obvious opinions</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs and tables are adequate</li> <li>• Accurately summarizes the tables and graphs in text with some opinion</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs and tables are professional</li> <li>• Accurately summarizes the tables and graphs in text w/o opinion</li> </ul>
<b>Conclusion(s)</b>	<ul style="list-style-type: none"> <li>• Fails to identify conclusions, or conclusion is a simplistic summary</li> <li>• Conclusion presented as "proof"</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies conclusions and refers to some specific pieces of evidence</li> <li>• Does not relate conclusion to the broader field</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly links evidence with the conclusion</li> <li>• Minimal consideration of limitations</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly links evidence with the conclusion</li> <li>• Considers limitations of the study</li> </ul>