



Program Unit or Department: Biology Department
 Date Submitted:

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Student Learning Outcomes	Assessment Methodology	Target	Summary of Major Findings	Actions Taken to Improve Student Learning	Timeframe											
SLO 1: Interpret the fundamental concepts, theories, and language of biology	Method 1: BIO1074 Botany - Final Exam Score	70% average	Findings Method 1:													
	Method 2: BIO3034 Genetics - Final Exam Score	65% average	Findings Method 2: <table border="1" data-bbox="1073 630 1535 894"> <thead> <tr> <th>Year</th> <th>Average Grade on Final Exam</th> <th>Percent of students achieving a final exam score of 65% or higher</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>85.8%</td> <td>100%</td> </tr> <tr> <td>2015</td> <td>83.5%</td> <td>96.3%</td> </tr> <tr> <td>2016</td> <td>80.0%</td> <td>96.3%</td> </tr> </tbody> </table> <p>As a cohort, the target was met, and a high percentage of individual students achieved this grade (equivalent to a C).</p>	Year	Average Grade on Final Exam	Percent of students achieving a final exam score of 65% or higher	2014	85.8%	100%	2015	83.5%	96.3%	2016	80.0%	96.3%	
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2014	85.8%	100%														
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SLO 2: Integrate the knowledge of biology and the Christian faith	Method 1: BIO4091 Bioseminar - Oral Presentation of Bioethical Issue	80% average	Findings Method 1: <table border="1" data-bbox="1073 1149 1535 1382"> <thead> <tr> <th>Year</th> <th>Average Grade on Oral Presentation</th> <th>Percent of students achieving a score of 80% or higher</th> </tr> </thead> <tbody> <tr> <td>2016</td> <td>90.9%</td> <td>85.7%</td> </tr> <tr> <td>2017</td> <td>88.2%</td> <td>90.9%</td> </tr> </tbody> </table> <p>As a cohort, the target was met. Furthermore, for each class analyzed, there was only one student who did not achieve this minimum grade (1/7 for 2016 and 1/11 for 2017).</p>	Year	Average Grade on Oral Presentation	Percent of students achieving a score of 80% or higher	2016	90.9%	85.7%	2017	88.2%	90.9%				
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<p>SLO 2: Integrate the knowledge of biology and the Christian faith</p>	<p>Method 2: BIO4011 Bioethics - Reflection Paper</p>	<p>70% average</p>	<p>Findings Method 2:</p>	<p>Reflection papers were previously assigned in this class, but were ungraded. To better track student learning, reflection papers will now be graded.</p>	<p>Fall 2017</p>												
<p>SLO 3: Analyze the Christian responsibility of being a good steward of creation</p>	<p>Method 1: BIO3014 Ecology - Youniversity Ecology Project (Paper and Presentation)</p>	<p>75% average</p>	<p>Findings Method 1:</p> <table border="1" data-bbox="1073 583 1537 777"> <thead> <tr> <th>Year</th> <th>Average Grade on Youniversity Project</th> <th>Percent of students achieving a score of 75% or higher</th> </tr> </thead> <tbody> <tr> <td>2016</td> <td>86.2 %</td> <td>100%</td> </tr> </tbody> </table> <p>For fall 2016, the target was met with an average grade for this project of 86.2%. Additionally, each student in the class met this target.</p>	Year	Average Grade on Youniversity Project	Percent of students achieving a score of 75% or higher	2016	86.2 %	100%								
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<p>Method 2: BIO3054 Environmental Science - Video Documentary Project</p>	<p>75% average</p>	<p>Findings Method 2:</p>															
<p>SLO 4: Evaluate the importance of the diversity and function of all life</p>	<p>Method 1: BIO2064 Invertebrate Zoology - Course Grade</p>	<p>70% average</p>	<p>Findings Method 1:</p> <table border="1" data-bbox="1031 1261 1493 1523"> <thead> <tr> <th>Year</th> <th>Average Course Grade</th> <th>Percent of students achieving a course grade of 70% or higher</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>84.5%</td> <td>91.3%</td> </tr> <tr> <td>2015</td> <td>88.0%</td> <td>100.0%</td> </tr> <tr> <td>2016</td> <td>86.6%</td> <td>92.6%</td> </tr> </tbody> </table>	Year	Average Course Grade	Percent of students achieving a course grade of 70% or higher	2014	84.5%	91.3%	2015	88.0%	100.0%	2016	86.6%	92.6%		
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			As a cohort, the target was met for each of the last three years. Furthermore, over 90% of the students in each class met or exceeded the 70% target for the course grade.														
SLO 4: Evaluate the importance of the diversity and function of all life	Method 2: BIO3014 Ecology - Final Exam Score	75% average	<p>Findings Method 2:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Average Grade on Final Exam</th> <th>Percent of students achieving a final exam score of 75% or higher</th> </tr> </thead> <tbody> <tr> <td>2016</td> <td>89.3%</td> <td>100%</td> </tr> </tbody> </table> <p>In fall 2016, the target was met with an average score on the final exam of 89.3%. Furthermore, each student in the class met this benchmark.</p>	Year	Average Grade on Final Exam	Percent of students achieving a final exam score of 75% or higher	2016	89.3%	100%								
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	Method 3: BIO3054 Environmental Science – Final Exam Score	75% average	Findings Method 3:														
SLO 5: Demonstrate the knowledge and skills of all professionals	Method 1: BIO4001 Technical Writing in Biology - Research Paper	70% average	<p>Findings Method 1:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Average Grade on Research Paper</th> <th>Percent of students achieving a grade of 70% or higher</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>90.9%</td> <td>91.7%</td> </tr> <tr> <td>2015</td> <td>89.2%</td> <td>100%</td> </tr> <tr> <td>2016</td> <td>92.1%</td> <td>100%</td> </tr> </tbody> </table> <p>The target was met for each of the last three years. For the last two years, each student in the class has achieved this target.</p>	Year	Average Grade on Research Paper	Percent of students achieving a grade of 70% or higher	2014	90.9%	91.7%	2015	89.2%	100%	2016	92.1%	100%	To allow for formative assessment, the grade earned by each student on the first draft of the paper will be recorded. This will then be compared to the final grade earned, so that we can formally track improvements in student learning.	Spring 2017
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	Method 2: See next page																

	<p>Method 2: BIO4001 Technical Writing in Biology - Oral Presentation</p>	<p>75% average</p>	<p>Findings Method 2:</p> <table border="1" data-bbox="1073 199 1537 496"> <thead> <tr> <th>Year</th> <th>Average Grade on Oral Presentation</th> <th>Percent of students achieving a grade of 75% or higher</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>90.3%</td> <td>100%</td> </tr> <tr> <td>2015</td> <td>88.3%</td> <td>88.9%</td> </tr> <tr> <td>2016</td> <td>91.4%</td> <td>100%</td> </tr> <tr> <td>2017</td> <td>89.9%</td> <td>100%</td> </tr> </tbody> </table> <p>The target has been met for each of the last four years. For three of the last four years, each student in the class has achieved this target.</p>	Year	Average Grade on Oral Presentation	Percent of students achieving a grade of 75% or higher	2014	90.3%	100%	2015	88.3%	88.9%	2016	91.4%	100%	2017	89.9%	100%		
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<p>SLO 5: Demonstrate the knowledge and skills of all professionals</p>	<p>Method 3: Biology Program Review Survey Summary</p>	<p>60% of respondents rating the professional value of a course taken within the biology department as "Good" or "Excellent"</p>	<p>Please refer to the table below for the results. In summary, when alumni were surveyed about the professional value of courses taken while at MVNU, 93.3% of the courses were rated by at least 60% of the respondents as being of "excellent" or "good" value. Furthermore, 43.3% of the courses were rated as being of "excellent" or "good" professional value by at least 90% of the respondents. This data indicates that courses taught within the biology department are providing students with the relevant knowledge required to enter into their chosen profession.</p>	<p>The perceived professional value of General Botany and Aquatic Biology was rated as "excellent" or "good" by 57% and 55% of respondents, respectively. This is just below the target rate of 60%. It is worth noting that the faculty member who taught these courses is no longer employed at MVNU as of Fall 2016. These values will be analyzed in future years to see if there is any change following the addition of a</p>	<p>Fall 2017</p>															

				<p>new faculty member. Regardless, this data highlights the need to emphasize the value of the material taught in these courses.</p>	
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Biology Program Review Survey Summary

MVNU Courses Taken for Major	Professional Value of Course Taken					Response Rate	N	Subtotal Excellent and Good
	Excellent 5	Good 4	Satisfactory 3	Poor 3	Unacceptable 1			
Clinical Preceptorship: Medicine	100%	0%	0%	0%	0%	29%	20	100%
Content Area Teaching Methods in Life Science	100%	0%	0%	0%	0%	3%	2	100%
Ornithology with Laboratory	71%	29%	0%	0%	0%	10%	7	100%
Pathophysiology	78%	22%	0%	0%	0%	13%	9	100%
Research Problems	63%	38%	0%	0%	0%	11%	8	100%
Human Anatomy and Physiology II w/Lab	89%	7%	4%	0%	0%	40%	28	96%
Developmental Biology with Laboratory	64%	32%	5%	0%	0%	31%	22	96%
Molecular Biology with Laboratory	65%	26%	4%	4%	0%	33%	23	91%
Human Anatomy and Physiology I w/Lab	82%	9%	6%	3%	0%	49%	34	91%
Entomology with laboratory	36%	55%	0%	0%	10%	16%	11	91%
Technical Writing in Biology	66%	25%	5%	5%	0%	63%	44	91%
Vertebrate Physiology II (Special Topic)	91%	0%	9%	0%	0%	31%	22	91%
Vertebrate Physiology (Special Topic)	81%	9%	6%	3%	0%	46%	32	90%
Medical Terminology with Laboratory	72%	16%	12%	0%	0%	36%	25	88%
Comparative Vertebrate Anatomy w/Lab	54%	32%	9%	5%	0%	80%	56	86%
Tropical Ecology with Laboratory	86%	0%	14%	0%	0%	10%	7	86%
Biology Seminar	44%	41%	9%	4%	2%	66%	46	85%
Conservation of Natural Resources	54%	31%	0%	8%	8%	19%	13	85%
Bioethics	59%	25%	9%	3%	3%	46%	32	84%
Genetics with Laboratory	59%	25%	13%	0%	3%	90%	63	84%
Microbiology with Laboratory	58%	26%	11%	0%	5%	89%	62	84%
Environmental Science with Laboratory	48%	33%	7%	7%	4%	39%	27	81%
Cell Biology	47%	32%	9%	9%	4%	67%	47	79%
Clinical Preceptorship: Allied Health	77%	0%	23%	0%	0%	19%	13	77%
General Zoology with Laboratory	35%	41%	16%	5%	3%	90%	63	76%
Ecology with Laboratory	41%	29%	24%	6%	0%	24%	17	70%
Field Botany with Laboratory	50%	19%	19%	13%	0%	23%	16	69%
Invertebrate Zoology with Laboratory	34%	34%	22%	5%	5%	84%	59	68%
General Botany with Laboratory	37%	20%	27%	8%	8%	86%	60	57%
Aquatic Biology with Laboratory	44%	11%	11%	11%	22%	13%	9	56%