

2017-18 Student Learning Assessment Report, Academic

Program: Biology (BS)	Degree: Major	Department Head: Christopher Harbison	Submitted By: Thomas Giarla	Date Submitted: 10/15/2018
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Mission:

The Biology Department seeks to develop in each student an appreciation of the science of biology at all levels of study (molecular, cell, whole organism, and populations), which is understood and integrated in terms of Darwinian evolution. This is accomplished through a rigorous, broadly based, laboratory-intensive curriculum taught by faculty who are dedicated, first and foremost, to enriching the learning experience of their students. In addition to a biology core curriculum, all students take additional courses in the areas of cell/molecular biology, physiology, morphology, and organismic/population biology. A major emphasis of our program is to encourage critical thinking and an active engagement in the biological sciences. We do this by keeping class sizes small and including a laboratory experience as an integral component of most courses. Many laboratories incorporate independent research projects where students creatively build on fundamental concepts and techniques to address interesting biological questions. The program further encourages and reinforces independent research skills by offering credit for on-campus Independent Research courses mentored by departmental faculty or off-campus Science internships in Biology. In order to accomplish these pedagogical goals, the department hires only broadly-trained faculty who also possess expertise in a particular biological discipline. Faculty members are encouraged to establish and maintain active research programs in order to remain current in their disciplines, enthusiastic about their courses, and to provide independent study opportunities for students.

1. Major/Program Student Learning Outcomes Students will be able to...	2. Phase	3. Assessment Procedures (Planning/ determining)	Criteria: (How do you know students are achieving learning outcome?)
1. Demonstrate an understanding of the process of science and develop an appreciation of contemporary issues in biology.	Planning Planning2+ Collecting Discussing	Method: (ex. tests, presentations, research paper) Evaluate results of Biol 190 Final Exam. Focus is on understanding the process of science, including data analysis, presentation, and statistics. Using a Sample of Students? Yes If yes, describe your sample. All students in 4 sections of Biol 190 When does assessment occur? At the end of the semester How often does assessment occur?	At least 80% of students scoring 70% or greater on Final Exam.

Every year

4. Assessment Results

(Collecting/ analyzing)

Spring 2018

Research and Writing Skills for Biologists BIOL-190 (two sections taught by Stephanie Vernooy and Tom Giarla)

Final quiz in this course assesses a basic understanding of topics covered throughout the semester, which focus on the scientific method. Specific topics that students learn about include scientific hypotheses and models, experimental design, basic statistics, methods of data analysis and presentation, understanding and searching scientific literature, writing a primary research paper in the sciences, and oral presentation of research findings.

N=40 students

100% met the standard.

16/40 scored in the A range

18/40 scored in the B range

6/40 scored in the C range

Learning Outcome Met?

(Based on Criteria)

Yes

5. Use of Results

(Discussing/ using results)

We are pleased that 100% of our students have met the learning outcome and plan to continue implementing this same assessment tool in the coming year. However, we recognize the need to add other assessment tools for this Learning Outcome. For the 2018-2019 school year, we plan to include various other assessments that focus on contemporary issues in biology. In upper-level courses we will assess how students are able to interpret and synthesize results from newly published research articles. In Ecology (Biol-225), for example, students are reading three primary literature articles over the course of the semester and meeting in groups to digest the results and discuss their meaning. For that project, students are being assessed with exam questions and homework assignments.

1. Major/Program Student Learning Outcomes Students will be able to...	2. Phase	3. Assessment Procedures (Planning/ determining)	Criteria: (How do you know students are achieving learning outcome?)
2. Demonstrate competence with equipment and experimental methods.	Planning	Method: (ex. tests, presentations, research paper) Lab skills test and lab practical exams in various courses, both upper-level and introductory courses. Using a Sample of Students? Yes	At least 80% of students scoring 70% or greater on lab intensive, graded tasks.

		<p>If yes, describe your sample. Students in lab courses</p> <p>When does assessment occur? Throughout the semester</p> <p>How often does assessment occur? Every other year</p>	
1. Major/Program Student Learning Outcomes Students will be able to...	2. Phase	3. Assessment Procedures (Planning/ determining)	Criteria: (How do you know students are achieving learning outcome?)
3. Develop independent research skills and an ability to apply basic mathematical techniques in the biological sciences.	<p>Planning</p> <p>Planning2+</p> <p>Discussing</p> <p>Impact</p>	<p>Method: (ex. tests, presentations, research paper) One or both of the following: A) assess performance on selected exam questions that test for competence in this skill B) Evaluate student performance on projects or written assignments that requires math (e.g., statistical analysis)</p> <p>Using a Sample of Students? Yes</p> <p>If yes, describe your sample. Students in various biology courses.</p> <p>When does assessment occur? Throughout the academic year.</p> <p>How often does assessment occur? Starting in Fall 2018, every other year</p>	At least 80% of students scoring 70% or greater on selected tasks.
4. Assessment Results (Collecting/ analyzing)			

Fall 2015

General Biology I BIOL-110

Students read an article on recent hominin ancestors, obtained background information on the subject and interpret data from the literature. Assesses independent research skills.

Learning Outcome Met?

(based on Criteria)

Yes No

Two lecture sections (n= 55 students).

91% of students met the criterion for success.

General Biology I BIOL-110

Two lecture sections (n= 55 students).

Exam question where students had to calculate the carrier frequency of an allele given a population at Hardy-Weinberg equilibrium.

Learning Outcome Met?

(based on Criteria)

Yes No

Only 49% of students met the criterion for success.

General Biology I BIOL-110

Genetics exam questions requiring calculation of expected phenotypic ratios or allele frequencies in a genetic cross.

Learning Outcome Met?

(based on Criteria)

Yes No

Only 35-39% of students met the criterion for success.

For this sample, across the 3 assessments, 60% of students met the criterion. For Biol 110 the criterion was not met.

General Biology for Social Sciences BIOL-140

Lab data analysis exercise required calculation of retinal ganglion cell receptive field characteristics.

Learning Outcome Met?

Yes No

97% of students met the criterion for success.

Plant Ecology BIOL-240

Analyze and then present data from a field experiment.

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Plant Ecology BIOL-240

Students were given materials (seeds to study root growth and floating aquatic plants) and they had to design an experiment, analyze the data and then write a full research report.

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Marine Ecology BIOL-400

Series of final exam questions that evaluate student understanding of experimental design and their ability to interpret recently published data on community ecology in a coral reef.

Learning Outcome Met?

Yes No

85% of students met the criterion for success.

Biochemistry BIOL-420

Scientific paper reporting results of an independent lab project: MALDI mass spectrometry to assess protein content in commercially available protein supplement.

Learning Outcome Met?

Yes No

100% of students met the criterion for success.

Biomechanics BIOL-450

Independent Research Project Design

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success

Biomechanics BIOL-450

Final Exam – course emphasizes quantitative skills and thus the final exam is a useful means of assessing our students' ability to apply mathematical techniques to solving problems in the biological sciences.

Learning Outcome Met?

(based on Criteria)

Yes No

94% of the students met the criterion for success.

Ecology BIOL-225

Reports describing the results of an independent research project and three short data analyses from field experiments; involved data analysis and statistics (ANOVA, t-test, chi-square)

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Ecology BIOL-225

Exam with strong emphasis on ecological modeling and mathematical approaches to understanding predator-prey dynamics, population size fluctuations, and resource competition models

Learning Outcome Met?

(based on Criteria)

Yes No

92% of students met the criterion for success.

Spring 2016

Animal Physiology BIOL-430

Evaluation of Data collection, analysis and presentation for a class project collecting information on vasoconstriction or dilation of the finger as a function of temperature.

Learning Outcome Met?

(based on Criteria)

Yes No

96% of students met the criterion for success.

Biology of the Vertebrates BIOL-230

Short report describing the results of a bird foraging experiment; involved data analysis and statistics (ANOVA, t-test)

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Biology of the Vertebrates BIOL-230

In-class exercises where students to grapple with concepts introduced in lecture. Most of these involve graphing, interpreting quantitative results from primary literature, and working with ecological metrics (e.g., estimating population sizes from mark-recapture data)

Learning Outcome Met?

(based on Criteria)

Yes No

92% of students met the criterion for success.

Evolution BIOL-265

Homework assignment requiring calculation of predicted population allele frequencies based on a "PopGen" simulation of genetic drift effects.

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Developmental Biology BIOL-335

Long-term laboratory research project consisting of initial proposal (with revisions), design experiment, carry out experiments (with 3-4 trials), collect and analyze data. Students present results in a written report, a brief oral report and a poster.

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Fall 2015 and Spring 2016 Combined

Biol-190 Writing and Research Skills for Biologists (3 sections combined)

Oral presentation based on analysis of the scientific literature.

Learning Outcome Met?

(based on Criteria)

Yes No

100% of students met the criterion for success.

Among all courses except Biol 110, the criterion for success was met. Of a total of 446, 435 (97.5%) met the criteria.

When combined with the results of Biology 110, across all courses where the assessment occurred, 468 of 501 students (93%) met the criterion.

Learning Outcome Met?

(Based on Criteria)

Yes

5. Use of Results

(Discussing/ using results)

Based on the results of the 2015-2016 school year assessment, we are satisfied with the mathematical competency of our upper-level students. We note, however, that performance of introductory biology students did not meet our criteria for success. There are multiple potential explanations for this result, some of which we hope to solve. For example, providing students with additional hands-on time with population genetics problems in General Biology 1 labs should help students tie concepts they learned in lecture to real-world applications. Brief units devoted to statistics and experimental design can be expanded so that students learn early on that quantitative analyses underlie nearly all progress in biology.

Anecdotally, we have found that many students convince themselves that they are "bad at math" and give up attempting to learn biology concepts with a strong math component. This lack of motivation can be difficult for professors to counteract, but our department is committed to helping students realize their potential. Strategies include offering more peer tutoring sessions, posting video walkthroughs of biology problem solving,

and engaging students with real-world examples that resonate with them (e.g., biomedical studies, pressing environmental concerns, etc.). We are planning to implement these new strategies in the coming semesters and we hope more students will meet our criteria for success. It is important to note that many students declare a Biology major early in the college career (often with aspirations to become a medical doctor) but realize during their first one or two Biology classes that their interests lie elsewhere. As such, we lose a sizable percentage of students after they receive poor grades in General Biology I and II. So far, we consider the attrition rates to be normal for our field and are not alarmed. We will continue to monitor student learning on this difficult topic and will consider implementing additional interventions if we see fewer students succeed.

6. Determining if changes impacted student learning

This work is ongoing. Several new faculty members have taught our introductory biology courses in the past two years, so we are still collecting data to determine if changes have impacted student learning.

1. Major/Program Student Learning Outcomes Students will be able to...	2. Phase	3. Assessment Procedures (Planning/ determining)	Criteria: (How do you know students are achieving learning outcome?)
4. Know the important facts and concepts relevant to the discipline.	Planning Discussing	Method: (ex. tests, presentations, research paper) Evaluate student performance on exams, papers, or projects. Using a Sample of Students? Yes If yes, describe your sample. Students in various biology courses. When does assessment occur? Throughout the academic year How often does assessment occur? Every year	At least 80% of students scoring 70% of greater on selected tasks.

4. Assessment Results (Collecting/ analyzing)

Fall 2016
General Biology I BIOL-110

Final grades from lecture portion of course, includes exams, quizzes, and assignments, all of which are focused on facts and concepts essential to success in the biology major.

Learning Outcome Met?
(based on Criteria)
 Yes No

Six lecture sections (n=172). Only 63% of the students who enrolled met the criterion for success on the lecture portion of the course. Lab grades were higher on average. Many students dropped the course, and they are included in these numbers.

Spring 2017
General Biology II BIOL-120

We conducted a study skills intervention for General Biology II students in Spring 2017 based on the approach outlined in the book "Teach Students How to Learn" by Sandra McGuire. The intervention took the form of a study skills workshop that was offered between exams 2 and 3. Students from all sections were invited to participate. We examined performance on Exam 2 vs Exam 3 for students who attended vs. those that did not attend the workshop. Overall, students who attended the intervention improved their scores by a median of 1.9 points, compared to only 0.3 points among students who did not attend. A full report on this intervention is provided in the Assessment Repository.

Spring 2017
General Biology for Social Sciences BIOL-140

Exam question asking students to explain the physiology of the knee-jerk reflex, integrating information from the nervous system and musculoskeletal system.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=55). 85% met the criterion for success.

Fall 2016
Advanced General Biology BIOL170

Final exam scores. Final exams require students to be able to integrate material from multiple units and apply concepts learned in class to novel situations.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture section (n=23). Only 78% met the criterion for success.

Fall 2016
Research and Writing Skills for Biologists BIOL190

Final quiz. This quiz evaluates the students understand of what goes into each section of a science paper, the use of scientific sources, graphing, and statistics.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture section (n=16). Only 75% met the criterion for success.

Fall 2016
Ecology BIOL-225

Average exam scores across three exams covering facts and concepts in ecology. Exams include multiple choice, short answer, and fill in the blanks.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture section (n=13). Only 77% of students met the criterion for success.

Spring 2017
Biology of the Vertebrates BIOL-230

Average exam scores across three exams covering facts and concepts in vertebrate biology. Exams include multiple choice, short answer, and fill in the blanks.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture section (n=27). 85% of students met the criterion for success.

Fall 2016 and Spring 2017
Molecular Genetics BIOL-260

Average grades across all four exams given covering important facts and concepts across all subfields in genetics.

Learning Outcome Met?
(based on Criteria)
 Yes No

Three lecture section (n=85). 82% of students met the criterion for success.

Fall 2016
Ornithology BIOL-270

Exam 2 grades. This exam focused on bird physiology, communication, migration and navigation and was a combination of multiple choice, questions interpreting graphs and data, short answers, and long answers.

Learning Outcome Met?
(based on Criteria)
 Yes No

Three lecture section (n=15). 93% of students met the criterion for success.

Spring 2017

Developmental Biology BIOL-335

Final exam scores. Final exams require students to be able to integrate material from multiple units and apply concepts learned in class to novel situations.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=32). 88% of students met the criterion for success.

Fall 2016

Histology BIOL-340

Exam 1 was a mixed format exam (multiple choice, short answer, etc) that evaluated students' knowledge of the rudiments of tissue histology: structure and function of four major tissue types and their variants.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=32). 91% of students met the criterion for success.

Spring 2017

Genomics and Bioinformatics BIOL-400

Average grade for two project reports. These reports required students to analyze genomic datasets and discuss how their results fit into the overall research aim of the course, synthesizing various facts and concepts.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=11). 91% of students met the criterion for success.

Fall 2016

Biochemistry BIOL-420

Assessment 1: Final exam grades.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=24). Only 75% of the students met the criterion for success.

Assessment 2: Proteomics research paper

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=24). 100% of the students met the criterion for success.

Spring 2017

Animal Physiology BIOL-430

Exam question from the course final addressing concepts of thermoregulation and definitions of variables used to quantify or model thermoregulation.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=30). No. Only 70% of the students met the criterion for success.

Fall 2016

Neurobiology BIOL-440

Final course grades (includes both lecture and lab)

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture, two lab sections (n=21). 90% of students met the criterion for success. It is perhaps noteworthy that the criterion was not met for any of the individual course exams or based on the the mean score for all exams combined. Lab points (paper and project) allowed those students below the C- level based solely on exam scores to raise their final course grade. Finally, it is worth noting that seven student had a final grade in the B range, two students earned an A-, and the top two students in the class had final averages of 0.97 (A). What's different this year was the relatively large number of students performing poorly on exams (about 1/3 of the class).

Fall 2016

Comparative Biomechanics BIOL450

Assessment 1: Final exam scores.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=24). 92% of students met the criterion for success.

Assessment 2: Group projects in which students must read a primary paper and present the data and conclusions as a short ~10 min movie.

Learning Outcome Met?

(based on Criteria)

Yes No

One lecture section (n=24). 96% of students met the criterion for success.

***** SUMMARY *****

Among all courses except Biol 110, the criterion for success was met. Of a total of 456 students, 388 (85%) met the criteria.

When combined with the results of Biology 110, across all courses where the assessment occurred, 496 of 628 students (79%) met the criterion. This is right at the threshold of the criterion for success.

Learning Outcome Met?

(Based on Criteria)

No

5. Use of Results

(Discussing/ using results)

Among all courses except Biol 110, the criterion for success was met. As discussed in "Use of Results" for Learning Outcome 3, there are many potential explanations for why some students in General Biology I and II are not meeting the criterion for success. Specific to this Learning Outcome, we think students are not effectively studying for their exams. To help students hone their study skills, we conducted a study skills intervention for General Biology II students in Spring 2017 based on the approach outlined in the book "Teach Students How to Learn" by Saundra McGuire. The intervention took the form of a study skills workshop that was offered between exams 2 and 3. Students from all sections were invited to participate. We examined performance on Exam 2 vs Exam 3 for students who attended vs. those that did not attend the workshop. Overall, students who attended the intervention improved their scores by a median of 1.9 points, compared to only 0.3 points among students who did not attend. We plan to offer this intervention again during the 2018-2019 school year and will offer incentives for students to attend.

1. Major/Program Student Learning Outcomes Students will be able to...	2. Phase	3. Assessment Procedures (Planning/ determining)	Criteria: (How do you know students are achieving learning outcome?)
5. Demonstrate critical thinking by successfully applying fundamental biological concepts to novel scenarios.	Planning Collecting Discussing	Method: (ex. tests, presentations, research paper) Track performance on selected exam questions and projects from a course in one of the three major course areas or genetics. Using a Sample of Students? Yes If yes, describe your sample. Evaluate students in selected courses, with an emphasis on upper level courses When does assessment occur? Throughout the academic year.	At least 50% of students meet or exceed standard (Score 70% or greater).

How often does assessment occur?
Every other year

4. Assessment Results (Collecting/ analyzing)

Fall 2017
General Biology I BIOL-110 (Chris Harbison)

Exam 3 from Dr. Harbison's section. This exam is mostly short answer questions, asking students to apply their knowledge to various questions.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture sections (n=29). 79% of the students who enrolled met the criterion for success.

Fall 2017
General Biology I BIOL-110 (Stephanie Vernooy)

Oral presentations in Dr. Vernooy's section. Students (in pairs) select a news article that reports on primary research relevant to topics covered in class and give an oral presentation, using the knowledge from class to help them understand the topic and presenting at least one data figure from the primary paper.

Learning Outcome Met?
(based on Criteria)
 Yes No

One lecture sections (n=28). 100% of the students met the criterion for success.

Fall 2017 and Spring 2018
General Biology for Social Sciences BIOL-140 (Seema Chaturvedi)

Final exam question asking students to apply knowledge about action potentials and structure of the heart to novel biomedical scenario.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=54). 70% of the students met the criterion for success.

Fall 2017
Advanced General Biology BIOL-170 (Adam Mason)

Short answer questions on the Final Exam for Biol170 - Advanced General Biology. All the questions included here presented students with novel situations and asked them to use their knowledge of the biological processes to interpret the results, design experiments to test their interpretations, and / or predict the outcome of a manipulation.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=13). 62% of the students met the criterion for success.

Fall 2017
Cell Biology BIOL-220 (Kearney Gunsalus)

Final grade for cell signaling project report in which students researched a signaling pathway, synthesized data from various sources, and applied knowledge from the class to novel situations.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=34). 97% of the students met the criterion for success.

Fall 2017
Ecology BIOL-225 (Tom Giarla)

Grade for their lab reports on a field experiment involving mapping salamander habitat selection. Students needed to conduct background research on the topic, devise hypotheses, and use the class-wide dataset to test those hypotheses, all tasks requiring critical thinking.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=30). 97% of the students met the criterion for success.

Spring 2018
Biology of the Vertebrates BIOL-230 (Tom Giarla)

Grade for their lab reports on a field experiment involving bird or rodent seed foraging. Groups of four students each designed an experiment to better understand foraging decisions in campus seed eaters. Students needed to conduct background research on the topic, devise hypotheses, and use the class-wide dataset to test those hypotheses, all tasks requiring critical thinking.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=29). 100% of the students met the criterion for success.

Spring 2018
Molecular Genetics BIOL-260 (Stephanie Vernooy)

Overall grades for Molecular Genetics exams. These exams are comprised of questions that assess students' subject area knowledge and their ability to apply that knowledge to new problems.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=11). 82% of the students met the criterion for success.

Spring 2018
Principles of Evolution BIOL-265 (Chris Harbison)

Grade on the third exam, which required students to apply their knowledge in certain subject areas to novel situations and to reason through problems using evolutionary thinking.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=19). 95% of the students met the criterion for success.

Fall 2017
Neurobiology BIOL-440 (Jim Angstadt)

Assessment of two different and challenging Learning Goal 5 (Novel Scenario) questions on the final exam. Leech Heartbeat – students given a scenario where a key neuron in the circuit is lesioned and they must assess the implications of this change for circuit function at interneuron, motor neuron, and behavioral levels. This is a very challenging question that separates students who have learned how to think analytically from those who remain weak in this area. Visual System – students given a complex visual stimulus scenario (two alternating objects at different locations in the visual field combined with the fact that the subject has a patch covering one eye). Student must predict which specific neurons in the thalamus and visual cortex will respond to the stimulus. Requires student to understand the complex neural pathways distributing visual information through the system.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=15). 67% of the students met the criterion for success.

Spring 2018
Neurobiology BIOL-440 (Jim Angstadt)

Assessment of one challenging Learning Goal 5 (Novel Scenario) questions on the third exam. 10 point "short answer" question on neurons consisting of 5 parts. Students need to reason through a challenging scenario based on their knowledge of neuronal interactions.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=13). 53% of the students met the criterion for success.

Spring 2018
Neurobiology BIOL-440 (Jim Angstadt)

Final exam essay question asking students to describe the behavior of a particular type of neuron under normal conditions and then the reason through its expected behavior when firing rates are increased by 50%.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=13). 77% of the students met the criterion for success.

Fall 2017
Comparative Biomechanics BIOL-450 (Greg Byrnes)

Average grade across four different problem-based quizzes held throughout the semester. Students need to solve novel problems involving organismal movements relying on their understanding of the underlying physics.

Learning Outcome Met?
(based on Criteria)
 Yes No

Two lecture sections (n=22). 68% of the students met the criterion for success.

Learning Outcome Met?

(Based on Criteria)
Yes

5. Use of Results

(Discussing/ using results)

We are pleased that for the 2017-2018 school year the learning outcome for all of our assessments was met. We do not anticipate needing to make major changes to our assessment tools or teaching methods associated with this Learning Outcome. However, we do plan to add additional assessments to new courses (e.g., Biostatistics) and courses taught by several of our new faculty members.