

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Biology	208	BIO 208 02/16/2017-Genetics
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Life Sciences	Emily Thompson Ph.D.
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Describe the laws, concepts and mechanisms involved in classical Mendelian genetics; solve problems, predict outcomes, and interpret literature readings.

- Assessment Plan
 - Assessment Tool: Item analysis of selected exam questions.
 - Assessment Date: Winter 2008
 - Course section(s)/other population: students taking the course (one section)
 - Number students to be assessed: up to 24 students
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
42	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All attending students for two consecutive semesters were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Two sections of Genetics, BIO 208 MM were assessed, one from fall and one from winter. In order to meet the needs of the community we serve, the fall MM class has the lab and problem session in the evenings and the winter MM class has the lab and problem session during the day. All students from all sections were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The lead instructor assessed all attending students on the four selected items using rubrics for scoring. Questions included one short answer, two problems and one short essay from Exam 1, 3 and the Final.

Standard: As a CHANGE, success is defined as 75% of students scoring 70% or better for each assessed item.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For Outcome 1, students met goal on all 4 items. The first item was to describe some aspect of Mendelian genetics and 94% of students got 70% or better on the short answer question given. The second item was to solve a genetics problem and 84% of students got 70% or better on the dihybrid cross problem. The third item was to predict outcomes and 97% of students got 70% or better on the pedigree problem given. Finally, the fourth item tested the ability to interpret literature readings and 97% of students got 70% or better on the literature reading given.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

I interpret this to mean that students have successfully mastered describing the laws, concepts and mechanisms involved in classical Mendelian genetics; solving problems; predicting outcomes and interpreting literature readings.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

I do observe that some classes are weaker in reading and writing skills and some are weaker in mathematical skills. This appears to be random and there is no trend when comparing one year with another, or day with evening classes. Therefore, reading, writing and math skills need to be reinforced in all sections of this class.

Outcome 2: Describe the mechanisms involved in molecular genetics for prokaryotics and eukaryotics, solve problems, predict outcomes, and interpret literature readings. Describe the molecular basis of various diseases, and related ethical considerations.

- Assessment Plan
 - Assessment Tool: Item analysis of selected exam questions.
 - Assessment Date: Winter 2008
 - Course section(s)/other population: students taking the course (one section)
 - Number students to be assessed: up to 24 students
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
42	36

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

All attending students for two consecutive semesters were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Two sections of Genetics, BIO 208 MM were assessed, one from fall and one from winter. In order to meet the needs of the community we serve, the fall MM class has the lab and problem session in the evenings and the winter MM class has the lab and problem session during the day. All attending students from all sections were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

For Outcome 2, a short answer question, two multiple choice questions and one short essay from the Final and Exam 3 were scored against a rubric by the lead instructor.

Standard: CHANGE: success is defined as 75% of students scoring 70% or better on all items.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For Outcome 2, students met goal on all four items. For the first item, describe molecular genetics, 100% of students correctly answered the question on the final, and note they had the same question on Exam 3 and improved their performance from Exam 3 to the final. For item two, solve problems involving molecular genetics, 92% got 70% or better on the problem. For item 3, predict outcomes of molecular genetics experiments, 89% got 70% or better on the multiple-choice question. For item 4, describe molecular basis of genetic diseases and ethical considerations, 95% got 70% or better on the essay question on Exam 3.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

I interpret this to mean that students have successfully mastered describing the laws, concepts and mechanisms involved in molecular genetics; solving problems; predicting outcomes; and describing molecular basis of genetic diseases and ethical considerations.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The item that students are weakest on, every semester, even with support from me is describing the molecular basis of genetic disease with ethical considerations. Although students met goal, 45% of them received a “C” or “B” on this essay. To allow more students to correctly analyze and describe the material, I give the exact question a second time on the final and I find that many more students move into the “A” or “B” range for this essay on their second attempt. I will continue to give this evaluation twice to allow students to master the concepts.

Outcome 3: Describe the laws and concepts involved in population genetics. Explain how genetic mechanisms drive evolution.

- Assessment Plan
 - Assessment Tool: Item analysis of selected exam questions.
 - Assessment Date: Winter 2008
 - Course section(s)/other population: students taking the course (one section)
 - Number students to be assessed: up to 24 students
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
42	36

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Assessment, where possible, was performed on the work of all attending students.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Two sections of Genetics, BIO 208 MM were assessed, one from fall and one from winter. In order to meet the needs of the community we serve, the fall MM class has the lab and problem session in the evenings and the winter MM class has the lab and problem session during the day. All attending students from all sections were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

For Outcome 3, the lead instructor assessed a half page of mathematical calculations for population genetics on Lab Exam 2 and an essay on evolution on the final, using rubrics.

Standard: CHANGE: success is defined as 75% of students scoring 70% or better on all items.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For Outcome 3, the students met goal on both items. For the first item describing population genetics, 88% of the students met goal of scoring 70% or better. For the second item explaining evolution in an essay, 94% of the students met goal of scoring 70% or better.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

I interpret this to mean that students successfully mastered description of population genetics and explaining evolution.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Although students met goal, I would like to see more students get into the “A” range when performing calculations for population genetics. More practice problems might allow greater success but each problem takes 20 minutes, limiting the number, I can assign.

Outcome 4: In the lab, perform and demonstrate understanding of selected classical and molecular genetic techniques.

- Assessment Plan
 - Assessment Tool: Item analysis of selected lab exam questions.
 - Assessment Date: Winter 2008
 - Course section(s)/other population: students taking the course (one section)
 - Number students to be assessed: up to 24 students
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015	2016	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
42	34

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Assessment, where possible, was performed on the work of all students. One student dropped out, lowering the number of assessed students for some items. Also, for this lab exam, two students failed to answer the question, also lowering the number of assessed students for this item.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Two sections of Genetics, BIO 208 MM were assessed, one from fall and one from winter. In order to meet the needs of the community we serve, the fall MM class has the lab and problem session in the evenings and the winter MM class has the lab and problem session during the day. All attending students from all sections were assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

For Outcome 4, a problem, based on work on a fruit fly lab , was assessed using a rubric by the lead instructor.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For Outcome 4, the students met goal on the item with 88% of the students scoring 70% or better.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

I interpret this to mean that students successfully mastered the lab material that was assessed on fruit fly genetics.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The students met goal on this outcome and success was satisfactory.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

The course is meeting the needs of students to transfer Genetics credits to U.S. colleges, graduate schools, medical programs, pharmacy programs, veterinary programs, enology programs, pharm tech programs, vet tech programs, clinical lab programs, etc.

The assessment results did not surprise me because I do some form of assessment every semester.

- Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I will briefly discuss with others in the Bio Department how I recently changed the Genetics Course in order to make it even more transferrable to local colleges.

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Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Other: changes based on comparison with local u	I do plan to change the course, but not as a result of the assessment process.	I have compared my course with other genetics courses and have added: a few vocabulary words; a brief description of recombination using the Holliday structure; a brief introduction to quantitative genetics; two lab reports in the place of two worksheets; and some substitution of higher-order Bloom's category test questions for lower-order ones in multiple-choice questions. I believe the changes will make the course more likely to transfer to local schools.	2016

- Is there anything that you would like to mention that was not already captured?

5.

III. Attached Files

[BIO 208 for review 2 2017](#)

Faculty/Preparer:	Emily Thompson Ph.D.	Date: 02/16/2017
Department Chair:	Anne Heise	Date: 02/21/2017
Dean:	Kristin Good	Date: 02/23/2017
Assessment Committee Chair:	Ruth Walsh	Date: 03/19/2017

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:

Course Discipline Code and Number: BIO 208

Course Title: Genetics

Division/Department Codes: MNS/LIF

2. Semester assessment was conducted (check one):

Fall 20__

Winter 2008

Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.

Portfolio

Standardized test

Other external certification/licensure exam (specify):

Survey

Prompt

Departmental exam

Capstone experience (specify):

Other (specify): Lecture exams, lab exams, and final exam

4. Have these tools been used before?

Yes

No

If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

5. Indicate the number of students assessed/total number of students enrolled in the course.

19/19 at the beginning of the course (all); 16/17 at the end of the course (one enrolled student chose not to take the final).

6. Describe how students were selected for the assessment.

All students taking the assessment question were assessed for Achievement Level.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.
None.

2. State each outcome (verbatim) from the master syllabus for the course that was assessed.

1. Describe the laws, concepts and mechanisms involved in classical Mendelian genetics; solve problems, predict outcomes, and interpret literature readings.

2. Describe the mechanisms involved in molecular genetics for prokaryotes and eukaryotes, solve problems, predict outcomes and interpret literature readings. Describe the molecular basis of various diseases, and related ethical considerations.

3. Describe the laws and concepts involved in population genetics. Explain how genetic mechanisms drive evolution.

4. In the lab, perform and demonstrate understanding of selected classical and molecular genetic techniques.

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. *Please attach a summary of the data collected.*

Students were assessed for their Achievement Level on 11 questions that were representative of the course content. There were 3 questions for Outcome 1, 3 for Outcome 2, 2 for Outcome 3 and 3 for Outcome 4.

Please return completed form to the Office of Curriculum & Assessment, SC 247.

Approved by the Assessment Committee 10/10/06

COURSE ASSESSMENT REPORT

Attached is a "Summary and Analysis of Data Collected," which gives the data and an explanation of how the data were tabulated. Table 1 shows the percent of the students at each Achievement Level for each of the 11 questions assessed. For each of the 11 questions, at least 79% of students had Excellent Achievement Levels, meaning the student scores were between 85-100%. Moreover, at least 81% of students had Good or Excellent Achievement Levels on each of the questions, meaning student scores were between 70-100%.

The standard of success was defined as 70% of students achieving scores of Good or Excellent for each question studied. Assessment results showed that 81% or more of the students demonstrated significant mastery of each question and therefore indicate that the standard of success was met and exceeded.

For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. *Please attach the rubric/scoring guide used for the assessment.*

Attached, please find the "Rubric for Assessment", which gives details of the rubric used in the assessment. Please find on the "Summary and Analysis of Data Collected," the tables summarizing the data collected on student achievement for the course outcomes.

Results of the assessment are given in Table 1 and are described above. Results are shown a slightly different way in Table 2, which shows the percent of students at each Achievement Level averaged for a given outcome. Eighty-seven percent of students mastered the three questions of Outcome 1 with an Excellent Achievement Level (student score of 85-100%) and 7.5% with a Good Achievement Level (student score of 70-84%). For the three questions of Outcome 2, 86% of students had an Excellent Achievement Level and 2% had a Good Achievement Level. Outcome 3 results were averaged for two questions and 97% of students got an Excellent Achievement Level and 0% got a Good Achievement Level. Finally, for the 3 questions of Outcome 4, 86% of students got an Excellent Achievement Level and 0% got a Good Achievement Level.

These results show that an average of 86% or more of students mastered the four outcomes of the course with Good or Excellent Achievement Levels. While not part of the standard of success, these results confirm that the students are successfully mastering the outcomes of the course.

4. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

Strengths:

The students are mastering complex content and mastery can be assessed by looking at student responses to a cluster of exam questions that are representative of course content. The standard of success was met and exceeded in this course.

Weaknesses: None

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.
2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
 - a. Outcomes/Assessments on the Master Syllabus
Change/rationale:
 - b. Objectives/Evaluation on the Master Syllabus
Change/rationale:
 - c. Course pre-requisites on the Master Syllabus
Change/rationale:
 - d. 1st Day Handouts
Change/rationale:
 - e. Course assignments
Change/rationale:
 - f. Course materials (check all that apply)
 - Textbook
 - Handouts

COURSE ASSESSMENT REPORT

Other:

g. Instructional methods
Change/rationale:

h. Individual lessons & activities
Change/rationale:

3. What is the timeline for implementing these actions?

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

The assessment tools appear to be effective in measuring student achievement.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?

All X Selected _____

If "All", provide the report date for the next full review: 2011

If "Selected", provide the report date for remaining outcomes: _____

Submitted by:

Name: Emily A. Thompson, Ph.D. / Emily A. Thompson Date: May 21, 2008
Print/Signature

Department Chair: Estia Grossman / Estia Grossman Date: 5/22/08
Print/Signature

Dean: M. Shoval Date: MAY 23 2008
Print/Signature

logged 4/19/08 sjv