

Annual Assessment Report

Academic Year: 2015/16

Department: Microbiology and Immunology

Program(s): Microbiology

Assessment reports are to be submitted annually to report assessment activities and results by program. The reports are due every summer with a deadline of September 15th each year.

The use of this template is entirely optional.

Note: These reports have been required by MSU policy since 2004.

1. What Was Done

Based on our assessment plan Learning Objectives (LO) 1,2 and 3 were scheduled to be evaluated
Learning Outcomes 1,2 and 3 are:

LO1: Use knowledge of the fundamental terms and concepts of microbiology

LO2: Our graduates will be able to Design and Test a Hypothesis

LO3: Our graduates will be able to Perform basic microbiological lab techniques

2. What Data Were Collected

1. LO2: Design an experiment to test a hypothesis or microbiological concept

A written assignment from the course Research Methods in Microbiology (BIOM 455), was used to evaluate this Learning Objective. Random samples of the Microbiology student papers (>10% of class; n = 4) were scored using our Microbiology Assessment Form for Learning Objective 1 scoring rubric. (See Attachment #1).

LO3: Our graduates will be able to Perform basic microbiological lab techniques

A written assignment, which involved performance of an in-class activity, from the course Eukaryotic Pathogens (MB 441) was used to evaluate this Learning Objective. Random samples of the Microbiology student papers (20% of class; n= 4) were scored using our Microbiology Assessment Form for Learning Objective 3 scoring rubric. (See Attachment #2).

3. What Was Learned

LO1: Use knowledge of the fundamental terms and concepts of microbiology

Assessment of this LO was not completed.

LO2: The average score was 3.9, indicating the students performance met or exceeded expectations. The Learning Objective was comprised of following 3 components: a). Ability to formulate hypotheses and design experiments, b). Analyze and interpret results and c). Make critical judgments. Student's performance exceeded expectations on all of these components with component b, the ability to analyze and interpret results, the weakest performing area for some students.

LO3: The average score was 4.25, indicating the students performance exceeded expectations. The Learning Objective was comprised of the following components: a) Mastery of an essential microbiological technique, b) Mastery of microscopy techniques, c) Organization and summary of data and d) application of deliberate and thorough observational skills. Students performed equally well on all of these components.

4. How We Responded

LO1: This is a large course and team-taught which complicated the assessment assignment. The failure to collect this data precipitated a change in the Assessment Plan, which establishes a Process to inform Instructors of the Assessment assignment for their course and assurance that a Faculty member is assigned for that assessment (See Attachment #3).

LO2: No changes were needed based upon performance, although awareness was gained that interpretation and analysis of results is the area students may require more help or opportunities to gain more experience. Designing and Testing Hypotheses may receive more attention in the course. In addition to improve student performance on this skill, exercises in this skill could be incorporated in other courses to provide the opportunity for students to gain more experience with this skill.

LO3: No changes were needed based upon performance.

Results of Assessment of LO2 and LO3 and the details of Assessment Process will be shared with the Department at the beginning of the AY 2016/17.

Attachment #1

**Microbiology Assessment Form
Scoring Rubric**

Course: **BIOM 455 (Research Methods in Microbiology)** _____ Semester _____

Evaluator: _____

Dept. of Evaluator _____

Type of Learning Activities(s) Assessed: choose one of the following:

Written examination

Written assignment

In class activities (role play, class discussion, presentations)

Performance of Lab Procedure

Out of class activities (projects)

Other (please specify)

Learning Objective Assessed:

2. Experiment Design & Test a Hypothesis

| Learning Objective | Performance Level | | | | |
|---|-------------------|----------|----------|----------|----------|
| Student should: | | | | | |
| <i>a. demonstrate an ability to formulate hypotheses and design experiments based on the scientific method</i> | 1 | 2 | 3 | 4 | 5 |
| <i>b. analyze and interpret results from a variety of microbiological methods and apply these methods to analogous situations</i> | 1 | 2 | 3 | 4 | 5 |
| <i>c. show they can make critical judgements about scientific material</i> | 1 | 2 | 3 | 4 | 5 |

1 = Not Done

∗2 = **Performed but with poor execution – threshold level (see note below)**

3 = Adequate Performance; Met Expectations

4 = Performance Well Executed; Exceeds Expectation

5 = Performance Excellent; Exceeds Expectations Plus

❖ **threshold level:** if student performance falls below this threshold faculty action will be taken to improve the program.

Attachment #3

MBI Dept. Fall 2016

Assessment Process:

The Microbiology and Immunology (MBI) Department has established an Assessment Plan. The purpose of the assessment plan is to assess *our undergraduate curriculum* and evaluate our effectiveness towards the achieving the curriculum's Learning Outcomes. The MBI Dept. has identified six Learning Objectives (LO) as listed below, in which our graduates should become proficient. The MBI courses in which each of these LO's covered were identified. The MBI LO's are to be assessed over a 3-year period on an on-going basis. The schedule for 2015-2018 is listed below.

Assessment Schedule of LO's for 2015-1018

| Year | LO | Course | Assessor 1 | Assessor 2 | Course Instructor(s) |
|---------|----|--------------|------------|------------|----------------------|
| 2015/16 | 1 | BIOM 360 (S) | | | |
| | 2 | BIOM 455(S) | Halonen | | Franklin |
| | 3 | BIOM 441 (S) | Franklin | Hudson | Halonen |
| 2016/17 | 3 | BIOM 360 (F) | | | Boyd, Walk |
| | | BIOM 432 (S) | | | Voyich |
| | 4 | BIOM 450 (F) | | | Fields |
| 2017/18 | 5 | BIOM 450 (F) | | | |
| | | BIOM 494 (S) | | | |
| | 6 | BIOH 405 (F) | | | |
| | | BIOB 410 (F) | | | |
| | | BIOM 435 (F) | | | |

Learning Objectives (LO) of the curriculum:

Learning Objective 1: Define, describe and use the fundamental terms and concepts of modern microbiology as evidenced by the ability to present, discuss and answer questions about a scientific article in the field of microbiology

Learning Objective 2: Design an experiment to test a hypothesis or fundamental concept in microbiology

Learning Objective 3: Perform basic microbiological lab techniques

Learning Objective 4: Access and analyze bioinformatics data

Learning Objective 5: Verbally communicate about fundamental and modern microbiological concepts

Learning Objective 6: Communicate in a written form about fundamental and modern microbiological concepts

Instructions to the Faculty:

1. The year your course is to be assessed the Instructor(s) will be sent the LO forms relevant to the course within the first month of the semester.
2. The Instructor(s) should decide the exercise or class assignment that is to be assessed.
3. The Instructor(s) should then inform the Dept. Head of the assignment and date of that Assignment. The Dept. Head will then assign Faculty to complete the Assessment.

Please NOTE:

- ***Only students in your course in our department are to be assessed***
- ***Only 10-20% of our students need to be assessed***
- ***Assignments you are already grading for the course made be used for the assessment, but student names are not to be included in the assessment***

1- Question regarding Assessment can be direct to Dr. Sandra Halonen (shalonen@montana.edu), Chair of the UGCC