Annual Assessment Report

Academic Year: 2016/17

Department: Microbiology and Immunology

Program(s):   Microbiology

1. **What Was Done**

   Based on our assessment plan, **Learning Objective 3 (LO3) "Our graduates will be able to Perform basic microbiological lab techniques**" was scheduled for assessment in AY 2016/17 (see Attachment 1; p.3).

2. **What Data Were Collected**

   Student performance on LO3 was evaluated in two courses. General Microbiology (BOIM 360) and Medical Bacteriology Lab (BIOM 432).

   A sample of the microbiology students (10-20%) in the class were randomly selected and assessed using the Microbiology Learning Objective Scoring Rubric designed for LO3 (see Attachment 2 and 3 respectively).
   For General Microbiology (BIOM 360) students the assignment assessed was a **Written report on identification of an unknown bacterium.**

   For Medical Bacteriology Lab, the class assignment assessed was a **Performance of a Lab Procedure**. Students were given a bacterial unknown and students were challenged to identify a common medically important bacterial pathogen.

3. **What Was Learned**

   a. **General Microbiology (BIOM 360):**
   The average score was 4.2 indicating the student performance was well executed and exceeded expectations.

   The LO consisted of 6 parts (see Attachment 2). Students performed well on all parts with scores ranging from 4-5.

b. Medical Bacteriology Lab (BIOM 432):

The average score was 3.6 out of 5, indicating the students performance was adequate and met expectations to performance was well excecuted and exceeded expectations. The Learning Objective was comprised of the following components:

> a. Show they have mastered the techniques essential to identify a common bacterial pathogen
>
> b. Show they have mastered a technique including ocular micrometer calibration – *NA for this assignment*
>
> c. Demonstrate they can use a biochemical identification test and can accurately use this technique.
>
> d. Show they can organize and summarize data and present them in in a way that is accurate and comprehensible in both written and graphical modes
>
> e. Show they can apply deliberate and thorough observational skills to collect data
>
> f. Show they can interpret data and draw conclusions that allow the students to support or refute hypotheses and make a case for alternative hypotheses

The students exceeded expectations for c, e and f above. Students were average on a and d. While this was above threshold, this indicates more attention could be given to performance of a biochemical identification of a bacterial pathogen and the ability to organize and summarize data.

4. How We Responded

> **LO3:** No changes were needed based upon performance although some recommendations for instructors for BIOM 432 may be given, based upon our assessment results (see specific comments above for BIOM 432).
>
> 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: Assessment Schedule for 2015-2018

MBI Dept. Assessment Schedule 2015-18

Assessment Schedule: 2015-2018

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

F = Fall semester; S = Spring semester

Learning Objectives (LO)
Our students should be able to:
1. Use knowledge of the fundamental terms and concepts of microbiology
2. Design an experiment to test a hypothesis or microbiological concept
3. Perform basic microbiological lab techniques
4. Access and analyze bioinformatic data or large datasets
5. Verbally communicate about fundamental and modern microbiological concepts
6. Communicate in written form about fundamental and modern microbiological concepts

Courses Involved in On-going Assessment:
BIOM 360 – General Microbiology
BIOH 405 – Hematology (lecture)
BIOB 410 – Immunology
BIOM 410 – Microbial Genetics
BIOM 441 – Eukaryotic Pathogens
BIOM 432 – Medical Bacteriology Lab
BIOM 435 – Virology
BIOM 450 – Microbial Physiology
BIOM 455 – Research Methods in Microbiology
BIOM 494 – Seminar, Capstone

Attachment #2: Assessment Form for LO3 used for BIOM 360 (Fall 2017)

Microbiology Assessment Form
Scoring Rubric
Course: __**BIOM 360 (General Microbiology)**_____ Semester ___Fall 2016_
Evaluator: ___Walk, Graduate TA for course_____
Dept. of Evaluator____MBI_____

Type of Learning Activities(s) Assessed: *Indicate which of the following*
activity is being used for the Assessment
Written examination _____
Written assignment ____x_____
In class activities (role play, class discussion, presentations) _____
Performance of Lab Procedure ___x_____
Out of class activities (projects) _____
Other (please specify) _Written report on identification of an unknown bacterium____

Learning Objective Assessed:
3. Perform basic microbiological lab techniques

Learning Objectives:	Performance Level
a. Show they have mastered the techniques essential to sound microbiological laboratory practice such as streak-plating, serial dilutions, aseptic technique, gram stain.	1 2 3 4 5
b. Show they can investigate hallmarks of phenotypic microbial diversity, including differences in colony morphology and biochemical profiles.	1 2 3 4 5
c. Demonstrate they can use conduct taxonomic classification by following decision (dichotomous) keys.	1 2 3 4 5
d. Show they can organize and summarize data and present them in a way that is accurate and comprehensible in both verbal and graphical modes.	1 2 3 4 5
e. Show they can apply deliberate and thorough observational skills to collect data.	1 2 3 4 5
f. Show they can interpret data and draw conclusions that allow the students to support or refute hypotheses and make a case for alternative hypotheses.	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: Assessment Form for LO3 used for BIOM 432 (Spring 2017)

Microbiology Assessment Form
Scoring Rubric

Course: _BIOM 432 Medical Bacteriology Lab_   Semester Spring 2017
Evaluator: ____Kay Rasmussen_____
Dept. of Evaluator___MBI Dept_____

Type of Learning Activities(s) Assessed: <u>choose one of the following</u>
 Written examination
 Written assignment -
 In class activities (role play, class discussion, presentations)
Performance of Lab Procedure – Students were given a bacterial unknown students were challenged to identify a common medically important bacterial pathogen
Out of class activities (projects)
Other (please specify)
_____

Learning Objective Assessed:
3. Perform basic microbiological lab techniques

Learning Objectives:	Performance Level
a. *Show they have mastered the techniques essential to* _____	1 2 3 4 5
b. *Show they have mastered _____ technique including ocular micrometer calibration*	1 2 3 4 5
c. *Demonstrate they can use a _____ and can accurately use this technique*	1 2 3 4 5
d. *Show they can organize and summarize data and present them in a way that is accurate and comprehensible in both verbal and graphical modes*	1 2 3 4 5
e. *Show they can apply deliberate and thorough observational skills to collect data*	1 2 3 4 5
f. *Show they can interpret data and draw conclusions that allow the students to support or refute hypotheses and make a case for alternative hypotheses*	1 2 3 4 5

 1 = Not Done
❖***2 = Performed but with poor execution – threshold level (see note below)***
 3 = Adequate Performance; Met Expectations
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❖ ***threshold level***: if student performance falls below this threshold faculty action will be taken to improve the program.