Assessment Date: _______ Fall 2013 _______

Faculty Name(s): _______ Angelique Finney _______

1. Course Name and Number:

BIOL106 (Microbiology)

2. All Course SLOs from the Course Outline of Record:

**SLO1** - Acquire, and demonstrate the ability to integrate, knowledge of microbes including: anatomical and physiological differences between Prokaryotic and Eukaryotic cells, methods of energy metabolism, innate and adaptive immunity, methods of control of microbial growth, epidemiology, bacterial genetics, and microbial pathogens and the disease they cause.

**SLO2** - Demonstrate competency in differential staining, gram staining, aseptic techniques, microscope use and care, streaking to isolate microbes, and identifying unknown bacterial cultures.

3. Specific Course SLO(s) assessed as part of this project:

SLO2 – Demonstrate competency in differential staining, gram staining, aseptic techniques, microscope use and care, streaking to isolate microbes, and identifying unknown bacterial cultures.

4. Assessment strategy or tool used in the assessment. (Describe below, and if applicable copy/paste any additional related documents at end of this form (i.e. Rubric, score sheet, test questions, essay assignment, etc.):

To assess SLO1 a series of laboratory practicals were used to assess competency and improvement in student’s aseptic techniques, microscope care, and ability to streak-to-isolate bacterial cultures. (See end of document for examples of the practicals given to students.)

5. Specific aspects of the assessment tool which link up to specific Course SLOs being assessed (i.e. Which specific test questions measured which Course SLOs? Note: May describe with #4 above.):

The “Microscope Care” practicals were used to assess student’s microscope use and care and improvement in the use and care of their microscopes for SLO2.

The “Aseptic Transfer Technique” practicals were used to assess student’s improvement in their aseptic techniques for SLO2.

The “Streak Plate Technique” practicals were used to assess student’s improvement in their streak-to-isolate techniques for SLO2.

See end of document for copy/pasted practicals.
6. Results and analysis of the data. *(Explain below and if applicably copy/paste any related documents, i.e. spreadsheets with data at the end of this document.)*:

(See spreadsheet with practical results at end of this document)

Summary of assessment of student’s improvement in microscope care: First microscope check 12% of students scored below 70%, 0% scored 70-79%, 34% scored 80-89%, and 54% scored 90-100%. On the second microscope check 2% of students scored below a 70%, 2% scored between 70-79%, 34% scored 80-89%, and 62% scored 100%. This shows that student performance increased with each microscope check.

Summary of assessment of student’s improvement in streaking to isolate bacterial cultures (STI): First STI check 12% of students scored below 70%, 4% scored 70-79%, 0% scored 80-89%, and 84% scored 90-100%. On the second STI check 2% of students scored below a 70%, 6% scored between 70-79%, 8% scored 80-89%, and 84% scored 100%. This practical indicated that only a few students showed improvement between the first and second STI check, but overall students did not show improvement in this technique.

Summary of assessment of student’s improvement in their use of aseptic techniques: First aseptic technique check 0% of students scored below 90%, 28% scored 90%, and 72% scored 100%. On the second aseptic technique check 2% scored 80%, and 18% scored 90%, and 80% scored 100%. This shows that overall student performance did increased with each aseptic technique check.

This data indicates that overall student’s are improving over the course of the lab in microscope care and aseptic techniques. However, it also indicates that more emphasis should be place on the streak-to-isolate technique.

7. Describe any faculty dialogue that occurred as part of the assessment process *(i.e. Were results shared at a department meeting? Was there discussion about changing any SLOs? Etc.)*:

Dr. Kauffman and I have been discussing the use of these practicals for a couple of years. First their implementation, then a change in their point value so that the value increases with each practical to encourage students to work on improving on their techniques. Last semester we compared results to try to determine if the increase in point value was having the desired effect or if I should return to a standard value for each technique (i.e. aseptic technique practical all worth 10 points rather than starting at a 5 point value and increasing to a 10 point value over the course of the lab). I’ve decided that it needs further evaluation before deciding what to do with the point value of the practicals.

8. Next steps *(i.e. any planned revisions to curriculum or teaching strategies to promote student success, future assessment plans, etc.)*:

I will assess this SLO again in the future using the practicals at their current point values (with increasing point values over the course of the lab) in order to collect more data to determine whether the increase in point value is encouraging students to try to improve their techniques. After collection of more data using the current assessment I may add a third microscope, streak-to-isolate, and/or aseptic technique practical in order to see if improvement occurs over a larger number of practicals.

9. Results of implemented changes, if available at this time:

Please save your finished document in the following format:

    yyyysemester-sloa-courseid.doc
    example: 2012fall-sloa-engl101c.doc
Examples of Practicals:

Name ________________________________ Date _________________________

Streak Plate Technique (5 points)

I. **Use of Surface Area (2 pts)**
   A. Streak marks too far apart/too close together
   B. Areas of plate left unstreaked
   C. Good streaking pattern (4 zones)

II. **Isolated Colonies (3 points)**
    A. Points awarded based on numbers of isolated colonies (1 colony = 1/2 point; up to 6 colonies)

Name ________________________________ Date _________________________

Streak Plate Technique (10 points)

I. **Use of Surface Area (2 pts)**
   A. Streak marks too far apart/too close together
   B. Areas of plate left unstreaked
   C. Good streaking pattern (4 zones)

II. **Isolated Colonies (8 points)**
    A. Points awarded based on numbers of isolated colonies (1 colony = 1 point; up to 8 colonies)
MICROSCOPE CARE (5 points)

I. Lens Placement (1 pt)
   A. Scan objective towards stage
   B. Condenser position

II. Stage (1 pt)
   A. Position: Stage all the way up and centered.
   B. Condition:
      1. No oil on stage or body
      2. No slides left on stage

III. Condition of Lenses (1 pt)
   A. No oil on any lens
   B. No dust

IV. Cord & Head (1 pt)
   A. Cord secured
   B. Head secure

V. Light (Rheostat) (1 pt)
   A. Left on lowest setting
   B. Scope “Off”

MICROSCOPE CARE (8 points)

I. Lens Placement (1.5 pt)
   A. Scan objective towards stage
   B. Condenser position

II. Stage (1 pts)
   C. Position: Stage all the way up and centered.
   D. Condition:
      1. No oil on stage or body
      2. No slides left on stage

III. Condition of Lenses (3 pts)
   A. No oil on any lens
   B. No dust

IV. Cord & Head (1.5 pt)
   A. Cord secured
   B. Head secure

V. Light (Rheostat) (1 pt)
   A. Left on lowest setting
   B. Scope “Off”
Aseptic Transfer Technique (7 points)

Distance from Flame (0.5 pt)
- Too close
- Too far away

Placement of Materials (0.5 pt)
- Well organized
- Awkward

Flaming and handling of loop two times (1 pt)
- Flamed entire wire to redness
- Did not flame entire wire to redness
- Splattered material outside flame

Handling of cap two times (1 pt)
- Smooth operation
- Held awkwardly/incorrectly
- Jarred loop when re-capped tube

Flaming mouth of tube or correct handling of plate (2 pt)
- Opening culture tube
- Closing culture tube
- Opening subculture tube/plate
- Closing subculture tube/plate

Aseptic handling of material (1.5 pt)
- Drips/splatters
- No drip/splatters

Pace (0.5 pt)
- Too slow
- Too fast
- Optimal pace
Aseptic Transfer Technique (10 points)

Distance from Flame (0.5 pt)
Too close
Too far away

Placement of Materials (0.5 pt)
Well organized
Awkward

Flaming and handling of loop two times (2 pt)
Flamed entire wire to redness
Did not flame entire wire to redness
Splattered material outside flame

Handling of cap two times (1 pt)
Smooth operation
Held awkwardly/incorrectly
Jarred loop when re-capped tube

Flaming mouth of tube or correct handling of plate (4 pt)
Opening culture tube
Closing culture tube
Opening subculture tube/plate
Closing subculture tube/plate

Aseptic handling of material (1 pt)
Drips/splatters
No drip/splatters

Pace (1 pt)
Too slow
Too fast
Optimal pace
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