# Assessment: Course Four Column

*Spring/Summer 2017*

## El Camino: Course SLOs (NSC) - Life Science: Allied Health (Anatomy, Physiology, Microbiology)

## ECC: ANAT 30:Essentials of Anatomy and Physiology

| *Course SLOs* | *Assessment Method Description* | *Results* | *Actions* |
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| **SLO #2 Instruments -** Students will demonstrate the use of instruments for dissection, histology, and to gather data.<br><br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Laboratory Project/Report -** Students will view and properly focus prepared microscope slides of cells, tissues, or microbes and identify structures, tissues, or microorganisms, using the compound light microscope.<br>**Standard and Target for Success:** For the total assessment, it is expected that 75% or greater of students should be able to locate specimen and get it into focus (Level 3) or in addition, identify the specimen (Level 4).<br><br>Rubric:<br><br>Level 1: The student is unable to locate the specimen on the slide under the microscope.<br><br>Level 2: The student can locate the specimen on the slide, but can not focus on the specimen. | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br>Anatomy 30<br><br>Section #1111 Number of Students Level 1 Level 2 Level 3 Level 4<br>26 0 0 19 7<br><br>Section #1002 38 1 4 8 25<br><br>Total Number of students 64<br><br>Total Percentage 1.6% 6.3% 42.2% 50.0%<br><br>Assessments were performed by evaluating 64 students in two sections of Anatomy 30, using above rubric. The data reflects that the number of students (92.2%) that achieved the standard at Level 3 or Level 4 and were successful. Those students at Level 1 (1.6%) and Level 2 (6.3%) did not achieve the standard and were unsuccessful. The raw data | **Action:** For the total assessment, the 75% target of success was met with 92.2% of students demonstrating proficiency at Level 3 (70%-89% and Level 4 (90%-100%). Those students at Level 3 met the criteria of locating, focusing on specimen and Level 4 student were also able to identify the structure and tissue type, for the Student Learning Outcome, "Students will demonstrate the use of instruments to gather data". However, a smaller number of students (7.8%) were not proficient and did not meet the standard of success, at Level 1 or Level 2 of the rubric. These students will require additional laboratory time and extra contact with the instructor to become proficient in the use and focusing of the microscope. Providing extra microscope laboratory exercises, |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | Level: 3: The student can locate the specimen, get it into focus, but can not identify the specimen.<br><br>Level: 4: The student can locate the specimen, get it into focus and identify the specimen.<br>**Additional Information:** | can be found in the attached Excel document file.<br><br>Level 4: (50.0%) The student can locate the specimen, get into focus and identify the specimen under the microscope.<br><br>Level 3: (42.2%) The student can locate the specimen, get it into focus, but can not identify the specimen.<br><br>Level 2: (6.3%) The student can locate the specimen on the slide, bu can not focus on the specimen.<br><br>Level: 1: (1.6%) The student is unable to locate the specimen on the slide under the microscope.<br><br>For the total assessment of two sections of Anatomy 30, the standard (target of success 75%) was met. The majority of students (92.2%) had Level 4 or Level 3 understanding of the assessed microscope tissue slide laboratory project. These students met the criteria of locating, focusing on the specimen, with Level 4 students showing a higher proficiency level by identifying the specimen. Although the total assessment standard and target of success was me, student success could be improved by additional pretests and practice lab exercises employing the microscope. Furthermore, extra "one on one" laboratory time with the instructor would also increase students ability to master the proper use and focusing of the microscope. (08/27/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Michael Stupy<br>**Faculty Contributing to Assessment:** Margaret Steinberg | more practice opportunities during class and additional time working with the instructor would facilitate and enhance student success in the proper use of the microscope.<br><br>Also, sharing and discussing successful and effective teaching strategies between all anatomy instructors of the use and proper focusing of the microscope, would increase student success. Adding additional numbers of hours available to anatomy students each week for "Open Lab", would increase student proficiency in the use of the microscope. Additionally, a pretest could also be employed to assess any student weakness concerning the use of the microscope and then these weakness could be addressed by the instructor, prior to giving the Student Leaning Outcome. (09/04/2017)<br>**Action Category:** Teaching Strategies<br>**Follow-Up:** Although the total assessment standard and target of success was met with 92.2% of students demonstrating a proficiency at Level 3 (70%-89%) or Level 4 (90%-100%), results could be improved. Additional class worksheets, extra laboratory time and lab exercises on the proper use and focusing of the microscope, would increase student success and proficiency. |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | Discussions among faculty and sharing their successful teaching strategies and techniques would also enhance student success and performance with proper use of the microscope.<br><br>In addition, purchasing new tissue and mitosis microscope slides, to replace old and faded slides, would also improve student performance of the microscope. Some of these old slides have faded and the specimen can barely be observed, which makes it very difficult for students to focus and identify the specimen.<br><br>Sharing and discussing successful teaching techniques and strategies among faculty, would enhance students performance and success with the proper use of the microscope. During the last week in November 2017 students were given a microscope check list to help them focus on a prepared slide. This check list was well received by the students and enabled to improve their proficiency on the microscope. Following is the check list that will be continued to be used in future semesters.<br>Microscope Check List to Aid Microscope Proficiency<br>Work through this check list to demonstrate your mastery of the compound microscope.<br>Step 1: Make sure the 4x power |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | objective lens is in the viewing position. _____<br>Step 2: Use the coarse adjustment knob to move the lens away from the stage. _____<br>Step 3: Pull open the stage clip and secure the microscope slide onto the stage. _____<br>Step 4: Use the mechanical stage knobs to center the cover slip over the condenser lens. _____<br>Step 5: Adjust the light through the condenser to a half circle with the iris diaphragm lever. ____<br>Step 6: Use the coarse adjustment knob to move the stage all the way up. ____<br>Step 7: Use the coarse adjustment knob to move the stage down to focus on the slide. ____<br>Step 8: Center the object on the slide to the middle of the field of view. ____<br>Step 9: Move to the 10x objective lens, then refocus with the fine adjustment knob. ____<br>Step 10: Move to the 40x objective lens, then refocus again with the fine adjustment. ____<br>Step 11: Identify the objects you see on the slide through the microscope lens. ____<br>If at any point in the above process, you lose sight of the object on the slide, switch back to the lower power objective lens, |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | recenter and refocus the slide. Do you think this check list aided your ability to focus the microscope on a slide? Yes or No (11/30/2017) |

# ECC: ANAT 32:General Human Anatomy

| *Course SLOs* | *Assessment Method Description* | *Results* | *Actions* |
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| **SLO #2 Instruments -** Students will demonstrate the use of instruments for dissection, histology, and to gather data.<br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Performance -** Student will view prepared microscope slides of cells, tissues, or microorganisms; focus on them, and identify them under the compound microscope.<br>**Standard and Target for Success:** For this student population, it is acceptable if the student was able to locate the specimen and get it into focus (Level 3). Students who had a higher level of proficiency were able to identify the specimen in addition to locating and focusing it (Level 4). A satisfactory success rate for a course is 75% of students with a proficiency at level 3 or 4 above. The rubric below shows how proficiency levels were determined.<br>Level 1 The student is unable to locate the specimen on the slide under the microscope.<br>Level 2 The student can locate the specimen on the slide, but cannot focus on the specimen.<br>Level 3 The student can locate the specimen, get it into focus, but cannot identify the specimen.<br>Level 4 The student can locate the specimen, get it into focus, and identify the specimen.<br>**Additional Information:** | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br>Health Science Program Level Microscope SLO Data, Spring 2017<br><br>Anatomy 32<br>Section# Total Students Level 1 Level 2 Level 3 Level 4 Percent With L3/L4<br>1013 38 2 4 14 18 84%<br>1006 36 1 1 4 30 94%<br>1014 40 0 0 0 40 100%<br>1017 37 0 0 0 37 100%<br>1010 20 0 0 13 7 100%<br>Sum 171 3 5 31 132 163/171<br>Percentage 1.8% 2.9% 18.1% 77.2% 95%<br><br>Proficiency Level by Course Level 1 Level 2 Level 3 Level 4<br>Anat.30 1.6 6.3 42.2 50.0<br>Anat.32 2.0 5.6 22.2 70.2<br>Anat.34A 1.9 0.0 20.8 75.5<br>Anat.34B 6.1 2.0 14.3 73.5<br>Physio.31 0.0 3.4 7.6 89.0 | **Action:** During faculty discussions of the data, some suggestions were made for teaching strategies to improve student learning. One instructor with above average results said that she employed a pretest to assess student weak points in microscope use, then encouraged her students to improve their techniques, telling them that they would be tested on their microscope use. Finally, she administered a post-test in which the students demonstrated their use of the microscope.<br><br>Another instructor used a more individual approach, in which she went to each student in her classes during lab and had them place a slide on their microscope, focus on a specimen and identify the specimen. If they weren't able to do one or more of these tasks, it became a teachable moment in which the instructor could coach each student in good microscope technique. Both of these methods of instruction could be used to improve student mastery of the microscope.<br>(09/07/2017)<br>**Action Category:** Teaching Strategies<br>**Follow-Up:** Sharing and discussing successful teaching techniques and strategies among faculty, |

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| | | Micro.33 6.0 11.9 26.5 55.6<br><br>163 students out of 171 students in the Anatomy 32 courses placed in the proficiency levels of 3 or 4 (70.2% scoring at level 4 and 92.4% at levels 3 and 4), Students in the Physiology 31 were the most proficient in their use of the microscope (89% scoring at level 4 (very proficient), 96.6% scoring at levels 3 and 4). This was followed by students in Anat. 34A (75.5% at level 4 and 96.3% scoring at levels 3 and 4), Anat. and Anat. 34B (73.5% scoring at level 4 and 87.8% at levels 3 and 4). The percentage of Anatomy 30 students at level 4 was the lowest, at 50%, but their combined levels of 3 and 4 was 92.2%. Students in Microbiology 33 averaged 55.6% at level 4, with a combined average of 82.1% at levels 3 and 4 as shown in the table and chart below. All of the courses assessed exceeded the goal of 75% of students achieving level 3 or 4 in the use of the microscope.<br><br>The data indicates that all five Anatomy 32 sections surpassed the success rate of at least 75% of students demonstrating a proficiency of level 3 or 4. Additionally, all five sections has more students performing at level 4 than at any other level. Of the 171 students assessed, 163 of the students had a proficiency or level 3 or 4 (95%). Less than 10% of the 171 students had a proficiency level of 1 or 2. (09/07/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Anne Valle<br>**Faculty Contributing to Assessment:** Margaret Steinberg; T. Bui | would enhance students performance and success with the proper use of the microscope. During the last week in November 2017 students were given a microscope check list to help them focus on a prepared slide. This check list was well received by the students and enabled them to improve their proficiency on the microscope. Following is the check list that will be continued to be used in future semesters.<br>Microscope Check List to Aid Microscope Proficiency<br>Work through this check list to demonstrate your mastery of the compound microscope.<br>Step 1: Make sure the 4x power objective lens is in the viewing position. _____<br>Step 2: Use the coarse adjustment knob to move the lens away from the stage. _____<br>Step 3: Pull open the stage clip and secure the microscope slide onto the stage. _____<br>Step 4: Use the mechanical stage knobs to center the cover slip over the condenser lens. _____<br>Step 5: Adjust the light through the condenser to a half circle with the iris diaphragm lever. ____<br>Step 6: Use the coarse adjustment knob to move the stage all the way up. ____<br>Step 7: Use the coarse |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | adjustment knob to move the stage down to focus on the slide.<br>____<br>Step 8: Center the object on the slide to the middle of the field of view. ____<br>Step 9: Move to the 10x objective lens, then refocus with the fine adjustment knob. ____<br>Step 10: Move to the 40x objective lens, then refocus again with the fine adjustment.<br>____<br>Step 11: Identify the objects you see on the slide through the microscope lens.<br>____<br>If at any point in the above process, you lose sight of the object on the slide, switch back to the lower power objective lens, recenter and refocus the slide.<br>Do you think this check list aided your ability to focus the microscope on a slide? Yes or No<br>(11/30/2017) |

# ECC: APHY 34A:Anatomy and Physiology I

| Course SLOs | Assessment Method Description | Results | Actions |
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| **SLO #2 Instruments -** Students will demonstrate the use of instruments for dissection, histology, and to gather data.<br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Presentation/Skill Demonstration -** Student will view prepared microscope slides of cells, tissues, or microorganisms, focus on them, and identify them under the compound microscope.<br>**Standard and Target for Success:** For this student population, it is acceptable if the student was able to locate the specimen and get it into focus (Level 3). Students who had a higher level of proficiency were able to identify the specimen in addition to locating and focusing it (Level 4). A satisfactory success rate for a course is 75% of students with a proficiency at level 3 or 4 above. The rubric below shows how proficiency levels were determined.<br>Level 1 The student is unable to locate the specimen on the slide under the microscope.<br>Level 2 The student can locate the specimen on the slide, but cannot focus on the specimen.<br>Level 3 The student can locate the specimen, get it into focus, but cannot identify the specimen.<br>Level 4 The student can locate the specimen, get it into focus, and identify the specimen.<br><br>**Additional Information:**<br>**Related Documents:**<br>34A Microscope SLO Report2017.docx<br>ProgramLevelMicroSLODataS17.xlsx | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br>Health Science Program Level Microscope SLO Data, Spring 2017<br><br>A & P 34A Section# Total Students Level 1 Level 2 Level 3 Level 4 % class with L3/L4<br>1019 27 2<br>1 8 16 89%<br>1020 23 0<br>0 3 20 100%<br>1018 31 0<br>4 10 17 87%<br>Sum 81 2<br>5 21 53 74/81<br>Total Percent<br>2.5% 6.2% 25.9% 65.4% 91%<br><br>Proficiency Level by Course Level 1 Level 2 Level 3 Level 4<br>Anat.30 1.6 6.3 42.2 50.0<br>Anat.32 2.0 5.6 22.2 70.2<br>Anat.34A 1.9 0.0 20.8 75.5<br>Anat.34B 6.1 2.0 14.3 73.5<br>Physio.31 0.0 3.4 7.6 89.0<br>Micro.33 6.0 11.9 26.5 55.6 | **Action:** Some students had difficulty locating specimens and focusing their slides because those slides were of poor quality. Some slides have faded to the point that the specimens on them can barely be found, let alone be identified. Obviously this is an obstacle to students attempting to demonstrate their proficiency with a microscope. The challenge in obtaining new slides lies in that slides are funded through equipment money because the cost per unit is so low. By the time lab technicians have purchased consumables for the division course, there is very little money left to replace class sets of slides. We need an exception to the rule that prevents us from purchasing slides with other funds.<br><br>It would also be of great assistance if the college allows the lab technicians to set a side uninterrupted time (or overtime pay), to assess the microscope conditions before service people arrive. Many microscopes have malfunctioning electrical cords and loose fixtures, such as light mounts, mechanical stages, etc. that need repair. Cal-Ed Optical or another servicing company should be informed that these items need repair. Currently problems with |

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| | | See attached document with graph<br><br>Students in the Physiology 31 were the most proficient in their use of the microscope, 89% scoring at level 4 (very proficient), with a combined average of 96.6% scoring at levels 3 (proficient) and 4. This was followed by students in Anat. 34A (75.5% at level 4 and 96.3% scoring at levels 3 and 4), Anat. 32 (70.2% scoring at level 4 and 92.4% at levels 3 and 4), and Anat. 34B (73.5% scoring at level 4 and 87.8% at levels 3 and 4). The percentage of Anatomy 30 students at level 4 was the lowest, at 50%, but their combined levels of 3 and 4 was 92.2%. Students in Microbiology 33 averaged 55.6% at level 4, with a combined average of 82.1% at levels 3 and 4 as shown in the table and chart below. All of the courses assessed exceeded the goal of 75% of students achieving level 3 or 4 in the use of the microscope.<br><br>The data indicates that all three anatomy and physiology 34A sections surpassed the success rate of at least 75% of students demonstrating a proficiency of level 3 or 4. Additionally, all three sections has more students performing at level 4 than at any other level. Of the 81 students assessed, 91% had a proficiency or level 3 or 4. Less than 10% of the 81 students had a proficiency level of 1 or 2.<br><br>When comparing the results of Anatomy and Physiology 34A to all other sections in the Life Science Department, it is evident that despite their strong performance, students in other sections performed even better. Physiology 31 students had the greatest proficiency in microscope use, followed by the students in Anatomy 32 and Anatomy & Physiology 34B and 34A, respectively. Microbiology 33 and Anatomy 30 had fewer students who were proficient in microscope use, as illustrated in the graph below. However, the reasons for these results are different for microbiology | microscopes are addressed when they are reported by the student to the professor and from the professor to the lab technician. When this line of communication is fractured the problems go undressed until the next visit months later. If lab technicians can get the support they need to focus on assessing microscopes, then students have more opportunity for performance improvements.<br><br>Additionally, we need to consider purchasing more new microscopes to replace those that can no longer be repaired or adjusted. Some new microscopes were purchased and are greatly appreciated, but some rooms, such as LS-130 (Microbiology) still have several older microscopes that need replacing.<br>(09/06/2017)<br>**Action Category:**<br>Program/College Support<br><br>**Action:** No changes are needed to the curriculum, but some modification of the Microscope Student Learning Outcome rubric would be desirable. It could be modified to include a fifth category, such as: “Students can find a specimen on a microscope slide, focus on it with the high power objective lens as well as the low power lens, and identify the specimen.” This would make the comparison of the Anatomy, Physiology, and Microbiology |

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| | | and anatomy 30.<br><br>Students in microbiology were gauged against a more difficult rubric as they had to distinguish between gram + and gram – bacteria while using oil immersion. Anatomy 30 students are non-majors who possibly did not spend a lot of time working on histology and thus had less microscope practice.<br>(09/06/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Jessica Padilla<br>**Faculty Contributing to Assessment:** Simon Trench, Margaret Steinberg, and Jessica Padilla | students' use of the microscope somewhat more equitable. (09/06/2017)<br>**Action Category:** Curriculum Changes<br><br>**Action:** The data implies that students in Anatomy and Physiology 34A are getting appropriate instruction and practice time with the use of the microscope. It is also evident, when comparing A&P 34A to other courses, that the longer the student has been in the program, the more proficient they are with the microscope. (09/06/2017)<br>**Action Category:** SLO/PLO Assessment Process<br><br>**Follow-Up:** Students were given a microscope proficiency check-off list to have them review how to properly use the microscope to focus a slide. 100% of students successfully focused the specimen and found the check-off list helpful. This list will be used in future semesters when students are first introduced to the microscope. (11/30/2017) |

# ECC: APHY 34B:Anatomy and Physiology II

| *Course SLOs* | *Assessment Method Description* | *Results* | *Actions* |
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| **SLO #2 Instruments -** Students will demonstrate the use of instruments for dissection, histology, and to gather data.<br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Performance -** Students will view prepared microscope slide of cells, tissues, or microorganisms. Focus on the slides. Identify the slides under the compound microscope.<br><br>**Standard and Target for Success:** Standards or Rubric: The standard or rubric used to confirm student success was determined by the following levels of proficiency criteria. Levels 3 and 4 are considered to be proficient in the use of the microscope. The difference between level 3 and level 4 was that level 4 reflected a higher level of proficiency. Levels 1 and 2 were unsuccessful attempts to the proficiency of the microscope. A satisfactory success rate is 75%.<br><br>Section Number Total Number of Students Level 1 Level 2 Level 3 Level 4<br>1021 33 2 1 5 25<br>1022 16 1 0 2 11<br><br>Sum 49 3 1 7 36<br>Percentage of Students 6.1% 2.0% | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br>Rubric:<br>Level 0 = Student fails to complete any of the steps necessary.<br>Level 1 = Student successfully mounts and activates the microscope.<br>Level 2 = Student succeeds in correctly mounting the slide and successfully focus on the specimen.<br>Level 3 = Student successfully mounts, focuses, identifies and stores the microscope<br>(04/07/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Thuy Bui<br>**Faculty Contributing to Assessment:** Simon Trench, Jessica Padilla | **Action:** 8.2% of the total current students taking Anatomy and Physiology 34B had received 1 and 2. This may reflect the fact more time might be needed to master the use of the microscope in future assessment. Instead of giving Anatomy and Physiology 34B students just one short lab period to be become reacquainted with the microscope, two or more class periods may be included in additions to other lab work. (09/08/2017)<br>**Action Category:** Teaching Strategies<br>**Follow-Up:** The majority of the current Anatomy and Physiology 34B students were able to focus and identify the prepared specimen. The minority of students may have difficulty focusing on the specimen since some of the microscopes are in need of repair and may not be working optimally. Another reason for a lower score in distinguishing structures due to the conditions of the slides especially the mitosis slides. The slides might be old blurry. The slides might be broken or cracked in the middle of the specimen. Instead of seeing one structure, the student may mistakenly interpret two different structures. |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | 14.3% 73.5%<br><br>87.8% of the total current students taking Anatomy and Physiology 34B had received 3 and 4. This may reflect the fact that Anatomy and Physiology 34B is a sequential course in a series. The students are better acquainted with the microscope since Anatomy and Physiology 34B students have had a semester with practice using the microscope in Anatomy and Physiology 34A.<br><br>8.2% of the total current students taking Anatomy and Physiology 34B had received 1 and 2. This may reflect the fact more time might be needed to master the use of the microscope in future assessment. Instead of giving Anatomy and Physiology 34B students just one short lab period to be become reacquainted with the microscope, two or more class periods may be included in additions to other lab work.<br><br>**Additional Information:** | | Sharing and discussing successful teaching techniques and strategies among faculty, would enhance students performance and success with the proper use of the microscope. During the last week in November 2017 students were given a microscope check list to help them focus on a prepared slide. This check list was well received by the students and enabled to improve their proficiency on the microscope. Following is the check list that will be continued to be used in future semesters.<br>Microscope Check List to Aid Microscope Proficiency<br>Work through this check list to demonstrate your mastery of the compound microscope.<br>Step 1: Make sure the 4x power objective lens is in the viewing position. _____<br>Step 2: Use the coarse adjustment knob to move the lens away from the stage. _____<br>Step 3: Pull open the stage clip and secure the microscope slide onto the stage. _____<br>Step 4: Use the mechanical stage knobs to center the cover slip over the condenser lens. _____<br>Step 5: Adjust the light through the condenser to a half circle with the iris diaphragm lever. ____<br>Step 6: Use the coarse adjustment knob to move the stage all the way up. |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | ____<br>Step 7: Use the coarse adjustment knob to move the stage down to focus on the slide.<br>____<br>Step 8: Center the object on the slide to the middle of the field of view. ____<br>Step 9: Move to the 10x objective lens, then refocus with the fine adjustment knob. ____<br>Step 10: Move to the 40x objective lens, then refocus again with the fine adjustment.<br>____<br>Step 11: Identify the objects you see on the slide through the microscope lens. ____<br>If at any point in the above process, you lose sight of the object on the slide, switch back to the lower power objective lens, recenter and refocus the slide.<br>Do you think this check list aided your ability to focus the microscope on a slide? Yes or No (11/30/2017) |

# ECC: MICR 33:General Microbiology

| *Course SLOs* | *Assessment Method Description* | *Results* | *Actions* |
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| **SLO #2 Instruments -** Students will demonstrate the use of instruments to gather data.<br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Laboratory Project/Report -**<br>Students were required to correctly perform a mixed gram stain in class. They were then required to correctly identify the<br>gram stain reaction, cell morphology and cell arrangement using the microscope and 100X oil immersion objective lens. This assessed the student understanding of the proper use of the microscope and ability to gather data.<br>**Standard and Target for Success:** For the total assessment, it is expected that 65% or greater of students should be able to locate specimen, focus correctly, properly identify Gram Negative and Gram Positive cells and identify most cell shapes (ie. rubric level 3 and level 4).<br><br>Rubric:<br>4. The student can locate the specimen, get it into focus and properly identify Gram Negative and Gram Positive cells and their shapes.<br><br>3. The student can locate the specimen, get it into focus and properly identify Gram Negative and Gram Positive cells and most of the cell shapes.<br><br>2. The student can locate the specimen, get it into focus, but can not properly identify Gram Negative and Gram Positive cells and can identify some cell shapes. | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br>Assessments were performed by evaluating a total of 151 students from four sections General Microbiology, using the above rubric. The data reflects the number of students (82.12%) that achieved the standard at Level 3 and Level 4 and were successful. Students (18.88%) at Level 1 and Level 2 did not achieve the standard and were unsuccessful. The raw data can be found in the attached Excel document file.<br><br>Level 1 Level 2<br>Level 3 Level 4<br><br>9 students (5.96%) 18 students (12.92%) 40 students (26.49%) 84 students (55.63%)<br><br>Results for Total Assessment:<br><br>Level 4: (55.63%) The student can locate the specimen, get it into focus and properly identify Gram Negative and Gram Positive cells and their shapes. These students met the standard and target of success.<br><br>Level 3: (26.49%) The student can locate the specimen, get it into focus and properly identify Gram Negative and Gram Positive cells and most of the cell shapes. These students also met the standard and target of success.<br><br>Level 2: (12.92%) The student can locate the specimen, get it into focus, but can not properly identify Gram Positive cells and Gram Negative cells. These students did not meet standard and were not successful. | **Action:** For the total assessment, the 65% target for success was met at 82.12% of students at Level 4 (90%-100%) and Level 3 (65%-89%), for the Student Learning Outcome, "Students will demonstrate the use of instruments to gather data". The results indicate that the majority of students (82.12%) met the standard and target of success (65%) for the Gram Stain laboratory exercise. These students were able to perform the staining procedure correctly, focus and properly identify Gram Positive and Gram Negative cell morphology, using the oil immersion objective. However, a smaller number of students (18.88%), Level 1 and Level 2, were unable to meet the standard of success. These students will require additional laboratory time with the instructor to become proficient in the use of the microscope. Providing extra microscope exercises, additional laboratory "practice" time and repeating the assignment, will enhance student performance and success in the proper use of the microscope.<br><br>Also, meeting among microbiology instructors to share and discuss successful and effective teaching |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | 1. The student is unable to locate specimen. Thus, the student is unable to identify Gram Negative and Gram Positive cells and their cell shapes.<br><br>**Additional Information:**<br>**Related Documents:**<br>ProgramLevelMicroSLODataS17.xlsx | Level 1: (5.96%) The student is unable to locate specimen. Thus, the student is unable to identify Gram Negative and Gram Positive cells and their cell shapes. These students did not meet the standard and were not successful.<br><br>For the total assessment of four sections of General Microbiology, the standard (target of success 65%) was met. The vast majority of students (82.12%), had Level 4 or Level 3 understanding of the assessed gram stain laboratory project, which met the criteria of locating, focusing and identifying Gram Negative and Gram Positive bacteria. Of those students who met the standard, 55.63% were in the highest Level 4 category and 26.49% were the Level 3 category. Of the students (18.88%) who failed to meet the standard 12.92% were at Level 2 category and 5.96% were at Level 1 category.<br>Although the total assessment standard and target of success was met, student success could be improved by additional pretests and practice laboratory staining exercises. Furthermore, additional laboratory time with the instructor would allow students to master the proper use and focusing of the microscope.<br>(08/14/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Michael Stupy<br>**Faculty Contributing to Assessment:** Margaret Steinberg | methods for the proper use of the microscope, would enhance student success and retention. In addition, by increasing the number of hours for "open Lab", would allow students additional time to acquire more experience and become more proficient in the use of the microscope. (08/14/2017)<br><br>**Action Category:** Teaching Strategies<br>**Follow-Up:** Although the total assessment standard and target of success was met, 65% of students at Level 4 and Level 3, results could be improved with class work sheets, additional lab staining exercises and extra time allowed for students to practice and become more proficient with the use of the microscope. Additionally, sharing and discussing successful teaching techniques and strategies among faculty, would also enhance student performance and success with the proper use of the microscope.<br><br>Sharing and discussing successful teaching techniques and strategies among faculty, would enhance students performance and success with the proper use of the microscope. During the last week in November 2017 students were given a microscope check list to help them focus on a prepared slide. This check list |

| Course SLOs | Assessment Method Description | Results | Actions |
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was well received by the students and enabled to improve their proficiency on the microscope. Following is the check list that will be continued to be used in future semesters.

Microscope Check List to Aid Microscope Proficiency

Work through this check list to demonstrate your mastery of the compound microscope.

Step 1: Make sure the 4x power objective lens is in the viewing position. _____

Step 2: Use the coarse adjustment knob to move the lens away from the stage. _____

Step 3: Pull open the stage clip and secure the microscope slide onto the stage. _____

Step 4: Use the mechanical stage knobs to center the cover slip over the condenser lens. _____

Step 5: Adjust the light through the condenser to a half circle with the iris diaphragm lever. ____

Step 6: Use the coarse adjustment knob to move the stage all the way up. ____

Step 7: Use the coarse adjustment knob to move the stage down to focus on the slide. ____

Step 8: Center the object on the slide to the middle of the field of view. ____

Step 9: Move to the 10x objective lens, then refocus with the fine

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | adjustment knob. ____<br>Step 10: Move to the 40x objective lens, then refocus again with the fine adjustment.<br>____<br>Step 11: Identify the objects you see on the slide through the microscope lens. ____<br>If at any point in the above process, you lose sight of the object on the slide, switch back to the lower power objective lens, recenter and refocus the slide.<br>Do you think this check list aided your ability to focus the microscope on a slide? Yes or No (11/30/2017) |

# ECC: PHYO 31:Human Physiology

| *Course SLOs* | *Assessment Method Description* | *Results* | *Actions* |
|---|---|---|---|
| **SLO #2 Instruments -** Students will demonstrate the use of instruments to gather physiological data.<br>**Course SLO Status:** Active<br>**Course SLO Assessment Cycle:** 2016-17 (Spring 2017)<br>**Input Date:** 11/08/2013<br>**Inactive Date:**<br>**Comments::** | **Multiple Assessments -** The student will be able to use the compound microscope to observe cells, tissues, or microorganisms.<br>**Standard and Target for Success:** The standard or rubric used to confirm student success was determined by the following levels of proficiency criteria. Levels 3 and 4 are considered to be proficient in the use of the microscope. The difference between level 3 and level 4 was that level 4 reflected a higher level of proficiency. Levels 1 and 2 were unsuccessful attempts to the proficiency of the microscope. A satisfactory success rate is 75%.<br><br>Level 1: The student is unable to locate the specimen on the slide under the microscope. (not proficient)<br><br>Level 2: The student can locate the specimen on the slide, but cannot focus on the specimen. (minimal proficiency)<br><br>Level 3: The student can locate the specimen, get it into focus, but cannot identify the specimen. (proficient)<br><br>Level 4: The student can locate the specimen, get it into focus, and identify the specimen. (very proficient) | **Semester and Year Assessment Conducted:** 2016-17 (Spring 2017)<br>**Standard Met? :** Standard Met<br><br>Section Number Total Number of Students Level 1 Level 2 Level 3 Level 4<br>1703 33 0 0 3 30<br>1700 30 0 0 1 29<br>1704 30 0 2 3 25<br>1705 25 0 2 2 21<br>Sum 118 0 4 9 105<br>Percentage of Students 0% 3.4% 7.6% 89.0%<br><br>96.6% of the total current students taking Physiology had received 3 and 4. This may reflect the fact that Physiology is a sequential course in a series. The students are better acquainted with the microscope since Physiology students have had a semester with practice using the microscope in Anatomy.<br><br>(09/07/2017)<br>**% of Success for this SLO:**<br>**Faculty Assessment Leader:** Thuy Bui<br>**Faculty Contributing to Assessment:** Anne Valle, Simon Trench | **Action:** 3.4% of the total current students taking Physiology had received 1 and 2. This may reflect the fact more time might be needed to master the use of the microscope in future assessment. Instead of giving Physiology students just one short lab period to be become reacquainted with the microscope, two or more class periods may be included in additions to other lab work.<br><br>(09/07/2017)<br>**Action Category:** Teaching Strategies<br>**Follow-Up:** The majority of the current Physiology students were able to focus and identify the prepared specimen. The minority of students may have difficulty focusing on the specimen since some of the microscopes are in need of repair and may not be working optimally. Another reason for a lower score in distinguishing structures due to the conditions of the slides especially the mitosis slides. The slides might be old blurry. The slides might be broken or cracked in the middle of the specimen. Instead of seeing one structure, the student may mistakenly interpret two different structures.<br><br>Sharing and discussing successful |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | **Additional Information:** | | teaching techniques and strategies among faculty, would enhance students performance and success with the proper use of the microscope. During the last week in November 2017 students were given a microscope check list to help them focus on a prepared slide. This check list was well received by the students and enabled to improve their proficiency on the microscope. Following is the check list that will be continued to be used in future semesters.<br>Microscope Check List to Aid Microscope Proficiency<br>Work through this check list to demonstrate your mastery of the compound microscope.<br>Step 1: Make sure the 4x power objective lens is in the viewing position. _____<br>Step 2: Use the coarse adjustment knob to move the lens away from the stage. _____<br>Step 3: Pull open the stage clip and secure the microscope slide onto the stage. _____<br>Step 4: Use the mechanical stage knobs to center the cover slip over the condenser lens. _____<br>Step 5: Adjust the light through the condenser to a half circle with the iris diaphragm lever. ____<br>Step 6: Use the coarse adjustment knob to move the stage all the way up. ____ |

| Course SLOs | Assessment Method Description | Results | Actions |
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| | | | Step 7: Use the coarse adjustment knob to move the stage down to focus on the slide. ____<br>Step 8: Center the object on the slide to the middle of the field of view. ____<br>Step 9: Move to the 10x objective lens, then refocus with the fine adjustment knob. ____<br>Step 10: Move to the 40x objective lens, then refocus again with the fine adjustment. ____<br>Step 11: Identify the objects you see on the slide through the microscope lens. ____<br>If at any point in the above process, you lose sight of the object on the slide, switch back to the lower power objective lens, recenter and refocus the slide.<br>Do you think this check list aided your ability to focus the microscope on a slide? Yes or No (11/30/2017) |