Course Goal:

- Students will design, carry-out, and present (written and oral) an experimental project related to microbial physiology.

1. Course Name and number:

   - BIOL490 Microbial Physiology

2. Rubric used to evaluate students’ presentation (oral and written) of group research – results included

Evaluation Rubric – average score (N=7 groups)

Group Oral Presentation Evaluation (50 points):

Time (5)

- 13-15 minutes (5)____5____
- short; deduct 0.5 points for each minute short (round to nearest minute)__________
- long; deduct 0.5 points for each minute long (round to nearest minute)__________

Introduction (5)

- Provide context for the research carried out (3)___2.71____
- information to suggest how hypothesis was formed (2)___1.71____

Methods (10)___9.5____

Accurately and clearly discuss all methods (not too much detail). Images are good!

Results (10)

- Use of figures (5)___4.71____
  Clear explanation of all information on the figure
  - explain all results clearly (5)___3.9____

Discussion (10)

- Specifically compare their results to other research studies (4)___2.71____
- Discuss how their research has added to the existing knowledge base (2)___1.71____
- Discuss possible future studies (4) \( \text{**3.57**} \)

**Overall Presentation (5)**
- well organized (2.5) \( \text{**2.07**} \)
- engaging audience (2.5) \( \text{**2.43**} \)

**Overall layout (5)**
- slides don't contain too much text (2.5) \( \text{**2.43**} \)
- nice images (2.5) \( \text{**2.43**} \)

490. Student paper evaluation. (70 points)

1. **Abstract (10):** \( \text{**10**} \)
   Approximately 250 words in length and succinctly summarizes all parts of the project.

2. **Introduction (10)**
   Introduces and explains all major topics related to the project (5): \( \text{**4.57**} \)
   Provides context for how the hypothesis was developed (5): \( \text{**4.71**} \)

3. **Methods (10):** \( \text{**9.5**} \)
   Organized into sections with headings. Provides enough detail for another student researcher to repeat and follow up on experiments, including source of all materials used.

4. **Results (10):** \( \text{**8.85**} \)
   Includes all major findings of research in well-written format. Results also included as figure and/or table when appropriate. Figures and tables are numbered and labeled with legends.

5. **Discussion (10):** \( \text{**9.28**} \)
   Research is summarized and all conclusions made from the experiments are discussed in the context of the published literature. Compare your research to what other people have found. What has your research ADDED to the current body of literature.

   Include future experiments that could follow up your finding.

6. **Citations (5):** \( \text{**5**} \)
7. General (15): __________

- Editing suggestions made by Dr. Castillo incorporated (10): ___9.78___
- Well organized (5): _____4.57_________

3. Summary of the Rubric results:

Average score on group oral presentation of project (N=7): 94.1%
Average score on group written presentation of project (N=7): 94.6%

4. Interpretation of Results.

Overall students performed very well on the oral and written presentation of their results. A presentation guide and the evaluation rubrics were provided to the students prior to the assignment due dates. Additionally all sections of the paper were submitted over the course of the quarter and reviewed/edited by me. Students were expected to incorporate the changes and address suggestions.

Although the presentation of the projects the students carried out was done quite well, their project designs overall were lacking. Next year I will incorporate an activity already carried out by my colleague Dr. Joanna Joyner-Matos. Within the 2nd-3rd week of the quarter, I will organize a National Institute of Health grant review panel where students have the opportunity to evaluate each others experimental design. I plan to involve several Biology graduate students and faculty in this activity. This will allow students to see how real grant proposals are evaluated and boost the quality of their projects.