

**BIOL 3381 Intro Microbiology Lab**  
**Fall 2008**  
**Room D104 Cherry Emerson**  
**Section A – T 12-2pm, Th 12-1pm, Section B – T 3-5pm, Th 3-4pm**

Instructor

Jennifer Leavey, Ph.D.

Office: Cherry Emerson A112

Office Hours: Monday 2-4

T, Th 9-11

or by appointment

Phone: 404-385-7229

Email: [jennifer.leavey@biology.gatech.edu](mailto:jennifer.leavey@biology.gatech.edu)

TA

Andrew Conley

[aconley@gatech.edu](mailto:aconley@gatech.edu)

Grading

Reports 1-3                    30% (10% each)

Quizzes                        30%

Group Presentations    10%

Final Report                 30%

Course Policies

- There are no “make-up” quizzes. To allow for university excused absences, you will be allowed 2 dropped quiz grades.
- Lab reports will be deducted by 10% for each day they are late
- If you fail to clean your station, leave lab early without finishing your work, or fail to come to **either** lab session, your weekly quiz will not be graded and a score of "0" will be recorded.
- Quizzes will cover material 2 weeks prior to, and the week of the quiz. Quizzes will generally be administered on Tuesday but can be moved to Thursday with prior notice.
- University policy on academic honesty: All students of the university are responsible for abiding by the Georgia Tech Honor Code. Lack of knowledge of this code is NOT an acceptable defense to any charge of academic dishonesty. All members of the academic community are expected to report violations of these standards of academic conduct to the appropriate authorities. The procedures for such reporting are on file in the offices of the deans of each college, the dean of students, and the provost. Please read the university policy on academic honesty at <http://www.honor.gatech.edu/honorcode/honorcode.txt> . Cheating and/or plagiarism will not be tolerated.

- **Course Description: Please Note:** BIOL 3381 is a "separate course" from the lecture ( Biol 3380 Microbiology). **Biol 3381 cannot be taken independent of Lecture.** This is a project-based lab designed to emphasize modern microbiological techniques and experimental design.

### Overview

This lab is designed to explore the production of the virulence factor, pyocyanin, by *Pseudomonas aeruginosa*. Although the first few experiments are designed to demonstrate common micro lab techniques, students will be expected to design their own experiments based on the scientific literature in the latter portion of the course.

### Written reports

After the completion of each group of experiments, each student should prepare a journal style article for the lab report. This should include:

- Abstract: concise summary of rationale, design and results of experiment (2-3 sentences)
- Introduction: provides adequate background to give a biologist the ability to understand why you did the experiment. This should include the hypothesis.
- Materials and Methods: concise summary of experimental procedures (should not read like a cookbook)
- Results: written and graphical representation of the results
- Discussion: analysis of the results and conclusions drawn.
- References

## Tentative Schedule

Date	Experiment
Aug 26, 28	Dist of paper, isolation, cultivation and staining of pseudomonas
Sep 2, 4	Discussion of paper and quiz Purification of pseudomonas from soil (I) Nutritional requirements of pseudomonas
Sep 9, 11	Isolation of pseudomonas from soil (II) Biofilm formation Inhibition of pyocyanin production
Sep 16, 18	Isolation of pseudomonas from soil (III) PCR of phzF gene <b>Report 1 due</b>
Sep 23, 25	Miniprep of pUCP Cultivation of mutant pseudomonas
Sep 30, Oct 2	Transformation of mutants with phz operon
Oct 7, 9	Lab meeting <b>Report 2 due</b>
Oct 14, 16	NO LAB – Fall Break
Oct 21, 23	Purification of pyocyanin
Oct 28, 30	Pathogenesis I – wt/mutant pseudomonas
Nov 4, 6	Pathogenesis II – purified pyocyanin, <b>Independent Experiment Proposals Due</b>
Nov 11, 13	Independent Experiments <b>Report 3 due (Thursday)</b>
Nov 18, 20	Independent Experiments cont. <b>Introductions due</b>
Nov 25	<b>Final Presentations</b>
Dec 4	<b>Final report due</b>

Report 1 – Isolation, cultivation, staining, biofilm and nutritional requirements of pseudomonas

Report 2 - Isolation of pseudomonas from soil

Report 3 - Molecular biology ( PCR, Transformation) and pathogenesis