BIOL 3381 Intro Microbiology Lab
Fall 2012
Room D104 Cherry Emerson
Section A: Mondays 12:05 - 2:55 pm
Section B: Mondays 3:05 – 5:55 pm

Instructors

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Lab Tech

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Grading

Reports	30% (10% each)
Quizzes	40%
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. You will be allowed to drop one lab report (not the Final Report).
- If you fail to clean your station, leave lab early without finishing your work, or fail to come to a 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 prior to the beginning of lab.
- 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.**

Overview

This lab is designed to explore commonly used microbiological techniques, such as culturing microorganisms, conducting microbial isolation techniques, staining, identifying various biochemical properties of different organisms, polymerase chain reaction (PCR), DNA isolations, genetic complementation, transposon mutagenesis, bacterial conjugations and transformations.

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 20	Distribution of paper Lab 1 – Isolation, cultivation and staining
Aug 27	Discussion of paper and quiz Lab 2 - Isolation of *Pseudomonas* species from soil Lab 3 - Nutritional requirements
Sep 3	NO CLASS – LABOR DAY
Sep 10	Lab 2 continued -Isolation of *Pseudomonas* species from soil (II) Lab 4 – Biochemical Activity **Report 1 due**
Sep 17	Lab 2 continued – Isolation of *Pseudomonas* species from soil (III) Lab 4 continued – Biochemical Activity
Sep 24	Lab 5 - PCR of phzF gene
Oct 1	Lab 6 - Plasmid DNA isolation and cultivation and transformation of mutant *Pseudomonas* strains
Oct 8	Lab 7 – UV Radiation Damage and Repair **Report 2 due**
Oct 15	NO LAB – FALL BREAK (OCT 13 – 16)
Oct 22	Lab 8 – *Vibrio harveyi* quorum sensing
Oct 29	Lab 9 – cross feeding by secreted quorum sensing signals
Nov 5	Lab 10 - complementation of a *V. harveyi* luciferase mutant Lab 11 – transposon mutagenesis of *V. harveyi* (screen for Lux^-) **Report 3 due**
Nov 12	Lab 12 – confirms Lux^- mutant phenotype and genomic DNA prep
Nov 19	Lab 13 – restriction digest and ligation of genomic DNA
Nov 26	Lab 14 – transformation of *E. coli* with ligation
Dec 3	Lab 15 – miniprep transformants, sequence transposon junction
Dec 10	Lab 16 - identification of gene disrupted by transposon insertion **Final Report due**

Report 1 - Isolation, cultivation, staining, and nutritional requirements
Report 2 - Isolation of *Pseudomonas* from soil
Report 3 - *V. harveyi* quorum sensing
Final Report - *V. harveyi* mutagenesis