BIMM 121: Microbiology Laboratory
Fall 2013

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DO NOT contact the instructor or TA's through TED. Email us directly.

Lecture: Tu/Th 11-12:20, CSB 001

Office hours: Thurs, 12:35-1:30 (in the conference room next door to my office)

Labs: York 2310 and 2332 – Check which room you are in!
Tue/Thu 2:30-6:30 and Wed/Fri 2-6 PM

Course Structure:

This course will introduce you to the fundamentals of microbiology and allow you to explore the many ways in which microbes affect and are used in our world. We begin the course with a foundation in basic techniques such as sterile techniques, microscopy, methods of quantitating microbes, and preparing and examining stained slides. The remaining duration of the course will comprise four main units: a comprehensive look at bacterial physiology, understanding the complex microbial community of soil, metagenomics as a tool in exploring complex communities, and the use of microbes in various aspects of our lives. Each of these units comprises several multi-day experiments and there will be considerable overlap in the execution, methodology, and analysis of data from each of these units. Throughout the course, you will also receive training in accurate data entry and analysis, scientific reasoning, and in clear and concise scientific writing.

Equipment:

For this lab you will need to purchase:

- An iClicker, **registered on the BIMM 121 TED "Tools" page**
- A lab notebook (with carbons)
- A lab coat
- A Sharpie marker (fine point)
- Eye protection (you may wear either safety glasses or goggles, but standard prescription eye glasses are not sufficient)

Attendance and Absences:

1. Your attendance is required at EVERY lab and through the entire lab period, until all the experimental work for the day is completed. *This includes lab times which are used for extra lectures.*
2. If you are likely to have interviews for graduate school, please schedule them on non-lab days.
3. All absences without **PRIOR** approval of the instructor (not the TA) and the appropriate paperwork will be considered unauthorized.
4. Absences will NOT be treated lightly. Your absence will place an unnecessary burden on your partner. There are no make up labs and you will not be allowed in the lab on non-lab days or in the other Micro lab sections, although you may be asked to make up the work from the day you missed.
5. Documentation will be required for all unavoidable absences. Provide this to your TA.
6. YOU MUST MEET WITH YOUR TA TO DISCUSS MISSED WORK. Once you have done this, email your instructor the date of the meeting.
7. **100-point penalty** for the first unauthorized, unexplained absence from the lab. If there is a second such absence, you must drop the course or receive an F in the course.
8. If you are ill on a lab day or have an emergency, e-mail or call (instructor and TA) before the start of the lab. It is not sufficient to contact your TA alone as your TA does not have the authority to excuse your absence. If you are ill enough to miss lab you must go to the student health center and provide documentation of your illness.
9. Tardiness in lab will impact your grade. Tardiness will result in a 3 point loss per minute. These penalties will accumulate during the quarter and will be subtracted from your final grade.

Assignment Deadlines and Submission:

1. A hard copy of each assignment is due **at the start of lecture** on the due date. Assignments turned in more than 10 minutes after the start of class will be considered late. Penalty for late assignments is 50%, if turned in by 6 PM the next day. They will not be accepted after that. You must make arrangements with your TA, in advance, to turn in the late work.
2. In addition to the hard copy of the lab report and some homeworks, you are required to submit an electronic copy to Turnitin.com. A link to the e-submission website will be provided on TED. Failure to submit to Turnitin.com within 3 days of the due date will results in zero points recorded for the report.

   By taking this course, students agree that the lab report will be subject to review for textual similarity by Turnitin.com for the detection of plagiarism. All submitted reports will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such

papers. Use of the Turnitin.com service is subject to the terms of use agreement posted on the Turnitin.com site.

3. Penalty points will be deducted for late electronic submissions.
4. Although you will be doing the experiments and collecting data with partners, you must hand in your own homeworks and lab report, *written in your own words*. **Copying someone else's lab report or homework is cheating** (see below).

Grading Scheme

iClicker responses	50 points
5 notebook checks at 7 points each	35 points
Lab skills/competence	70 points
7 lab quizzes at 14 points each	105 points
7 Homework assignments	212 points
Lab report	140 points
Midterm 1	120 points
Midterm 2	128 points
Midterm 3	140 points
Total	**1000 points**

Homework assignments

	Due date	
1. Excel practice	Jan 7	12 points
2. Library tutorial	Jan 14	26 points
3. Scientific method	Jan 21	23 points
4. Water contamination analysis	Feb 4	50 points
5. Dilution problems	Feb 11	17 points
6. Unknown analysis	Feb 27	66 points
7. Growth curve	Mar 4	18 points
8. Yogurt (extra credit opportunity)	Mar 11	10 points

Note: Just coming to lab does not ensure that you will get a passing grade in the class. You must hand in all assignments and get a passing score (70%) on those assignments to get a C- in the class. You will not pass the course if the combined score for your three exams is less than 194 points (50%).

Regrade Requests:

All regrade requests should be submitted in writing within one week of receiving the graded material.

Important dates

Jan 28	Midterm 1 (in lecture)
Feb 18	Midterm 2 (in lecture)
Mar 13/14	Midterm 3 (in your lab section)
Mar 17	Lab report due

Clickers

Participation points – 35 points possible

There are 16 lectures during which you will be answering clicker questions. You get 2 free absences, so you only need to click in during 14 lectures for full credit. You will receive 2.5 points per day up to a maximum of 35 points.

In order to receive these points, you must click in on 75% of the questions in that lecture. It does NOT matter if your answer is correct.

There are different numbers of questions each day, so you may use the table below to determine how many times you must click in for participation credit a given day.

total questions	9	8	7	6	5	4	3	2	1
required responses	7	6	5	4	3	3	2	1	1

Answering questions correctly – 15 additional points possible

You may receive additional credit for answering questions correctly. This includes all the clicker questions in the Tu/Th 12:30 lectures, as well as those in the workshops and occasional supplemental lectures during lab time.

There are different numbers of questions during each lecture. Every question is graded individually, even if it is a repeated question (e.g. asked before and after class discussion). At the end of the quarter, I will add up all the questions asked. This will likely be in the range of 100-115 questions over the quarter.

If you correctly answer 75% of the total questions in a quarter, you will receive the full 15 points possible.

Here is a hypothetical example:

IF there are 100 questions total in a quarter, you must answer 75 questions correctly to receive the maximum credit of 15 points. In that case, you will receive 15 pt/75 Q = 0.2 points per question up to a maximum of 15 points.

This is NOT all or nothing. You get credit for as many as you answer correctly, up to 15 points.

Clicker points uploaded to TED

Once during the quarter I will upload to TED the scores for “participation” answers only. This allows you to ensure your answers are being recorded.

The “correct answer” scores (which are more complicated to calculate) will not be uploaded.

Grade Distribution

A = 90% - 100%
B = 80% - 89.9%
C = 70% - 79.9%
D = 60% - 69.9%
F = below 60%

Lab notebook:

Notebook must be bound and have carbons. It must have a table of contents, so on the first lab day leave several blank pages at the beginning of your notebook. Pages should be numbered. Entries should be made in chronological order and EVERY day. Each day's entries on each experiment should begin with a brief (1 - 2 sentence) summary of work done on the same experiment the previous day. Periodically the TA's will collect the carbons from your notebooks, without prior notice. They will also check your table of contents. So keep your notebooks up to date!

Lab skills and competence

A portion of your grade will be based on participation in the lab, workshops, and computer labs. All students are expected to be good lab citizens. Your attitude, cooperation with others, conscientiousness, work ethic, techniques and skill in the lab will contribute to your grade. Lab performance will be based on the following criteria:

1. PRE-LAB PREPARATION
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4. Paying attention during instructions/introductions
5. Technical skill and careful management of lab procedures (*e.g.* sterile technique, microscopy, experimental procedures, judicious use of reagents, proper storage of plates, proper waste disposal, etc.)
6. Taking care of university property (properly cleaning/storing microscope, consistently locking your locker, etc.)
7. Ability to adapt to unforeseen procedural changes
8. Caliber of thinking before asking questions
9. Scientific approach (*e.g.* controls, experimental design, powers of observation)
10. Accuracy
11. Independence and initiative
12. Safety consciousness
13. Organization and general neatness in lab
14. Contribution to your group and cooperation with classmates

Note: You will be expected to develop the habit of methodical, well-planned and organized work. This will help you with the experiments throughout the course.

Course Website

We will use TED to post announcements, old exams, schedules, readings and practice material, experimental data, homework and report guidelines, etc. Please check the site regularly and familiarize yourself with the information provided.

University Policy on Integrity of Scholarship

The principle of honesty must be upheld if the integrity of scholarship is to be maintained by an academic community. The University expects that both faculty and students will honor his principle, and in so doing protect the validity of University grading. This means that all academic work will be done by the student to whom it is assigned, without unauthorized aid of any kind. Instructors, for their part, will exercise care in planning and supervising academic work, so that honest effort will be encouraged.

Student Responsibility

Students are expected to complete the course in compliance with the instructor's standards. No student shall engage in any activity that involves attempting to receive a grade by means other than honest effort, for example:

- No student shall knowingly provide, procure, or accept any unauthorized material that contains questions or answers to any examination or assignment to be given at a subsequent time.
- No student shall complete, in part or in total, any quiz, examination, or assignment for another person.
- No student shall knowingly allow any quiz, examination or assignment to be completed, in part or in total, for himself or herself by another person.
- No student shall plagiarize or copy the work of another person and submit it as his or her own work. *This includes rewriting the same ideas in different words without citing the source.*
- **If any work is plagiarized from that of another student, <u>both</u> students will be reported to the Office of Academic Integrity, even if one of the students has graduated already. Remember that most graduate schools check the undergraduate records for any indications of dishonesty before awarding a degree.**
- No student shall alter graded class assignments or examinations and then resubmit them for regrading.
- No student shall submit substantially the same material in more than one course without prior authorization.

Your lab report and homeworks for the class must be independently written, *i.e.* **your own ideas in your own words**. While discussion of data among lab partners is encouraged, each student must independently complete all text, references, figures, graphs, and tables. The submission of reports or homework by lab partners that

contain shared work is forbidden. *Both* students will be held accountable. The exception is when a figure or table contains the raw data that is supplied to each member of the group (*e.g.* absorption spectra or colony counts). In this case the labeling of that figure must be done independently. If you have questions about the difference between discussing your work with others and unauthorized collaboration, please ask your instructor or TA for clarification.

Because lab reports and homeworks are to be your own work in your own words, **you may not view, copy or paraphrase, to any extent, current or past laboratory reports or homeworks written by other students.** This is plagiarism**,** a direct attempt by the student to present the ideas of others as their own, and is no different than cheating on an exam.

Copying material from another source without putting it between quotation marks is plagiarism, even if the source is cited as a reference. In science writing it is not customary to directly quote others. Rather, you should paraphrase the ideas of your source and then *cite the reference.*

Plagiarism in lab reports and homeworks is rigorously sought out and penalized.

Because all quizzes, exams, homeworks and reports are required for satisfactory completion of this course, any student caught cheating on a quiz, exam, homework or report will be given a failing grade for the course and referred to the Office of Academic Integrity for administrative discipline.