

BIOL368/2 Genetics and Cell Biology Laboratory

Fall 2012

Lecture location: CC-310
Lecture time: Mon 14:45 – 16:00

Lab location: SP-385.9 (The southern end of SP building.)
Lab times: Sections 01 (Tue), 02 (Wed) and 03 (Thu): 13:30 – 17:30

Instructor: Dr. Madoka Gray-Mitsumune

Room: SP-375.15, Tel: 848-2424 ext 4026

Email: madoka.gray-mitsumune@concordia.ca **Please put BIOL368 in the subject line!**

Office hours: You'll find me either in my office or in the biol368 lab in the afternoon of Tue-Thu.
Please do not disturb me, if I am in my office with the door closed.

Technician: Janet Rokas

Room: SP-375.29, Tel. 848-2424 ext. 3418, E-mail: janet.rokas@concordia.ca

Teaching Assistants: Please obtain TA information from Moodle.

Course Description

This course introduces students to the basic laboratory techniques of cell biology, microbiology, bacterial genetics, and molecular biology. Experiments include cell membrane functions in red blood cells, bacterial identification, mutagenesis, genetic transformation, gene mapping, DNA isolation and recombinant DNA techniques. Through tutorials, students learn the theory behind techniques and their use in research. Special focus is placed on lab manipulation skill, data organization, and data interpretation.

Lab manual

Please download the lab manual from the Moodle BIOL368 course web.

i>Clicker

The i>Clicker system will be used during lectures. If you don't have one, please purchase at the book store. You need to bring your own i>Clicker to lectures in order to participate to the quizzes. Also, you need to register your i>Clicker at My Concordia Portal. Please follow the direction posted on Moodle.

Other course materials

Lab book (bound hard cover, not spiral bound), calculator, lab coat, safety glasses

Computer skills

You should be able to use MS Word and Excel (or equivalent software). If you are not familiar with spreadsheet calculation, table import, etc., self-tutorials are found here: <http://www.baycongroup.com/el0.htm>. IITS also offers workshops. Checkout the workshop schedules here: <http://iits.concordia.ca/services/training/index.shtml>.

Additional resources

No textbooks are assigned. Suggested readings for general information are:

- “At the bench: a laboratory navigator” Kathy Barker. Cold Spring Harbor. Course reserve at Vanier Library. One copy is kept at BIOL368 lab. Please do not take it without asking.
- “Introduction to Genetic Analysis” Griffiths et al. WH Freeman & Co. Online version also available at NCBI Bookshelf <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books>
- Today’s Online Textbook of Bacteriology: <http://www.textbookofbacteriology.net>

Other relevant reading materials will be posted on Moodle.

Marking Scheme

Item	% of final grade
Lab reports	37 %
Lab skill test (Oct 23-25)	10 %
Online Quiz 1 (Sep 14)	0.5 %
Online Quiz 2 (Sep 21)	0.5 %
Clicker Quizzes	5 %
Midterm (Oct 22)	5 %
Final exam	40 %
Prelab assignment	2 %
Performance penalty	- 1 % per incident
Performance bonus	Up to 2 % per term

Grading scheme

A⁺ = ≥90, A = 85-89, A⁻ = 80-84
B⁺ = 77-79, B = 74-76, B⁻ = 70-73
C⁺ = 67-69, C = 64-66, C⁻ = 60-63
D⁺ = 57-59, D = 54-56, D⁻ = 50-53
F = <50

Clicker quizzes

Quizzes are administered during lecture. You need an i>Clicker in order to answer clicker quizzes. Please read the section on i>Clicker above.

Lab projects

Project	Report due Week of	% of final grade
1. Spectrophotometer	Sep 17	0.5 %
2. Aseptic techniques	Oct 1	2.5 %
3. <i>E. coli</i> genetics	Oct 8	4 %
4. Mutagenesis	Oct 15, Oct 22*	5.5 %
5. Mapping by conjugation	Oct 29	5.5 %
6. Visualizing microbial cells	Nov 5	4 %
7. Genomic DNA isolation	Nov 12, Nov 19*	5.5 %
8. Cloning	Nov 26	5.5 %
9. Cell physiology	Dec 3	4 %

* Submit these reports in two parts.

Lab Report submission

A large part of your mark comes from your lab reports. Make sure to follow specifications. You must submit report in two ways: via Moodle and bring in a hard copy to the lab. **Late penalty will be applied if you failed to upload the file or bring in the hard copy on time.** Moodle submission is for keeping track of late penalties and scan for possible plagiarism. Evaluation is based on the hard copy.

1. Hard copy must be submitted **at the beginning of the lab.**

2. Electronic submission: **Report file must be uploaded to Moodle by 6 pm** on the report due date. Use designated area for each report. The soft copy should include all texts and tables. However, it is not necessary to include pre-labs, drawings or any other materials needs to be hand drawn.

Late submission: Late penalty (5 % per day) will be calculated based on the date of uploading, including weekends. If you submit late on the due date, late penalty will be 5 % until midnight of that day. If you submit next day, the penalty will be 10 %. **Late penalty will be handled by the instructor not by TA.** Do not ask me for extensions just because you have other midterms. My suggestion is to submit your reports early. This applies to any other commitments such as religious holidays, job interviews, wedding, etc. Please plan ahead.

Lab skill test

A lab skill test will be administered during the week of Oct 22. Each of you will be given a 20 min time slot and the TA will evaluate your manipulation skills such as aseptic techniques, pipetting, use of spectrophotometer or other relevant equipment.

Performance penalties

Your TA will monitor your lab performance and report any improper behavior in the lab. This will count as a penalty and 1 point per incident will be subtracted from your final grade. Penalty points may be taken for:

- Pre-lab not done before coming to the class
- Late for the lab
- Violation to safety protocols
- Improper usage of equipment
- Mistakes in lab procedures due to carelessness
- Not completing lab procedures before leave
- Not cleaning up after the lab
- Not submitting data for class data collection
- Any other improper behaviors

Performance bonus

Students who showed exceptional lab performances throughout the term will be awarded up to two bonus points per term.

Lab Attendance

If you miss the lab, **you will lose 5 % from your final grade** unless an alternative arrangement is made. **If you miss more than two labs for any reasons, you will fail the course automatically.** If you cannot come to the lab due to illness or any other serious reasons, **contact me and the technician before the lab** so that we can make an alternative arrangement. Your situation will be assessed case-by-case. Studying for midterms is NOT a reason for alternative scheduling.

Lab book

A bound laboratory notebook must be used to record pre-lab activities (see below), any changes made to the procedures, results and analyses of the results. Date and project number should be clearly written when you make entries to your lab book. Tape any loose papers (class results, charts and graphs, etc) into your lab book. Guard your lab book. Your lab book needn't be beautiful but should be legible to you and anybody else. Good lab book keeping is the key to successful research activities.

Before lab

Reading:

Read the lab manual on your own time before the allocated lab period. Read it at least twice. First to get the overview of what you'll be doing for the particular project. The lab manual is organized by that week's work but not by the project. Many projects are spread over two or three weeks. You will not understand the project until you read through the all the experiments needed to be done. Review background materials as needed.

Once you understand the project, then read through again step-by-step what you will be doing in the particular week and plan how to carry out the work by drawing flow charts, diagram or scheme. Standard calculations must be done beforehand. You'll enter these works as pre-lab in your lab book (see below).

Pre-lab:

You must prepare a pre-lab in your lab book before coming to the lab. **Pre-labs must be signed by your TA** before you enter into the lab. The pre-lab should include a flow chart, diagram or scheme of what you will be doing in that day's lab as well as any tables, calculations and other information needed (plasmid maps, strain descriptions, etc.). Complete the pre-lab assignments designated by the lab manual. **Prelab will be graded during lab period by section TAs.**

During lab

- Wear lab coat. Wear safety glasses if needed. Long hair must be tied up.
- No food/drink. No bags. No cell phones. No open toe sandals. No baseball hat.
- Wash hands before and after the lab. Wear gloves if needed.
- Wipe the bench top before and after the lab.
- You will work in pairs. Make sure that both of you will learn your lab manipulation skill during the lab period. There will be lab skill test at the end of term.
- Ask for assistance if you make a mistake during your experiment. Within limits, we can supply fresh materials to repeat the experiment. Alternatively, we can suggest ways to correct your mistake.
- If lab activities involve calculations, check for the accuracies by consulting TAs or other students.
- Lab manual lists a number of questions you need to answer when you analyze your results. Deal with the questions during the lab period. Discuss with your partner and fellow students. Ask TAs for help. Answers to these questions should be included in the lab reports.
- CLEAN UP before you leave.

Data management

For collection of section data, you need to enter your group data to designated paper or white board. **Do not leave lab without your data entry.** Your TA will enter the data into an Excel spread sheet and the file will be uploaded to Moodle. It is your responsibility to download the file from Moodle. Please contact your TA if the file is not uploaded by next day. There are areas designated for section specific information in Moodle.

Important notes on academic misconduct

Plagiarism is the most common act of academic misconduct. Plagiarism can be defined as handing in a work that is not your own. This includes copying materials from published or unpublished sources without citing the source, or copying from another student's work.

All lab reports will be scanned by plagiarism software at the end of the term. If suspicious activities are detected, the instructor must file an incident report to the Associate Dean and the sanction will be determined by the Associate Dean. The procedure is in place to identify students who repeat misconducts. Students may not be notified individually by the instructor or TA until the incident report is submitted. The reporting process is time consuming and it may not be until after the term is over before you receive notification. In that case, you will temporarily receive a grade of NR or Pending until the Associate Dean examines your case.

If Student A copies part of a report from Student B, both students are equally guilty. To avoid yourself from becoming an innocent bystander, **do not share your report with other students**. It is for your best interest. Lab partners may have the same results to work with. However, each report must be written in the individual's own words.

The following statements are taken from The Academic Integrity Website (<http://provost.concordia.ca/academicintegrity/plagiarism/>).

“Plagiarism:

The most common offense under the Academic Code of Conduct is plagiarism which the Code defines as "the presentation of the work of another person as one's own or without proper acknowledgement."

This could be material copied word for word from books, journals, internet sites, professor's course notes, etc. It could be material that is paraphrased but closely resembles the original source. It could be the work of a fellow student, for example, an answer on a quiz, data for a lab report, a paper or assignment completed by another student. It might be a paper purchased through one of the many available sources. Plagiarism does not refer to words alone - it can also refer to copying images, graphs, tables, and ideas. "Presentation" is not limited to written work. It also includes oral presentations, computer assignments and artistic works. Finally, if you translate the work of another person into French or English and do not cite the source, this is also plagiarism.

In Simple Words:

DO NOT COPY, PARAPHRASE OR TRANSLATE ANYTHING FROM ANYWHERE WITHOUT SAYING FROM WHERE YOU OBTAINED IT!"

If you are not sure how to paraphrase without plagiarizing, please refer to this example given by the Academic Integrity information site created by the Office of Provost: <http://provost.concordia.ca/academicintegrity/index.php>. Examples are shown near the end of the web page.

LIST OF SERVICES

- **Biology Department Academic Advisors:** Dr. Gray Stirling, Dr. Ian Ferguson (make appointment with the undergraduate secretary Ms. Leonie Morris SP375.9).
- **Concordia Counselling and Development:** <http://cdev.concordia.ca/> (offers career services, psychological services, student learning services, etc.)
- **The Concordia Library Citation and Style Guides:** <http://library.concordia.ca/help/howto/citations.html>
- **The Concordia Library Biology Research Guide:** <http://library.concordia.ca/research/subjects/biology/>
- **Advocacy and Support Services** <http://supportservices.concordia.ca/>
- **Student Transition Centre** <http://stc.concordia.ca/>
- **New Student Program** <http://newstudent.concordia.ca/>
- **Access Centre for Students with Disabilities** <http://supportservices.concordia.ca/disabilities/>
- **Student Success Centre** <http://studentsuccess.concordia.ca/>
- **The Academic Integrity Website** <http://provost.concordia.ca/academicintegrity/>
- **Financial Aid & Awards** <http://web2.concordia.ca/financialaid/>
- **Health Services** <http://www-health.concordia.ca/>