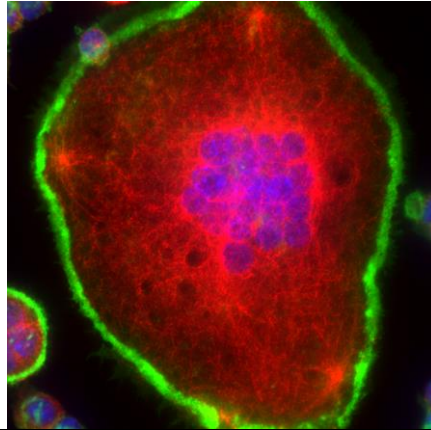


BIOD23H3 Special Topics in Cell Biology
Fall Term Syllabus, 2015 Professor Rene Harrison



A lecture/seminar/discussion class on contemporary topics in Cell Biology. Students will explore the primary literature becoming familiar with experimental design and methodologies used to decipher cell biology phenomenon. Student seminars will follow a series of lectures and journal club discussions.

Lectures: MW-120, Mon 1-3 p.m.

MW-264, Wed 12-1 p.m*. (*not every week- see schedule on page 4).

Textbook: None. Rene's PowerPoint presentations and journal articles will be supplied on blackboard as PDF files for students to download and bring to class.

Exams: 2 Exams: Midterm worth 25% (short and long answer questions)- 2 hours
- Final exam worth 25% (short and long answer questions)- 2 hours

Office Hours:

Office: SW 541-A

Office Hours: Tuesdays 11-1 pm, or by appointment.

e-mail: harrison@utsc.utoronto.ca

Blackboard Resources:

- Outline of PowerPoint presentations will be uploaded onto blackboard prior to class.
- Students should print and bring outlines to class to take notes on additional details.

TA: Urja Naik: urja.naik@utoronto.ca

Course Prerequisites:

Prerequisites: [BIOC15H](#) & [BIOC12H](#) [or [IMCB08H](#) plus [IMCC03H](#) (for Industrial Microbiology students only)]

Grading Scheme:

Assignments (2)	20%
Seminar	25%
Midterm	25%
Final	25%
Participation	5 %
*Optional stuff adjusted accordingly)	up to 20 % (the rest of grades will be adjusted accordingly)

	100%

Assignments (20%)- Two (2) Assignments will be given. Assignments must be handed in at the beginning of class the day the articles are being discussed. Late assignments will be graded as zero. Journal articles and assignments will be put on blackboard 1-2 weeks before the discussions.

Midterm (25%)- The midterm will cover the topics/journal articles and assignments covered up until the date of the exam. The format will be short and long answer questions.

Seminar (25%)- Students (in pairs) will give a 25 minute seminar to the class. Students can choose from a recent paper (in the last 5 years) from PubMed that utilizes a microscopy technique to answer a cell biology problem. The entire paper does not need to be centered around the microscopy technique, but instead uses it for some of the data to help obtain important results. Students must decide on a paper and email the paper to Dr. Harrison for approval by October 20th at the latest. Presentation dates will be assigned on a first-come, first-serve basis. Students will present a 10 minute background on the specific microscope technology and then a 15 minute discussion on the major experiments and findings in the article using this technique. A 5-10 minute question period will follow.

Presenting students must provide a 3-page summary (double-spaced) of the article to the other students at the end of term (November 30th) for the final exam.

Examples of microscopy techniques include: 2-photon, spinning disc, FRAP, FRET, LSM confocal, TIRF, super-resolution/ STORM, freeze fracture, immunogold, AFM, etc.

Final (25%)- The final will include the journal articles discussed in the student seminars, particularly the 3-page summaries written by the students. For this reason, it is very important the 3-page summaries are clear and comprehensive.

Participation (5%)- Participation will be graded according to class attendance and questions asked during student seminars.

**** Optional Activities ** (10% each, maximum of 20% of final grade)**

Students can choose ONE or TWO (or NONE!) of the following assignments. Each are worth 10% of the final grade. If you do none of these, the original grading scheme outlined above will be used. If you do ONE optional activity, the rest of the grades will be out of 90%. If you do TWO optional activities, the rest of the grades will adjusted to be out of 80%. Specific opt-in dates are outlined below for each optional assignment.

A) Creative Cell Project (10%)- Students (individually or in pairs) can focus their artistic flair(s) on cell biology. Projects can include but are not limited to: computer animations for BIOB10, music videos, paper mache, cell poetry/ cell haiku, organelle stuffed animals, baked goods, your own crazy idea... Students that are interested in this must email Dr. Harrison their potential creative ideas (and partner if applicable) by October 7th. Creative projects will be presented at show-and-tell on November 2nd in class.

B) Image quantification for Urja (10%)- Urja (your TA) needs assistance with image quantification for her research. Up to 8 students can participate in this. Students must be able to commit to 5 hours per week and attend the training session on September 23rd (see course schedule on the next page). Interested students must email Urja their CV and an unofficial transcript by September 16th at the latest. Urja will then choose students to train as research assistants. All the image quantification can be done from home.

C) Cell immunofluorescence (10%)- Students will spend 2 Saturdays (October 31st and November 7th) doing immunofluorescence of fixed HeLa cells. Students **MUST** complete the Laboratory Biosafety Training certification to do this. Biosafety training is on September 25th and Oct. 1st. Please see this link for more information: <http://www.ehs.utoronto.ca/services/biosafety/training.htm>. Full attendance at the biosafety course and on both Saturdays is mandatory for this assignment, so consider your schedules before signing up for this. Students must opt-in by sending Dr. Harrison an email by September 16th, if they want to sign up for Biosafety, and confirm training completion by October 21st. The immunostaining will be done in SW-422, Saturday Oct. 31 and Nov. 7th, exact times TBA. This will be limited to 12 students max.

D) Sturdy Bones initiative (10%)- This is for students with special interests or background in fitness/ athletics. It will require regular meetings on Friday afternoons (approximately 1-2 hours) to discuss the students work on this initiative. Dr. Harrison is in the beginning stages of developing a fitness program to reduce bone loss through strength and loading exercises (based on her microgravity work on bone cells). Students will research various aspects of weight-bearing activities (type of activity and how it influences bone). Interested students should email Dr. Harrison (send CV, transcript and a blurb about their skills/interest in this area) by September 16th, if they would like to participate in this. Dr. Harrison will let them know shortly thereafter if their skills are needed.

DATE	TOPIC	RELEVANT PAPERS
Sept. 9 (Wed)	Class Introduction	---
14	Cell Biology Electron Microscopy Techniques/ Phagocytosis	Articles 1a and 1b
16 (Wed)	No class	
21	Electron microscopes & tissue culture demo	* meet in SW 541-A
23 (Wed)	<i>Optional:</i> Urja Volunteer Session	
28	Journal Article Discussion#1 **Assignment#1 due	Articles 1a and 1b
30 (Wed)	<i>Optional:</i> Applying for grad school	
Oct 5	Cell Biology Fluorescent Techniques/ Phagocytosis	Articles 2a and 2b
Oct 7 (Wed)	Fluorescent microscope / flow cytometry and cell staining/transfection demo	* meet in SW 541-A
12-17	READING WEEK	
19	Journal Article Discussion#2 **Assignment#2 due	Articles 2a and 2b
21 (Wed)	* Make-up Journal Article Discussion#2 for students away for voting. Note that the assignments for these students must be sent to Dr. Harrison the morning of Oct. 19 th .	Articles 2a and 2b
Oct.26	MIDTERM (in class)	---
Nov. 2	Show and Tell day - Osteoclasts and Microgravity (Rene) - Creative Projects Due	---
9	Student Seminars	---
11 (wed)	Student Seminars	---
16	Student Seminars	---
18 (wed)	Student Seminars	---
23	Student Seminars	---
25 (wed)	Student Seminars	---
Nov. 30	*3-pagers due	
Date TBA	FINAL EXAM	

****Disclaimer:** The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.