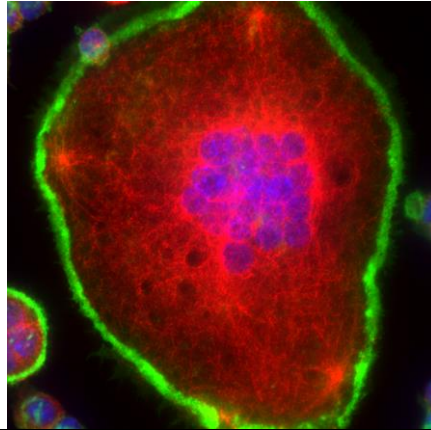


BIOD23H3 Special Topics in Cell Biology
Fall Term Syllabus, 2019 Professor Rene Harrison



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: AC-334, Mon 1-3 p.m.

BV-355, 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 Quercus 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 15% (short and long answer questions)- 2 hours

Office Hours:

Office: SW 541-A

Office Hours: Tuesdays 12-2 pm, or by appointment.

e-mail: harrison@utsc.utoronto.ca

Quercus Resources:

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

TA: Lisa (Xiao) Li: lisaxr.li@mail.utoronto.ca

Course Prerequisites:

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

Grading Scheme:

Assignments (3)	30%
Midterm	25%
Seminar	15%
Final	15%
SEM Bootcamp	10%
Participation	5%

100%

Assignments (30%)- Three (3) Assignments will be given, each worth 10 % of your final grade. 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/ grant proposals and assignments will be put on Quercus 1-2 weeks before the discussions.

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

Seminar (15%)- 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 30th 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. The seminar is worth 15% of your final grade, where 10% is based on the seminar (length, clarity, content, slide presentation, answering questions) and 5% is based on the 3-pager (clarity and content).

Presenting students must provide a 3-page summary (double-spaced) of the article to the other students at the end of term (November 27) for the final exam.

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

Final (15%)- The final will include the journal articles discussed in the student seminars, with emphasis on the 3-page summaries written by the students. For this reason, it is very important the 3-page summaries are clear and comprehensive.

SEM Bootcamp (10%)- Students (in pairs) will decide what they would like to image at high resolution. This could be animal, vegetable or mineral (or anything really if it can fit on an SEM stub). Students should start thinking about this early to collect/ request samples. A brainstorming and planning session will be on Wednesday October 2nd (see schedule at end of Syllabus).

In October, students will arrange times on FRIDAYS with the EM Specialist: Durga Acharya (durga.acharya@mail.utoronto.ca) to fix their specimens (if applicable), prepare their specimens with critical point drying (if applicable) and osmium sputter coating, prior to image their samples using scanning electron microscopy. Up to 3 sessions on Fridays may be required. Times may also be available during reading week. Dates and times for sign-up will be posted in early October on Quercus.

Projects will be due on November 20th. High resolutions works of art (specimens) will be presented in-between student seminars in late November.

****IMPORTANT:** To work in the imaging facility, students **MUST** complete the Laboratory Biosafety Training certification first. Biosafety training is now online. Please see this link for more information: <https://ehs.utoronto.ca/our-services/biosafety/biosafety-training/>. Students must opt-in by sending Dr. Harrison an email and confirm training completion by October 2rd. ******

Default assignment: Creative Cell Project (10%)- If students cannot attend Friday times for the SEM project, then they can do a creative cell project. Here, individually students can focus their artistic flair(s) on cell biology. Projects can include but are not limited to: computer animations for BIOB10 (talk to Dr. Harrison about ideas), 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 by October 2nd. Projects will be due on November 11th. Creative projects will be presented in-between student seminars in November.

Participation (5%)- Participation will be graded according to class attendance, lab demo attendance, SEM project attendance and questions asked during student seminars. Students are expected to be on time for all lectures and labs and attend all of the student seminars. Marks will be deducted for tardiness, absenteeism and lack of participation in student seminars.

DATE	TOPIC	RELEVANT PAPERS
Sept. 4 (Wed)	Class Introduction	---
9	Fluorescent Techniques/ Pathogen Infection	Articles 1a and 1b
11 (Wed)	No class	---
16	Fluorescent microscope / flow cytometry and cell staining/transfection demo	* meet in SW 541-A
18 (Wed)	No class	---
23	Journal Article Discussion#1 **Assignment#1 due	Articles 1a and 1b
25 (Wed)	<i>Optional: Applying for grad school</i>	---
30	Electron Microscopy Techniques/ Phagocytosis	Articles 2a and 2b
Oct. 2 (Wed)	SEM Bootcamp project discussion	---
7	Journal Article Discussion#2 **Assignment#2 due	Articles 2a and 2b
9 (Wed)	Microgravity Research lecture	Grants 3a and 3b
14-18	READING WEEK	---
21	Bone Microgravity Grant Discussion#3 **Assignment#3 due	Grants 3a and 3b
23 (Wed)	No class	---
28	MIDTERM (in class)	---
30 (Wed)	Seminar tips	---
Nov. 4	Student Seminars (3)	---
6 (Wed)	Student Seminars (1)	---
11	Student Seminars (3)	---
13 (Wed)	Student Seminars (1)	---
18	Student Seminars (3)	---
20 (Wed)	Student Seminars (1)	---
25	Student Seminars (3)	---
27 (Wed)	Student Seminars *3-pagers due	---
Dec. 2	Open class	---
	FINAL EXAM (TBD)	

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