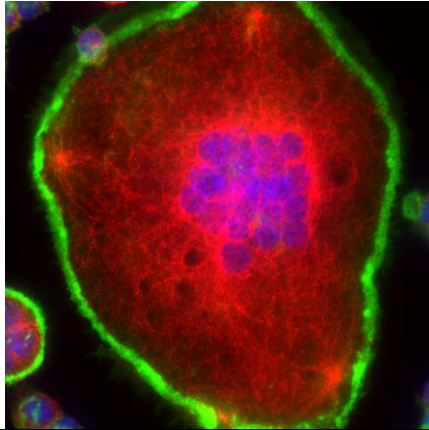


**BIOD23H3 Special Topics in Cell Biology**  
**Fall Term Syllabus, 2018** Professor Rene Harrison



*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.

AA-207, 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 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](mailto: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](mailto:lisaxr.li@mail.utoronto.ca)

**Course Prerequisites:**

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

## **Grading Scheme:**

Assignments (2)	20%
Seminar	20%
Midterm	25%
Final	20%
Participation	5 %
Extracurricular	10%
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	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 Quercus 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 (20%)**- 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 24<sup>th</sup> 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 (December 3<sup>rd</sup>) 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 (20%)**- 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.

### **Extracurricular Activities (Chose ONE, 10% of final grade)**

Students will choose ONE of the following assignments which will be worth 10% of the final grade. Specific opt-in dates are outlined below for each 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 (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 (and partner if applicable) by October 3<sup>rd</sup>. Creative projects will be presented at show-and-tell on November 7<sup>th</sup> in class.

**B) Live Cell Imaging (10%)**- Students will spend a Friday evening and a Saturday (tentatively October 19<sup>th</sup> and 20<sup>th</sup>) performing live cell phagocytosis imaging of transfected macrophages. Students **MUST** complete the Laboratory Biosafety Training certification to do this. 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 3<sup>rd</sup>. The cell imaging will be done in SW-422, and limited to 16 students max (first come first serve).

DATE	TOPIC	RELEVANT PAPERS
Sept. 5 (Wed)	Class Introduction	---
10	Cell Biology Electron Microscopy Techniques/ Phagocytosis	Articles 1a and 1b
12 (Wed)	No class	---
17	Electron microscopes & tissue prep demo	* meet in SW 541-A
24	Journal Article Discussion#1 **Assignment#1 due	Articles 1a and 1b
26 (Wed)	<i>Optional:</i> Applying for grad school	---
Oct. 1	Cell Biology Fluorescent Techniques/ Phagocytosis	Articles 2a and 2b
8-12	READING WEEK	---
15	Fluorescent microscope / flow cytometry and cell staining/transfection demo	* meet in SW 541-A
22	Journal Article Discussion#2 **Assignment#2 due	Articles 2a and 2b
25 (Wed)	- Bone cells and Microgravity (Rene) - how to give a seminar	
Oct.29	MIDTERM (in class)	---
Nov. 5	No class	---
7 (Wed)	Show and Tell day - Creative Projects Due	---
12	Student Seminars	---
14 (Wed)	Student Seminars	---
19	Student Seminars	---
21 (Wed)	Student Seminars	---
26	Student Seminars	---
28 (Wed)	Student Seminars	---
Dec. 3	Student Seminars *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.