1. Course Information

Course number: 4410A  
Course title: Discovery-based Cell Biology I  
Year: Fall Term 2017

Students will examine the controversial social/ethical parameters that guide bench-to-bedside experimentation and clinical translation with a particular focus on the cell biology associated with human stem cells, cloning, genetic testing and animal usages. Other modules will present the advanced cell biological principals and the research pathways that lead to new discoveries in cytoskeletal regulation and cancer cell biology. Students will also be trained in effective debating and scientific presentations.

Lectures:  
Mondays 12:30-2:20 pm; Wednesdays 10:30-11:20 am  
All lectures are in MSB 447

Laboratories:  
Not applicable

Tutorials:  
Not applicable

Requisites:  
Prerequisite(s): Biology 3316A/B or Physiology 3140A (minimum mark of 70%)  
or Biology 3309 (minimum mark of 75%)  
Co-requisite(s): none  
Anti-requisite(s): none

Senate regulation regarding the student’s responsibility regarding requisites:  
Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Dr. Dale W. Laird (Coordinator), dale.laird@schulich.uwo.ca  
DSB 00077, x86827  
Dr. Jessica Esseltine, jessica.esseltine@schulich.uwo.ca  
DSB 00079, x86821  
Dr. Nicole Novielli, nicole.novielli@schulich.uwo.ca  
DSB 00079, x86821  
Dr. Patrick Lajoie, plajoie3@uwo.ca  
MSB 438, x88220

*Meetings with the Instructors are available by appointment
Owl Sakai:

Lecture notes, research papers, reviews and other course materials are available through Owl Sakai.

https://owl.uwo.ca/portal

Students with Owl Sakai issues should contact the Computer Support Centre at 519 661-3800
Faculty with Owl Sakai issues should contact the ITRC at 85513.

3. Course Materials

Supplemental Information: Not applicable
Laboratory Manual: Not applicable
Laboratory Materials: Not applicable
Safety Materials: Not applicable
Electronic Devices: Not applicable

4. Evaluation:

<table>
<thead>
<tr>
<th>Component</th>
<th>Date Mark Available</th>
<th>% of Final Mark</th>
</tr>
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<tbody>
<tr>
<td>3 intra-term Modules of equal weighting</td>
<td>~2nd week of:</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>33.3%</td>
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Final exam: none

Absence from course commitments

A. Absence for medical illness:
Students must familiarize themselves with the Policy on Accommodation for Medical Illness: https://student.uwo.ca

Statement from the Dean's Office
If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed Module component, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately.

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's
Office) for visits to Student Health Services. The form can be found at: https://student.uwo.ca

The Policy on Accommodation for Medical Illness is also available on the BMSUE secure site: www.schulich.uwo.ca/bmse

B. Absence for non-medical reasons:
In the case of non-medical absences from required Module components, a written notice must be provided to the Dean’s office for consideration. It will subsequently be the Dean’s Office that will determine if accommodation is warranted.

C. Special Examinations
A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents.
A Special Examination must be written at the University or an Affiliated University College no later than 30 days after the end of the examination period involved. To accommodate unusual circumstances, a date later than this may be arranged at the time permission is first given by the Dean of the Faculty. The Dean will consult with the instructor and Department Chair and, if a later date is arranged, will communicate this to Registrarial Services. If a student fails to write a scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered.

5. Course Syllabus

Overview of Course: This advanced experimental cell biology course is targeted primarily to advanced cell biology students and is designed to be taken with ACB4411B although a student can opt to take ACB4410A and not ACB4411B. Collectively, these two courses will be taught in 6 units (3 per term). These courses have three objectives: a) to present students with current information and the state of knowledge in specific area(s) of cell biology from the viewpoint of experimental research and discovery, b) to teach students research skills on how to review, criticize, write, discuss and present experimental results and c) to discuss ethical/societal issues that are rooted in recent advances in cell biology (e.g., stem cells, cloning).

Introduction to the course: Dr. Laird

A: The Cytoskeleton and Extracellular Matrix in Cell Adhesion and Motility Drs. Esseltine and Novielli (4 weeks)
    a) Cell adhesion molecules and structural junctions
    b) Actin filaments and cell motility
    c) The extracellular matrix (ECM)
d) The role of the cytoskeleton and ECM in directing cell behavior in the context of cell-based regenerative therapies

Research skill = Students will be expected to analyze data presented in journal articles and prepare a written critical review of a recent research publication.

**B: Ethics in Cell Biology:** Dr. Laird (4 weeks)
- a) Human stem cell biology
- b) Therapeutic and reproductive human cloning
- c) Genetic screening and selection
- d) Animal usage in research

Research skill = Students will be expected to take part in a research debate on an ethical question in medical cell biology.

**C: Cell Biology of Cancer:** Dr. Lajoie (4 weeks)
- a) Multi-steps to cancer development and progression
- b) Cell surface receptors and signal transduction in cancer
- c) Heterotypic cell interactions and the tumor microenvironment
- d) Cellular approaches to targeted cancer therapy

Research skill = Students will be expected to organize research data in the form of a poster and present the poster to the class.

### 6. Additional Information/Statements

**Statement on Use of Electronic Devices**
No electronic devices will be allowed during tests.

**Statement on Academic Offences**
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:
[www.uwo.ca/univsec/appeals_discipline/index.html](http://www.uwo.ca/univsec/appeals_discipline/index.html)

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

**Support Services:**
- Registrar Services: [www.registrar.uwo.ca](http://www.registrar.uwo.ca)
- Academic Counselling: [www.uwo.ca/sci/undergrad/academic_counselling/index.html](http://www.uwo.ca/sci/undergrad/academic_counselling/index.html)
- USC Student Support Services: [www.westernusc.ca/service](http://www.westernusc.ca/service)
- Student Development Services: [www.sdc.uwo.ca](http://www.sdc.uwo.ca)
- Student Health Services: [www.shs.uwo.ca](http://www.shs.uwo.ca)

Students that are in emotional/mental distress should refer to Mental Health@Western [uwo.ca/health](http://uwo.ca/health) for a complete list of options about how to obtain help.