Physiology 4520b: Stem Cell Biology and Regenerative Medicine  
Winter Term 2017

This will be a full year systems-based pharmacology course that will examine drugs used to treat diseases that affect various organs of the body (e.g. cardiovascular disease, neurological diseases, etc.) and some fundamental principles. There will be emphasis on how the drugs target the organ, the mechanisms of the drug action, and adverse effects of the drugs on the system. The topics in Pharmacology 3620 will be aligned closely with the topics in Physiology 3120 (Human Physiology – a course strongly recommended as a co-requisite). As a result, you will learn how a particular organ system works in physiology and then, in Pharm 3620, you will learn about the diseases that affect that system and how the drugs work to target and treat the diseases.

Lectures:
Tuesday 2:30 p.m. – 4:30 p.m.

Requisites:
Prerequisite(s): Physiology 3120, 3130Y and Physiology 3140A; or Physiology 3120 (with a mark of at least 75%) and Physiology 3140A.

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.

Accessibility Statement
*Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.*

Instructor Information

<table>
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<tr>
<th>Instructors</th>
<th>Office Hours</th>
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<tbody>
<tr>
<td>Dr. David Hess</td>
<td><a href="mailto:dhess@robarts.ca">dhess@robarts.ca</a></td>
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<tr>
<td>(Course Coordinator)</td>
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<tr>
<td>Dr. Chris Pin</td>
<td><a href="mailto:cpin@uwo.ca">cpin@uwo.ca</a></td>
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<tr>
<td>Dr. John DiGuglielmo</td>
<td><a href="mailto:John.diguglielmo@schulich.uwo.ca">John.diguglielmo@schulich.uwo.ca</a></td>
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<td>By email appointment</td>
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OWL:
Students with OWL issues should contact ITS Support Centre at 519 661-3800 or visit http://www.uwo.ca/its/helpdesk/

Course Syllabus
<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>LECTURER</th>
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| Lecture 1 | Introduction to Stem Cells for Regenerative Medicine  
Module 1  
Cell Replacement for Hematopoietic Disorders | |
| Lecture 2 | Hematopoietic Stem Cell Biology and Hematopoiesis | |
| Lecture 3 | Clinical Transplantation for Hematopoietic Disorders | |
| Lecture 4 | Module 2:  
Cellular Therapies for Blood Vessel Regeneration  
Circulating Cells that Mediate Angiogenesis | |
| Lecture 5 | Transplantation Strategies to Treat Ischemic Diseases | |
| Lecture 6 | Midterm Test | |
| Lecture 7 | Module 3:  
Cell Based Strategies for Diabetes Therapy  
Roles of Multipotent Stromal Cells in Regenerative Medicine | |
| Lecture 8 | Alternate Roles of MSC in the Treatment of Diabetes | |
| Lecture 9 | Module 4. Stem Cells of the Gastrointestinal System  
Tools for identifying and culturing intestinal stem cell | |
| Lecture 10 | Clinical applications for GI stem cells – from cystic fibrosis to cancer | |
| Lecture 11 | Module 5 Wound Healing and the Cancer Stem Cell Hypothesis  
Multipotent Skin Progenitor Cells in Wound Healing | |
| Lecture 12 | Cancer Stem Cell Hypothesis | |

**Evaluation:**

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<tr>
<th>Component</th>
<th>Date</th>
<th>% of Final Mark</th>
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<tr>
<td>Blog Assignments</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Midterm test</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Final exam</td>
<td>TBA (April Exam Period)</td>
<td>50</td>
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Note: Across the Basic Medical Sciences Undergraduate Education programs and within the department of Physiology and Pharmacology we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during a course. Final grades on this course will be rounded to the closest whole integer, e.g. a 73.5 becomes a 74. We WILL NOT bump marks to the next grade, e.g. a 69 will NOT be bumped up to a 70, an 89 WILL NOT be bumped up to a 90, etc. The mark attained is the mark you achieved and the mark assigned; there is no bumping to the next grade level.
Additional Information/Statements

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 website:
http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf

Absence from course commitments

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

Statement from the Dean's Office, Faculty of Science
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 final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see:

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://studentservices.uwo.ca/secure/medical_document.pdf

B. Absence for non-medical reasons:
For non-medical absences from midterms, tutorials, laboratory experiments, or late essays or assignments, documentation is required, such documentation must be submitted by the student directly to the appropriate Faculty Dean’s Office and not to the instructor. 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.
Support Services:
Registrarial Services: http://www.registrar.uwo.ca

Academic Counselling (Science and Basic Medical Sciences): http://www.uwo.ca/sci/counselling/

USC Student Support Services: http://westernusc.ca/services/

Student Development Services: http://www.sds.uwo.ca

Student Health Services: http://www.sbs.uwo.ca/

Students that are in emotion/mental distress should refer to Mental Health@Western http://www.uwo.ca/uwocom/mentalhealth/ for a complete list of option about how to obtain help.