

## Department of Biology Course Outline

### BIOL4510/KINE4510: Cellular and Molecular Basis of Muscle Physiology Fall 2019

#### Course Description

Topics include muscle development, muscle-specific gene expression, molecular basis of muscle contraction, biochemical plasticity of muscle, sarcolemmal and nuclear signal transduction in muscle, with a primary focus cardiac muscle.

Three lecture hours per week.

#### Prerequisites

Prerequisite(s): AS/HH/SC/KINE 2011 3.00 **or** SC/BIOL 3060 4.00 and SC/BIOL 3070 4.00. Course credit exclusions: None.

**WARNING:** Students without pre-requisites will be de-enrolled unless they have advanced standing or permission from the Course Director

#### Course Instructors and Contact Information

Course Director: Robert Lakin  
 Email: lakinrob@yorku.ca  
 Office: 354 Farquharson Building  
 Office Hours: By appointment only

#### Schedule

Monday, Wednesday, and Friday  
 9:30 – 10:30 am

Monday and Friday: Chemistry Building 129 (CB129)  
 Wednesday: Calumet College 108 (CC 108)

#### Evaluation

Midterm 1 – 25%  
 Midterm 2 – 25%  
 Written Assignments – 15%  
 Final Exam – 35%

The format of the midterm tests and final exam will include short and long written answers.

If you believe that a written answer on a test was marked incorrectly, you must submit your test paper for remarking within one week of the test being made available to you (if you answered in ink).

*Note: Marking can result in the mark being raised, confirmed or lowered.*

The final exam is non-cumulative, except for those students who missed any of the midterm tests (see “Course Policies” below).

Please do not ask the Course Director how many questions will be on the test or exam. Your question will not be answered.

### Written Assignments

Students will be required to read research papers and submit written summaries of the papers.

Assignments are due before class and must be uploaded onto Moodle.

There is a 5% deduction/day for late assignments. There is a 10% deduction for going over the word limit.

In order to be fair and consistent with regards to the entire class, individual grades are not negotiable. There will be no "extra credit" assignments. Marks for assignments and tests will not be "rounded".

Students who miss a midterm test will have the weighting AND lecture material transferred to their final exam. Therefore, those students will write a longer final exam.

*Final grades may be subject to grades distribution adjustment to conform to Program or Faculty grades distribution profile*

### Important Dates

Midterm 1 – Wednesday October 2, 2019

Midterm 2 – Monday November 4, 2019

Final Exam – date to be determined by Registrar's Office

**Drop Date: Friday November 8, 2019**

NOTE: for additional important dates such as holidays, refer to the "See All Important Dates" at Current Students <http://www.yorku.ca/yorkweb/cs.htm>

### Resources

#### **Required textbook:**

None.

All course materials (lecture notes, reading material) will be posted on Moodle.

#### **Website: Moodle**

Please check the Moodle website on a regular basis for course updates and postings.

#### **Moodle discussion boards**

Be sure to read the other threads before you post a question to see if your question has already been answered.

When posting, be clear specific and professional.

Discussions are monitored. Messages containing personal attacks, inappropriate language, or other disrespectful contents will be removed. Irrelevant material will also be removed. Follow the York University Student Code of Conduct <http://www.yorku.ca/oscr/codeofrr.html>

If you notice any inappropriate threads please contact the Course Director.

*Disclaimer: While Moodle moderators / instructors will attempt to remove (or edit) objectionable/inappropriate material as quickly as possible, it is not always possible to review every post. All posts made on the forums express the views and opinions of the author and not the moderators / instructors (except for posts by these people) and they cannot be held liable.*

### Learning Outcomes

Upon successful completion of BIOL4510/KINE4510, students will be able to demonstrate an understanding of the structure and function of the heart, and the fundamental cellular mechanisms regulating excitation-contraction coupling, cell signaling and embryonic development of the heart. Students will have an understanding of the mechanisms of myocardial regeneration and aging.

<b>Date</b>	<b>Topic</b>
September 4	Course Introduction
September 6	Cardiac Physiology I
September 9	Cardiac Physiology II / Cell Biology I
September 11	Cell Biology II
September 13, 16, 18	Contractile Proteins
September 20, 23, 25	Sarcoplasmic Reticulum (SR) <i>Writing Assignment #1 – September 25 @ 1:00pm</i>
September 27 and 30	Ion Channels I and II
<b>October 2</b>	<b>Midterm #1</b> <b>Lectures September 6 – September 25 (Sarcoplasmic Reticulum)</b>
October 4	Ion Channels III
October 7	Pumps and Exchanger I
October 9	Pumps and Exchangers II / Channelopathies I
October 11	<b>Class Cancelled</b>
<i>October 14 - 18</i>	<i>Fall Reading Week</i>
October 21	Channelopathies II <i>Writing Assignment #2 – October 21 @ 1:00pm</i>
October 23, 25, 28	Excitation-Contraction Coupling
October 30, November 1	Cell Signaling I and II
November 4	<b>Midterm #2</b> <b>Lectures September 27 – October 28</b>
November 6	Cell Signaling III
November 8, 11, 13, 15, 18	Embryonic Heart Development <i>Writing Assignment #3 – November 11 @ 1:00pm</i> <b>NOTE: Drop Date – November 8, 2019</b>
November 20, 22, 25	Stem Cells and Regenerative Medicine
November 27 and 29	Exercise and Cardiac Function

December 2	Exam Review and Questions <i>Writing Assignment #4 – December 2 @ 1:00pm</i>
<b>Final Exam</b> <b>Date to be determined</b>	<b>Lectures October 30 – November 29</b> <i>The final exam is scheduled by the Registrar's Office</i> <i>December exam period: December 5 – 20</i>

<b>Experiential Education and E-Learning</b>
N/A

**Other Information**

**Student Responsibilities**

- 1) Students are responsible for material presented in class and assigned papers.
- 2) Audio recording (ONLY audio) of the lecture is permitted. **No photography is permitted.** Recordings can be shared only with students enrolled in the course. Recordings **cannot** be uploaded to public websites or otherwise shared publicly. Students in violation of these policies may have legal action taken against them.
- 3) A final will be given in a 3-hour block during the December exam period and will have the similar types of questions as the midterm tests.

**It is your responsibility as a student to ensure that you are available to sit for examinations during the entire exam period.** Under no circumstances will makeup midterm test or final exam be provided because of conflict with vacation plans or work conflicts.

- 4) It is your responsibility to earn your grade. Individual adjustment of a student's grade without academic merit is unethical. All requests for grade "bumping" will be ignored.

**Course Policies**

**Course Policies on Missed Tests and Exams**

1. If you miss a test, you must provide the Course Director with written documentation (e.g. Attending Physician's Statement, accident report, death certificate) to support your absence.  
**Only a York "Attending Physician's Statement Form" will be accepted:**  
<http://registrar.yorku.ca/pdf/attending-physicians-statement.pdf>

The documentation should cover the date of the missed test. All documentation supporting your absence for missing a test must be received by the Course Director or by the Biology Undergraduate Office **within a week of the missed test** (or as soon as the student is able to return to school if you are sick for more than a week). **Students must contact the Course Director within 48 hours after a missed test to inform him of their absence. If appropriate documentation is NOT provided within ONE week, a mark of zero will be earned on the missed test.**

2. **Missed Midterm Exemption Form**  
In addition to the appropriate document(s) to support the student's absence from a midterm test, students must also complete and sign the Missed Midterm Exemption Form. The form is posted on Moodle.
3. **Students who do not write the final exam, AND have completed all midterms and assignments, must contact the Course Director for permission to write a deferred exam and provide a Deferred Standing Agreement form:**  
[http://registrar.yorku.ca/sites/registrar/files/pdf/deferred\\_standing\\_agreement.pdf](http://registrar.yorku.ca/sites/registrar/files/pdf/deferred_standing_agreement.pdf)  
It is Senate Policy that "Normal requests for deferred standing must be communicated within one week following a missed examination, or on the last day to submit course work".

Please check out the Registrar's Office Deferred Standing FAQs more details:  
<http://www.registrar.yorku.ca/exams/deferred/>

**Students who do not write the final exam, AND have missed at least one midterm or have not completed any of assignments, must submit a petition form to write a deferred exam. For more information, please go to:**

<http://myacademicrecord.students.yorku.ca/academic-petitions>

If the Course Director denies the deferred standing request, the student can submit a petition to their home Faculty through the Office of the Registrar. An academic committee will decide whether or not permission to write the deferred final exam will be granted based on the situation and evidence presented. Denied petitions will result in a zero on the final exam.

See <http://registrar.yorku.ca/petitions/academic> for information regarding academic petitions.

**NOTE: There will be NO make-up day for the midterms. If you cannot attend the midterm AND you have valid reasons for missing the test(s), the weighting of the test and course material will be put on the final exam.**

## University Policies

### **Academic Honesty and Integrity**

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

### **Access/Disability**

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

### **Ethics Review Process**

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

### **Religious Observance Accommodation**

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact

the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course Director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at [http://www.registrar.yorku.ca/pdf/exam\\_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf)

### **Student Conduct in Academic Situations**

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at:

<http://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/>