PHYSL 468 - Undergraduate Research Thesis (1)

Students taking PHYSL 468 are asked to:

(i) have successfully completed PHYSL 210 or PHYSL212/214

(ii) review the following guidelines to understand expectations in this course.

(iii) fill in the attached form with the proposed supervisor and hand it out to the course coordinator (Drs. Silvia Pagliardini or Emmanuelle Cordat) **before the UofA deadline for Fall course registration**.

(iv) then to register for the course with Ms Donna Simpson in the Physiology office (7-55 MSB/PhysPhar Reception <PhysPharReception@ualberta.ca>)

(v) attend the mandatory introductory lecture that will be held at the end of September.

Course coordinator email addresses are: Drs. Silvia Pagliardini (silviap@ualberta.ca) and Emmanuelle Cordat (cordat@ualberta.ca).

Objectives

PHYSL 468 is a one term (6 credits) course that will provide undergraduate students with basic training in physiology in a research laboratory. This course is designed to be followed by PHYSL469 in the winter term. Therefore, registration to PHYSL 468 automatically entitles the student to registration to PHYSL 469. Students will have the opportunity to interact with a Physiology professor to be guided in the design of experiments and their completion, and will receive training in their analysis. Students will also learn how to prepare and deliver an oral presentation and defend their experimental findings both in writing and in front of peer scientists. In PHYSL 469, students will continue their research project and produce and defend an honours Thesis.

Students that have already taken PHYSL461 or 467 are allowed to take PHYSL468/469 in the same laboratory or in a different laboratory. In case the course is taken with the same supervisor, the project must have different aims and objectives from the previous project. Summer students who worked previously with the proposed supervisor are allowed to take PHYSL468/469 in the same laboratory as long as both proposal and final examination clearly state what was the summer contribution to the project.

Work performed in a laboratory within the Department is strongly encouraged. Co-supervision with Professors from other departments is possible, provided that a supervisor from the Department of Physiology is identified. In this case, it is the responsibility of the student and the hosting Professor (from outside the department) to identify a Department member who will act as “Supervisor”. The hosting professor will be listed as “Co-supervisor”, even if the research project is conducted in his/her laboratory.

Expectations

- *Expectations for lab work*

Students are expected to dedicate a **minimum of 16 hours per week** in the laboratory. Depending on the type of research and project, students should be prepared to spend more time in the laboratory.

Students will be expected to regularly keep a detailed and up-to-date notebook transcribing all the experimental details, challenges, results and conclusions.

Students are expected to understand and actively be involved in their research project. This includes reading the scientific literature related to their research project.

- *Expectations for oral presentations*

Students will orally present their research proposal between **November 15 and 30**. Students, supervisor and external examiner need to be available during these dates. The presentation will be 20 minutes maximum and should not include more than 25 slides. The oral presentation will be followed by a question period. **The selection of a fourth examiner (in addition to the supervisor and Drs. Pagliardini or Cordat), who will be an expert in the research field and who will also grade the written thesis, is the responsibility of the supervisor**. This examiner can either be internal or external to the department and must be chosen at the time of registration.

- *Expectations for written proposal*

Students are required to prepare and deliver a **10 page written original research proposal**, double spaced, not including figures, tables and references, presenting their research proposal. The report **must be handed** to the supervisor and other examiners **at least one week before** the oral examination (e.g.,if the exam is scheduled for Wednesday at 11am, the report is due on the previous Wednesday before 11:59pm). Marks for late proposals will reduced by 10 % per day. Supervisors are encouraged to provide students with suggestions on the structure and the content of the proposal, but are not required to revise drafts of the document and SHOULD NOT revise the final version of the document.

This written report should be organized as follows:

Introduction/background- This section should provide the necessary but not excessive or superfluous background information to allow the reader to understand the context of the research and the experimental question investigated. Relevant references should be included. This section should also include the research hypothesis.

Methods to be used- Materials and techniques to be used during the research project should be described with sufficient detail to be reproduced. The origin of chemicals, antibodies and relevant materials should be provided. Statistical analyses to be used in the project should be reported.

Expected Results- Similar to a research publication, this section should describe expected research results based on the methods used, be logically organized, and explain the scientific reasoning and progression of the project. Alternative strategies should be included.

Discussion should provide an analysis of the expected results from the research project and should be put in the context of the scientific research field. Limitations of the research or technical approach, and alternative methodologies should be highlighted.

References, figures, tables and figure and table legends are not included in the 10 page limit. Figures and table legends should be comprehensible without reference to the text.

Grading

Final grading will be organized as follows:

10% for satisfactory and regular upkeep of notebook. The notebook will be regularly examined by the supervisor and the final document will be handed to the examining committee for evaluation.

30% for the Fall oral presentation, including 10% for the oral presentation and 20% for the question period. Time management, clarity of presentation and quality of answers to questions will be evaluated.

30% for student's performance in the laboratory. This includes taking ownership of the project, the student's performance at the bench, punctuality and behavior in the laboratory, quality of the results, and interaction with other laboratory members.

30% for the written research proposal. The proposal should follow the guidelines provided above.

Final grades will be assigned as follows:

PHYSL 468 & 469 Grading Metric

Outstanding	97-100%	4.0	**A+**
Excellent	91-96 %	4.0	**A**
Very Good	84-90 %	3.7	**A-**
	77-83 %	3.3	**B+**
Good	73-76 %	3.0	**B**
	70-72 %	2.7	**B-**
	64-69 %	2.3	**C+**
Satisfactory	61-63 %	2.0	**C**
	57-60 %	1.7	**C-**
Minimal Pass	54-57 %	1.0	**D**
Fail	1-53 %	0.0	**F**

Academic Integrity

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at **http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx**) and avoid any behaviour that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and will result in failing of the course and suspension or expulsion from the University.

COVID-19 regulations

Students accepted in their research laboratory are required to follow the guidelines approved for their respective host laboratory. These guidelines may include wearing a mask and personal protective equipment when coming to the laboratory. **Specific guidelines must be discussed with the supervisor prior to starting the course**. Failing to follow these rules may result in inability to complete the course.

Please complete the Registration page (Next page)

PHYSL 468/PHYSL 469 Registration

Student Name: _____

ID#: _____ 4th Year Honor student?_____ Student

Email address: _____

Title of proposed research:

_____

_____

PHYSL 210/214 completed?_____

Name of Supervisor: _____email:_____

2nd examiner/co-supervisor : _____ email:_____

If applicable, provide Human or Animal protocol #:_____

Has the student discussed with the supervisor and agreed to the requirements of the course and proposed project?

What time is allocated in the student's timetable for undertaking the proposed project (Day of the week, hours per day)?

What arrangements are there for supervision of the student by the supervisor in person? If supervisor's lab members are involved in the day to day supervision, please indicate name and position.

Supervisor's signature _____ Date

Co-Supervisor's signature _____Date

Student's signature_____ Date

Course coordinator's signature_____ Date