Research Project and Seminar Course 4480E/4483E/4485E/4486E/4500E/4970E

Project Course Coordinators:

Dr. Ken Yeung (kyeung@uwo.ca - Room 374 Medical Sciences Building)
4483E (Biochemistry)
4485E (Clinical Biochemistry)
4486E (Biochemistry and Cancer Biology)
4500E (Chemical Biology)

Dr. Steven Kerfoot (skerfoot@uwo.ca - Room 312 Health Sciences Addition)
4970E (Microbiology & Immunology)

Dr. Paul Walton (pwalton@uwo.ca - Room 474 Medical Sciences Building)
4480E (Biochemistry & Cell Biology)

About the course:
The project course is the core of our honors modules. As a course, it is first and foremost a guided educational program in which students work in research labs under the mentorship of faculty and other lab members. Students will learn about the scientific process by participating in it to answer real research questions. Students will also learn about scientific communication through oral presentations and written reports. The goal of the course is to give students the opportunity to participate in science, rather than simply consume it.

Course organization:
The course is jointly administered by the Departments of Microbiology & Immunology, Biochemistry, and Anatomy & Cell Biology. Together we organize the placements, scheduling, and seminars. Students in any of these programs can select a supervisor in any of the Departments.

Early September is devoted to required safety and other training courses that must be completed before starting in the lab. Project matching must also be completed during this time. Projects begin typically by the third week of September (see schedule).

Students will give their first oral presentation in mid-October (see schedule). This is intended to give students the opportunity to introduce the background and rational to their project and outline the methods that they will use to answer their research question(s). These presentations are graded by faculty, other members of the department, and peers.

Final written reports are typically due at the end of March/early April (see schedule). These will be graded by at least two faculty members from within the given department. Final oral presentations will occur in early April and will again be graded by faculty, other members of the department, and peers.
# Research Thesis Project Course Schedule

## 2018 - 2019

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<th>DATE</th>
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<tr>
<td>01-Sep-18</td>
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<td>DEADLINE FOR RESEARCH PROJECT PRE-MATCHING</td>
</tr>
<tr>
<td>06-Sep-18</td>
<td>3:30 - 4:30 pm</td>
<td>MSB 384</td>
<td>Meet with all students. General course information (Biochemistry BBQ)</td>
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<td>06-14-Sept</td>
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<td>STUDENT/FACULTY INTERVIEWS</td>
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<td>DEADLINE TO SUBMIT PROJECT CHOICES ONLINE @3:00 PM</td>
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<td>17-Sep-18</td>
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<td>RESEARCH PROJECTS START – Safety training must be complete</td>
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<td>19-Sep-18</td>
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<td>MSB 384</td>
<td>Ethical Issues in Research</td>
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<td>20-Sep-18</td>
<td>1:30-2:30 pm</td>
<td>AHB 1B02</td>
<td>Animal Safety Concepts</td>
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<td>2:30 - 3:30 pm</td>
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<td>Graduate Studies Information Session for MicroImm</td>
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<td>24-Sep-18</td>
<td>2:30 - 3:30 pm</td>
<td>MSB 346</td>
<td>Graduate Studies Information Session for Biochemistry</td>
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<tr>
<td>03-Oct-18</td>
<td>2:30 – 5:30 pm</td>
<td>MSB 384</td>
<td>Ethics in Research Presentations</td>
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<tr>
<td>19-Oct-19</td>
<td>1:00 - 5:30 pm</td>
<td>HSA 62, 64, 66, 68 HAS 062, 064, 066, 068</td>
<td>First Research Project Presentations (20 min/each)</td>
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<td>31-Dec-18</td>
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<td>DEADLINE for December report (Submit via OWL)</td>
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<tr>
<td>07-Feb-19</td>
<td>2:00-4:00 pm</td>
<td>MSB 384</td>
<td>Guidelines for final report writing</td>
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<td>25-Feb-19</td>
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<td>HAND IN PROJECT OUTLINE TO SUPERVISOR</td>
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<td>01-April-19</td>
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<td>DEADLINE TO Submit PROJECT REPORTS via OWL @8:00AM</td>
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**NOTE:** LATE REPORTS ARE SUBJECT TO PENALTY

| 05-Apr-19  | 1:00 to 5:30    | HSA 62, 64, 66, 68 HAS 062, 064, 066, 068 | FINAL PRESENTATIONS (20 min/each) |
Choosing your project and supervisor:
The research projects undertaken by honors students can take very different forms, depending on the lab and type of research. The guiding principle is that students must perform a project designed to address a specific research question or questions. Discuss this with your supervisor.

Prior to the beginning of the term (see schedule) you can approach faculty that you are interest in working with about potential projects in their research group. By the middle of the summer, you will be given access to an OWL site with descriptions of available projects to help you with your search. Keep checking the OWL site as new projects will be loaded throughout the summer. Keep in mind that it is not required that you find a supervisor prior to the beginning of the term and projects will still be available. Project pre-matching ends September 1.

If you do find a supervisor prior to the beginning of the term, send an email confirming your match to the coordinator for your course (see above) with the details of your match. Copy your supervisor on this email.

For those students who did not arrange for a supervisor prior to September, the second week of the term (see schedule) will be dedicated to interviews to help you find a match. Expect to interview with no more than 3 potential supervisors, after which you will submit your ranked preferences. Faculty will do the same. The course coordinators will do our best to match students with their choice of project based on these rankings.

NOTE: Students may not carry out a Work Study placement in the same lab as they are doing their thesis project, as these are two separate programs.

Expectations in the lab:
Projects begin during the third week of September (see schedule). Students are expected to devote a minimum of 15 hours per week on their project. The actual hours spent in the lab should be discussed with your supervisor, but as a rule you should have kept your afternoons available.

NOTE: Project students may not work unsupervised in the lab, so do not expect to be able to do lab work on evenings or weekends.

NOTE: Labs can be hazardous places. Ask what the hazards are and know how to handle them safely. Basics will be covered in the mandatory courses at the beginning of September, but you should also receive lab-specific training when you start your project.

RECOMMENDED READING: At the Bench: A Laboratory Navigator, Updated Edition by Kathy Barker. In particular, Chapters 1-6.

You should discuss additional expectations with your supervisor. Most labs will have group meetings that you should plan to attend. The quality of your experience in this course is highly dependent on the efforts that you put in.
First Oral Presentation: 8% of final grade
The first oral presentation will occur early on in your project (see schedule). It should be no longer than 10 min, followed by 5 min for questions. Presentations that go over this time will be cut off. Students should present the research question(s) that their proposal will address, background information and preliminary results, and outline the methods that will be used. Slides should be prepared in PowerPoint or similar. Students should discuss details of content and form with their supervisor prior to preparing their presentations.

Sessions will be held concurrently, grouped by field, attended by Faculty and other department members. Project students must attend the entire session. Attendees will grade presentations.

First Written Report: 10% of final grade (along with performance evaluation)
A written Introduction is due by the end of December (see Schedule) and will be submitted via the OWL HSP Project site. It should be up to 3 pages long (double spaced), plus references. It should provide an introduction to your project, state your research questions, and summarize your proposed experimental approach. This Introduction and your progress to date in the lab will contribute to your December evaluation by your supervisor.

Final Written Report: 50% of Final Grade
Final reports are due at the end of March/early April (see schedule for exact date) and will be submitted via the OWL HSP project site. Late reports will lose 10% per day up to 3 days. Reports will not be accepted if more than 3 days late.

Reports are to written in the style of a research paper with an Abstract, Introduction, Methods, Results, and Discussion sections. Figures and legends should be prepared as if for publication and appended to the end. References should be handed appropriately. Specifics of content and style should be discussed with your supervisor.

Reports should not be longer than 20 pages, double-spaced, not including abstract, figures, and references.

An outline of your thesis is due to your supervisor approximately TWO WEEKS prior to the deadline (see schedule). Your supervisor can give you general feedback and guidance at this time, but can’t re-write your paper for you. It is also acceptable to get feedback from other colleagues in the lab.

After submission, your paper will be marked by at least two faculty that are not your supervisor, but that are familiar with the subject.

NOTE: A 1-page form (see attached example) stating the project start date and outlining your contribution to the presented research must be uploaded as a separate document to the OWL site.

NOTE: We will have a lecture specifically on writing your report early in the winter semester (see Schedule).
Second Oral Presentation: 12% final grade
The final oral presentation will occur the week after the written report is due (see schedule). It should be no longer than 15 min, followed by 5 min for questions. Presentations that go over this time will be cut off. Students should present an introduction to their project, rational, research question(s), and results from the year. Slides should be prepared in PowerPoint or similar. Students should discuss details of content and form with their supervisor prior to preparing their presentations.

Sessions will be held concurrently, grouped by field, attended by Faculty and other department members. Project students must attend the entire session.

Final Performance Evaluation: 20% final grade
At the end of the course, your supervisor will evaluate your overall performance in the lab. This will be based on your commitment, effort, initiative, overall understanding of the project and intellectual contribution and performance. This will in part be based on the THESIS OUTLINE that you submit to your supervisor after Reading Week.

Policy on Rounding and Bumping of Grades:
Across the Basic Medical Sciences Undergraduate Education programs and within the departments of Biochemistry, Anatomy & Cell Biology, and Microbiology & Immunology we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. Final grades on this course will be calculated to one decimal place and rounded up to the next whole integer, e.g. a 74.5 becomes a 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved and the mark assigned; requests for mark “bumping” will be denied.

Final Note on Evaluation:
Keep in mind that different projects can have very different types of outcomes. Negative results are common, especially in short time frames such as this course. Sometimes experiments just don’t work. The excitement of the projects that you are undertaking is that you and your supervisor don’t know what the outcome will be, and therefore evaluations are not based necessarily on how much data is produced. All faculty are experienced in what kind of effort is required for any given type of project and this will be taken into consideration at all levels of evaluation.

If problems arise in your project or lab, discuss it first with your supervisor. If this does not resolve the issue, contact your course coordinator.

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/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf
**Turnitin and other similarity review software**

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. 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 Western University and Turnitin.com ([http://www.turnitin.com](http://www.turnitin.com)).

Computer-marked multiple-choice tests and/or exams will be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

**Absence from Course Commitments**

A. Absence for medical illness:
Students must familiarize themselves with the Policy on Accommodation for Medical Illness for Undergraduate students, located at:
[http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf)

**Statement from the Academic Counselling Office, Faculty of Science (for Science and BMSc students)**

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.

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: [http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

Please note that the format of a make up exam is at the discretion of the course manager.

B. Absence for non-medical reasons:
Students will not be accommodated for course commitments that are missed due to non-medical reasons. Please pay attention to the academic calendar and final exam period when booking any trips.

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.
To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information can be found at the following link:

http://www.uwo.ca/univsec/pdf/academic_policies/exam/definitions.pdf

Additional Information/Statements

Statement on Use of Electronic Devices

Students may only bring pencils, pens and erasers to exams. No other material or electronic devices are permitted.

Due to safety concerns, the use of computers or cellular phones will not be permitted during laboratories unless otherwise stated.

Copyright Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws.

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.

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: https://www.uwo.ca/health/

Student Health Services: https://www.uwo.ca/health/


Students that are in emotional/mental distress should refer to Mental Health@Western https://www.uwo.ca/health/mental_wellbeing/self/student.html for a complete list of options how to obtain help.
STUDENT: ________________________________

SUPERVISOR: ____________________________

BIOCHEMISTRY / MICROBIOLOGY & IMMUNOLOGY / ANATOMY & CELL BIOLOGY Project Course

DECEMBER STUDENT EVALUATION REPORT

The purpose of this evaluation is to provide early feedback to students regarding their progress and to offer them the opportunity to improve their research skills over the remaining time in the course. This is also an opportunity for supervisors to go over their mark with the students, pointing out areas that need improvement. This evaluation is worth 10% of the student mark.

Note that this evaluation will be released to the student. Confidential comments (if necessary) should be emailed directly to the course coordinator.

The following categories should be used as a marking guide and to provide feedback to the student. Please add your comments to this document under each heading.

_/40 December paper: quality of writing and demonstration of understanding of the project
_/10 Understanding: background knowledge of the project and of methods used.
_/20 Time and effort spent in the lab: a minimum of 15hrs per week is expected, on a schedule negotiated between the student and supervisor. Time in the lab is spent efficiently.
_/10 Quality of lab work: learning required skills at an appropriate rate. Performing work carefully, and in an organized fashion.
_/10 Record Keeping: organized, clear, up-to-date lab book.
_/10 Progress to date: evidence of appropriate early progress

Additional comments:

Mark: /100

Once filled out, attach this document to the student’s December Report using the “Add Attachments” button at the bottom of the student’s Assignment page on the HSP Project OWL site (due January 31st).
STUDENT: ____________________________________________

SUPERVISOR: ________________________________

BIOCHEMISTRY / MICROBIOLOGY & IMMUNOLOGY / ANATOMY & CELL BIOLOGY Project Course

FINAL STUDENT EVALUATION REPORT

The purpose of this independent research project is to acquaint students with how research is carried out, to expose them to multiple techniques, and practice problem solving. Therefore, emphasis should be on the above factors rather than on the completion of the project or obtaining particular result. The final thesis is evaluated separately by independent readers. This evaluation by the supervisor is worth 20% of the student’s final mark for the course.

Note that this evaluation will be released to the student. Confidential comments (if necessary) should be emailed directly to the course coordinator.

The following categories should be used as a marking guide and to provide feedback to the student. Please add your comments to this document under each heading.

_/20 Problem solving: analysis, logic, creativity, systematic approach
_/20 Effort: initiative, motivation, time commitment
_/20 Record Keeping: organized, clear, up-to-date lab book.
_/20 Understanding: background knowledge of the project and of methods used. In part as demonstrated in the FINAL REPORT OUTLINE turned in February.
_/20 Progress: accomplishments appropriate to the project, difficulty, and student’s stage of training.

Additional comments:

Final Mark: _/100

Once filled out, attach this document to the student’s Thesis report using the “Add Attachments” button at the bottom of the student’s Assignment page on the HSP Project OWL site (due April 16th).
HONORS PROJECT COURSE FINAL THESIS
STATEMENT OF CONTRIBUTION

Student Name: ________________________________
Supervisor(s): ________________________________
Supervisor's Department: ____________________________

Please fill out this form and submit as a separate document along with your thesis via the OWL Assignments page.

Project Start Date: ________________________________

Briefly – what contribution did the above student make to the data presented in this manuscript?

(For example: student performed all experiments for Figures 2 and 3, and contributed to experiments in Figure 1)

List Figures or Data presented in this manuscript supplied by someone else:

(For example: Figure 1a generated by Grad Student x)

Signatures:
Student Signature: ________________  Supervisor Signature: ________________
Date: ________________  Date: ________________
STUDENT: ________________________________________________

READER #: (you will be assigned a number, please select) 1 / 2

BIOCHEMISTRY / MICROBIOLOGY & IMMUNOLOGY / ANATOMY & CELL BIOLOGY Project Course

FINAL REPORT READER FORM

The purpose of this independent research project is to acquaint students with how research is carried out, to expose them to multiple techniques, and practice problem solving. In marking the final report, emphasis should be on the above factors rather than on the completion of the project or obtaining particular result. The reports are to be in the form of a scientific paper appropriate to the field. The final report is worth 50% of the student’s final mark for the course and will be calculated by averaging the grade assigned by (at least) two readers.

Note that this evaluation will be released to the student. Confidential comments (if necessary) should be emailed directly to the course coordinator.

The following categories should be used as a marking guide and to provide feedback to the student. Please add your comments to this document under each heading.

__/20 Form: including spelling, grammar, quality of figures, organization, quality of references etc.

__/20 Content – Introduction and Abstract: sufficient and appropriate to understand the aims, appropriate reference to the literature. The problem, hypothesis, or research question is clearly stated. Abstract is appropriate.

__/20 Content - Methods: sufficient explanation to allow a knowledgeable reader to repeat the experiments.

__/20 Content - Results: clear, logical exposition/explanation of results obtained, evidence of reasonable accomplishments given the time spent, evidence of systematic approach

__/20 Content - Discussion: Depending on the nature of the project could include: discussion of data quality, implications of the results and conclusions that can be drawn, limitations of methods, further experiments needed/possible: should demonstrate an understanding of the results and their place in the scientific field.

Final Mark: _/100

Thank you again for this important contribution to the course.

Once filled out, attach this document to the student’s Thesis report using the “Add Attachments” button at the bottom of the student’s Assignment page on the HSP Project OWL site (due April 16th).
HSP Presentations
October XX, 2018

Student Evaluators

This package contains the evaluation forms for all presentations. Take it with you if you move to another room and turn it in to the Chair at the end of the last session.

You are encouraged to make a critical evaluation for each talk.

Signature____________________________________

Name (print) ________________________________
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<th>Time</th>
<th>Student</th>
<th>Topic</th>
<th>Supervisor</th>
<th>Background</th>
<th>Organization</th>
<th>Rationale/Objectives</th>
<th>Presentation Skill</th>
<th>Response to Questions</th>
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Room: HSA 62
October 21, 2016

Chair: Dr.

Evaluations out of 20

- Background: 20
- Organization: 20
- Rationale/Objectives: 20
- Presentation Skill: 20
- Response to Questions: 20
- Total: 100

COFFEE BREAK
HSP Final Presentations - Student Evaluations

Room: HSA 62
April 7, 2017

Chair: Dr.

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