

BIOLOGY 4IR3

ADVANCED INDEPENDENT RESEARCH PROJECT

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Course Administrator: Alison Cowie, cowieal@mcmaster.ca

Prerequisites: Registration in level IV of any Honours Biology program. Permission of the department is required. Students are expected to have a C.A. of at least 7.0 for Biology 4IR3.

Antirequisites: Bio4F06, Bio4C12, MolBio4G12, LifeSci 4A03 or any department or program level IV thesis or independent study/project course.

COURSE OUTLINE

The objective of this course is to give students the opportunity to gain experience in a research environment. Research is integral to the Biology Program. It supports the development of a number of relevant and highly transferable skills. Students enrolled in Biol 4IR3 gain valuable experience in preparation for a career in the private sector, professional schools or for advanced studies at the graduate level. Therefore completion of a research project is a major contributor of a successful undergraduate education. An independent research project offers a great opportunity to experience a potential work place, network with Professors and peers and engage in hands on learning.

The course consists of a twelve-week research project conducted during one term under the supervision of a full time or associate faculty member from the Department of Biology or any other department at McMaster University. While the workload is comparable to that of a 3-unit course, Bio 4IR3 differs from other courses by the independent nature of the work and the degree of initiative required to complete a research project. Students should consider the time commitment to be around **8-10 hours per week** (scheduling arranged by supervisor). If you are working with a supervisor outside the Department of Biology, you will require a co-supervisor within the Biology Department. Your co-supervisor will communicate with the supervisor in determining a final mark for the course. An information session with the Course Coordinator, on the expectations and logistics of the course, takes place at the beginning of the semester. The course coordinator is available throughout the term for consultation and guidance as needed. The course administrator is responsible for entering the permission and final marks. You may complete Bio4IR3, the advanced independent research project, even if you have taken Bio3IR3 or MolBio3I03.

Finding A Suitable Research Supervisor and Project

It is the responsibility of the student to make arrangements with a supervisor (and co-supervisor in case the supervisor is not associated with the Department of Biology). A research project is agreed upon following discussion by the supervisor and the student. It must be focused and suitable for the twelve-week period of the term. The supervisor is responsible for providing the information and guidance on the research project, explaining the assessment scheme and submitting the evaluation at the end of the term. The student must obtain permission to enroll in the course by completing and submitting the *permission form* (attached) and a one-page *research proposal* to the Course Administrator. After review and approval by the Course Coordinator, the permission will be entered on-line.

Acknowledgement of Previous Work Related to the Project

Any work completed prior to the student's registration in Biology 4IR3 **should not be included** as part of the student's evaluation or final report without clearly identifying and acknowledging it. Students who may have previously completed a research project in Bio 3IR3 / MolBiol3I03 are asked to provide a one-page summary of any work that is related to the project being undertaken in the course. This summary should be submitted with the research proposal.

Evaluation Rubric

The assessment in the course is based on the **laboratory performance** (approximately 8-10 hrs per week in one term), a **mid-term progress report**, a **presentation** to your supervisor in a lab meeting or similar and a final **written report**.

➤ Mid-term progress report	20%	due third Friday in October or February
➤ Laboratory performance	30%	due by last day of classes
➤ Presentation (to supervisor and lab)	20%	scheduled before the last day of classes
➤ Final report	30%	due by last day of classes

All grades are submitted to the course administrator one week after the assignment is due. Final grades must be submitted to the course administrator before the end of exam period of the academic term in which the research project occurred.

Safety Training and Liability Issues

Appropriate safety training (i.e. WHMIS, Radiosafety, Biosafety, Fire Safety) must be completed prior to beginning laboratory work. It is the responsibility of the supervisor to ensure that students have received the required safety training. The information regarding safety training can be found on the Biology web site. The student is responsible for bringing written confirmation of training dates and location of training to the Biology main office, LSB 218.

Application Deadlines

- Fall, Term 1: last week of July
- Winter, Term 2: last week of November
- Spring/Summer, Term 1, 2 or 3: mid-March

Academic Dishonesty

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various kinds of academic dishonesty, please refer to the Academic Integrity Policy located at:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own, any text or ideas from books, the internet or journals, or work for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

STEP 4. Student and supervisor to review course evaluation rubric and deadlines, and agree upon format of the final report and the laboratory notebook (please consult “Guidelines on course evaluation written submissions and deadlines” below).

All grades are submitted to the course administrator one week after the assignment is due. Final grades must be submitted to the course administrator before the end of exam period of the academic term in which the research project occurred. Please consult the McMaster calendar for precise dates.

- Midterm progress report 20% due third Friday in October or February
- Laboratory performance 30% due by last official day of classes
- Presentation 20% scheduled before the end of classes
- Final report 30% due by the last day of classes

STEP 5. Attach a ONE-PAGE summary of the research proposal

Students who may have previously worked in the same laboratory in which they are completing a research project are asked to provide an additional one-page summary of any work that is related to the project being undertaken in the course. Any work completed prior to the student’s registration in Bio4IR3 cannot be included as part of the student’s final report without clearly identifying and acknowledging it.

STEP 6. The Communication Agreement must be reviewed and signed by the student and both supervisors.

Bio 4IR3 Communication Agreement

1. Should the Supervisor be unavailable for more than 2 weeks, adequate supervision by a colleague, postdoctoral fellow or senior graduate student must be arranged and communicated in advance to both the Student, the Course Coordinator and contact information forwarded to the Course Administrator.
2. The Supervisor will ensure that the Student has completed the required Health and Safety Training prior to beginning work in the laboratory.
3. The Student is responsible for ensuring the entire Supervisory Committee [Supervisor, Co-Supervisor(s) or other Supervisory individuals if any] are kept up-to-date on progress and change in research topic or experimental procedure throughout the course.
4. Supervisors are expected to communicate grades for each component in a timely manner. The Student should consult with the Course Coordinator if a mark for the first two course components has not been received within one week of the due date.
5. Any modifications of the mark breakdown for the course must be discussed and approved by the Supervisor, Student and the Course Coordinator.
6. Any change in submission deadline for the final thesis or project report must be justified at least 5 days in advance, and in writing to the Course Coordinator.

I acknowledge that I have read, understood and accept the above course requirements:

Signature of Student

Date

Signature of Supervisor

Date

Signature of Co-Supervisor

Date

STEP 7. Return this form and a ONE-PAGE summary of the research proposal to the course administrator for final approval by the Course Coordinator. The Course Coordinator will consider the application only after submission of the ONE-PAGE summary and all forms completed and signed.

FOR DEPARTMENT USE:

COURSE COORDINATOR APPROVAL: _____

Date: _____

Retain a copy for your records and make sure that both supervisors have a complete copy of the signed forms.

The information gathered on this form is collected under the authority of The McMaster University Act, 1976. The information is used for the academic, administrative, and statistical purposes of the Department of Biology including, but not limited to, maintaining records; academic counseling and the administration of examinations. Personal student information provided on this form will not be used for any unrelated purpose without the consent of the student. This information is protected and is being collected pursuant to section 39(2) and section 42 of the Freedom of Information and Protection of Privacy Act of Ontario (RSO 1990).