Guidelines for Taking and Supervising Independent Studies in the Department of Biology

I. Reading Courses
   a. BIOL 413 Directed Reading (1 credit)
   b. BIOL 377 Independent Reading Project (3 credits)

II. "Bench" lab courses
   a. BIOL 466 and 467 Independent Research 1 and 2 (3 credits)
   b. BIOL 468 Independent Research 3 (6 credits)
   c. BIOL 469 Independent Research 4 (9 credits)

III. 396 courses Undergraduate Research Project (3 credits)
   a. These are junior level research projects with their own rules, usually undertaken outside of one's own department, and can facilitate eligibility for the DMURL.
   b. 396 courses are by definition elective credits, and the written report must be weighted at a minimum of 50%.

Who is eligible to take these courses?

Normally, preference will be given to McGill students taking Biology or MSE programs. McGill students from other departments and Visiting and Exchange students should consult the Undergraduate Advisor, as well as their prospective supervisor, as to the availability of research placements.

Pre-or co-requisites:

- BIOL 206, BIOL 301, or other suitable-300 level laboratory course and/or permission of the instructor.
- McGill students who have already taken one of the Independent Studies courses should consult the Undergraduate Advisor before taking a second one. Students in Major and Liberal BSc programs in Biology may include up to 9 credits in their program requirements; students in Honours programs may include up to 6 prior research credits.
- A further 3 credits of independent study may count as elective credits towards the degree.

Research positions are limited and the Department may not be able to accept all those who wish to take Independent studies in a particular term.

Who is eligible to supervise these courses?

All Biology Department Academic staff and Affiliates may supervise Independent Studies courses.

Academic staff in other McGill departments and senior researchers in other universities and research organizations may, with permission of the Biology Department, supervise undergraduates in their laboratories. In such cases, a Biology professor must be appointed as co-supervisor.

Administrative procedures

1. Prior to registering

- It is the student's responsibility to arrange for a supervisor in the preferred research area. *Start visiting research labs early, as places are limited*.
- Download and complete an **Independent Studies Application** form available at ttp://biology.mcgill.ca/undergrad/res_opps.html.

- Bring the form, along with a cv and unofficial transcript, to the prospective supervisor. Obtain the agreement and signature of the project supervisor (and co-supervisor if needed) and a working title for your project.
- Bring the signed form to the undergraduate advisor by the beginning of the term, in time to obtain a permit to register on Minerva.

2. Grading

The supervisor(s) will determine the grade on the basis of work performed and the report/paper submitted. *Project reports/papers are due on the last day of classes. Student and supervisor can choose the relative weighting of lab work vs. written report, from 30/70 to 70/30.*

3. Reporting grades

The supervisor must submit the graded report/paper to the Undergraduate Advisor *within 5 working days* after the end of classes. Letter grades only. Please do not submit the marks electronically.

Hours of work expected

- Normally, as per the Faculty of Science guidelines, a **minimum** of nine hours' work per week (times 13 weeks, or 117 hours) is expected per 3 credits. To do well, most students will spend more time, perhaps up to 150-180 hours, for each 3 credits, including reading papers, learning code, conducting experiments, tabulating results, attending lab meetings, and writing up the project.
- Research schedules must be agreed upon at the beginning of term, taking into account the student's other course commitments, the working of the research group and the unpredictability of research work.

Objectives

Students should become familiar with all aspects of conducting research and/or writing scholarly papers.

Expectations and responsibilities of Supervisors

- Supervisors should help the student select a project that can be achieved in the time period allotted. This project should incorporate both research training and the expectation of producing new knowledge. Often it will be connected with the ongoing research of the supervisor's group; sometimes a project of the student's own design or particular interest can be accommodated.
- All research facilities required for the project must be available before the term commences.
- The supervisor should be prepared to hold regular, individual discussions with each student to review progress. It is suggested that a weekly schedule be established.
- Graduate students and research staff may also become resource people and their involvement should be clearly defined. Such arrangements should not substitute for student-professor contact. Discuss with the student the evaluation scheme at the beginning of the term, and determine the percentage of marks for performance and for the written report. The supervisor should assist with the planning and early drafting of the research paper. The supervisor is ultimately responsible for the student's success.
- All research-related costs are normally the responsibility of the supervisor.
- Where the Supervisor is not a member of the Biology Department and a Biology professor has agreed to be the Co-Supervisor, the Supervisor takes responsibility for guiding the student and grading the work; the Co-Supervisor is a backup resource whose main role is to protect the integrity of both student and department.

Expectations and responsibilities of the Student

- The student must expect to devote considerable time to the project and become a committed member of the research group. Careful time management is required.
- Meet deadlines, follow lab and safety procedures, be professional.
- An undergraduate research project could lead to a reference letter for further studies or employment opportunities, so don't let the team down.
- Don't be afraid to ask questions; you are in a learning situation, and not expected to know all about research without prior training.
- Be prepared to work independently.