

Course Coordinator: Dr. T. Pervical-Smith, Biology Undergraduate Curriculum Committee
Course Assistant: Stefani Tichbourne, Department of Biology, NCB 301D (stich@uwo.ca)

Independent Study projects should be developed to answer an original question posed by the student, in consultation with their supervisor. The project may be research based, literature based, or involve analysis of an existing data set. Emphasis is on acquisition of skills in technique, analysis, and communication in the process of generating a scientific report.

By the end of the course, students should be able to:

Create and write a research proposal. The central hypothesis or goal will be developed in collaboration with a research supervisor.

Search, read and evaluate the primary scientific literature associated with the project.

Conduct the research. Evaluate and analyze the data collected.

Write and present a final thesis based on the research conducted.

Defend the data, approach and interpretation.

Eligibility

Only students registered in year 4 of an Honors Specialization module offered by the Department of Biology or an Honors Double Major in Biology (which includes a Major in Biology) are eligible to enroll in Biology 4970F/G. It is the responsibility of the student to find an appropriate supervisor. Students enrolled in Biology 4999E are not eligible to take Biology 4970F/G.

Independent Study Format

Students will work under the supervision of a faculty member, with an additional faculty member serving as an Advisor. Students will be responsible for finding an appropriate supervisor prior to registration in the course. In the case where the chosen supervisor is an adjunct faculty member of the Department of Biology or a faculty member from another department, the Advisor must be a regular Faculty Member of the Department of Biology. Once a student has found a supervisor, they must complete a project registration form, available on OWL.

Course Requirements

All Independent Study projects require:

1. a written proposal
2. conducting the proposed work
3. meeting with the Supervisor on a regular basis
4. presentation of findings at a presentation session
5. and submission of a final report

Proposal

The written proposal is assessed by the supervisor, advisor and the course coordinator to ensure it meets expected departmental standards. Only the advisor assigns a mark to the proposal, which is worth 20% of the grade.

Guidelines for Research-based Proposals

The proposal must be 5-8 pages in length and include:

1. a preliminary literature review that frames the hypothesis under study
2. a clear statement of the hypothesis must be presented
3. a complete description of experimental design
4. and a time-line for completion

Guidelines for Literature-based Project Proposals

The proposal must be 5-8 pages in length and include:

1. a preliminary literature review that frames the hypothesis under study
2. one or more hypotheses must be presented from which an outline of the project should be developed
3. a description of how the project will be accomplished, including what types of literature sources will be used
4. a time-line for completion

Guidelines for Data Analysis-based Project Proposals

The proposal must be 5-8 pages in length and include:

1. a preliminary literature review that frames the hypothesis under study,
2. a complete description of the methodology used to collect the data to be analyzed,
3. a description of how the data will be analyzed,
4. and a time-line for completion

Lab/Library Work

Students are expected to commit 6-8 hours per week to their project. The quality of the work will be assessed by the supervisor and is worth 30% of final grade.

Presentation Session

Students will present the results of their project in a presentation session to be organized by the Course Assistant. Supervisors and advisors will act as examiners for this session. Students must be in attendance at a set time to present and answer questions posed by the examiners and remain for the whole session. The presentation consists of a 10 minute power-point presentation and a short answer period. The presentation and answers to questions will be worth 25% of the final grade.

Final report

A report presenting the major findings of the project is due at the end of the term. This date is set by the course assistant. The format of the report is dependent upon the type of project undertaken. Copies of the report must be submitted to your supervisor, advisor and the course assistant. Within 7 days of receipt of the report, students will receive from their supervisor and advisor a brief written report, highlighting the strengths and weaknesses of the report.

Research & Data Analysis Project:

The report must be a minimum of 2500 words (not including figures or tables), and contain an abstract, introduction, materials & methods, results, discussion, conclusion and references.

Literature Review Project:

The report must be a minimum of 2500 words (not including figures or tables), and contain an abstract, introduction, the body of the text divided into appropriate subheadings, conclusions and references.

The final report will be evaluated by the supervisor and advisor and will be worth 25% of the final grade.

Roles and Responsibilities

Students

Biology 4970F is not a traditional lecture style course. Students are expected to spend 6-8 hours per week in the lab/library/field for the duration of the thesis. Additional time spent out of lab/field/library for reading, writing and data analysis will also be required.

It is the responsibility of the students to arrange for their Biology 4970F projects, and follow the application procedures outlined in this document.

Students are responsible for completing all necessary forms (Project Registration, Project Approval) and submitting them **on time** to the Course Assistant (NCB 301D). Students are ultimately responsible for their own work, including the meeting of deadlines.

Supervisor

Supervisors can be faculty members from various departments. Supervisors from other departments may be required to have a co-supervisor from the Department of Biology.

Supervisors of student projects are expected to:

1. arrange for the appropriate infrastructure and direction for the proposed work
2. ensure that projects provide sufficient challenge to students, and comply with expectations established within the Department of Biology
3. evaluate the performance of students for whom they are supervisor
4. ensure students are aware of course procedures and timetables
5. evaluate presentations of all 4970 students

Advisor

The Advisor is normally a faculty member of the Department of Biology and assignment of an advisor to a particular project is subject to the approval of the course coordinator.

Advisors are expected to:

1. review, comment on and evaluate all written material, which includes providing the student with a written evaluation of their project, indicating the strengths and weaknesses
2. attend the presentation session and evaluate the presentation and the student's ability to answer questions and
3. provide guidance as necessary

Course Coordinator/Course Assistant

The Biology 4970F independent study course is coordinated by the Biology Undergraduate Education Committee (BUEC). The responsibilities of the coordinator/course assistant include, but are not limited to,

1. facilitating the matching of students to supervisors and projects, approval of the advisor

2. collection of all submitted materials, assignment of grades (based on input from the Supervisor and Advisor)
3. organizing the presentation session
4. facilitating student access to appropriate university resources

Evaluation

Biology 4970F students are evaluated according to the following criteria:

Proposal:	20% (evaluated by Advisor)
Progress:	30% (evaluated by Supervisor)
Written Report:	25% (evaluated by Supervisor & Advisor)
Presentation Session:	25% (evaluated by all Supervisors/Advisors of 4970 projects)

Students are responsible in supplying their supervisor, advisor and course assistant with either a hard copy or an electronic copy of their final report.

Plagiarism is a major scholastic offense

See Scholastic Offense Policy in the Western Academic Calendar for full details. Students must write their assignments in their own words. Whenever an idea, or a passage, is taken from another author, the debt must be acknowledged by using proper referencing such as footnotes or citations. Quotation marks should be used whenever a phrase, sentence or passage is copied verbatim; rewording or paraphrasing another's idea requires a citation only. The minimum penalty for an assignment that contains plagiarized material will be a grade of zero.

Support Services for Students:

Students in emotional/mental distress should refer to: Mental Health@Western: <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help; Registrar: <http://www.registrar.uwo.ca>; Services provided by the USC: <http://westernusc.ca/services/>; Services for Students with Disabilities (SSD): 519-661-2111 x82147; Learning Skills Counselors at the Student Development Centre are ready to help you improve your learning skills: <http://www.sdc.uwo.ca>

Academic Accommodation:

If you are unable to meet a course requirement due to illness or other circumstances, you must provide valid medical or other supporting documentation to the Dean's office for approval, and contact the professor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved by the Dean. UWO Student Services website: <https://studentservices.uwo.ca/secure/index.cfm>

Scholastic Offences:

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/handbook/appeals/scholastic_discipline_undergrad.pdf

Table 1. Schedule of Dates for Biology 4970F - 2017. All forms and guidelines are found on OWL.

Date	Task
Sept. 14, 2017	Meet with Supervisor to organize project, arrange Advisor and co-supervisor if needed, and start working on research proposal, complete Project Registration form and return to NCB 301D
Sept. 20, 2017	Written research proposals are due for evaluation by the Advisor. Also submit a hard copy of your research proposal to NCB 301D. Guidelines for a Preparing Biology 4970F/G Research Proposals are available on OWL.
by Sept. 29, 2017	Meeting should be arranged with supervisor and advisor to briefly discuss project. Complete project approval form available on OWL and return the form to NCB 301D.
by Nov. 17, 2017	Experimental work completed
Dec. 1, 2017	Biology Presentation Session
Dec. 8, 2017	THESIS DUE. Guidelines for preparing a Biology 4970F Theses are available on OWL.