

Biology 4970F/G: Independent Study in Biology**2023****Course Coordinator:** Prof. Anne Simon, Undergraduate Associate Chair, BGS 3022 (biougcha@uwo.ca)**Course Assistant:** Beata Malczewski, Department of Biology, NCB 301D (bmalcze@uwo.ca)**1. General Course Information**

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.

Prerequisites

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.

Antirequisites

Students enrolled in Biology 4999E are not eligible to take Biology 4970F/G.

Mode of delivery

This course will have in person components (in the research laboratory). Below are details about the sessions.

Mode	Dates	Time	Frequency	Attendance
In person	Depending on your Supervisor	6-8 hours minimum	weekly	Yes

Office hours will be provided upon request, in-person or via zoom, to the course coordinator.

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

Students must use their Western (@uwo.ca) email addresses when contacting their supervisors, advisors, course coordinator and course assistant.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

2. EDI statement

The pronouns used by:

- Prof. Anne Simon are: she / her
- Beata Malczewski are: she / her

3. Land acknowledgment

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

More information about Indigenous Services (<https://indigenous.uwo.ca/>) and this Land Acknowledgement (<https://communications.uwo.ca/comms/land-acknowledgement/>) are available.

4. Course Description/Syllabus

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

1. Create and write a research proposal. The central hypothesis or goal will be developed in collaboration with a research supervisor.
2. Search, read and evaluate the primary scientific literature associated with the project.
3. Conduct the research. Evaluate and analyze the data collected.
4. Write and present a final thesis based on the research conducted.
5. Defend the data, approach, and interpretation.

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, 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.

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all research projects will have to adhere to the SOPS of the Biology department regarding access to research laboratories. The grading scheme will **not** change.

Course Requirements

All Independent Study projects require the following **mandatory** components:

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

1. Proposal – 20%

The written proposal is assessed by the supervisor and the advisor 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

2. Lab/Library Work -30%

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.

3. Oral Presentation of The Thesis: April 7, 10am-noon -15%

Students will present the results of their project in-person, on April 8, in a joint session with all other course students, supervisors and advisors. Either a room allowing for social distancing will be chosen for this event, or a zoom session will be organized – depending on the recommendations.

Supervisors and advisors will act as examiners for these presentations. The presentation will be worth 15% of the final grade.

The presentation consists of a 10 minutes power-point presentation

A grading rubric will be available on owl, allowing student to know how to organize their presentation.

4. Final Thesis report – 35%

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 (who will both evaluate the report) and on owl. 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. The final report will be worth 35% of the final grade.

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.

5. Roles and Responsibilities

Students

Biology 4970F/G 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/G 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 using the links on the owl website**. Students are ultimately responsible for their own work, including the meeting of deadlines.

Supervisor

Supervisors can only be faculty members 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 the oral presentations of the other 4970F/G students in addition to their own

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,
2. indicating the strengths and weaknesses, provide guidance as necessary,
3. evaluate the oral presentations of the other 4970F/G students in addition to the student advised

Course Coordinator/Course Assistant

The Biology 4970F/G 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. ensuring that all material is submitted, assignment of grades (based on input from the Supervisor and Advisor)
3. organizing the presentation session
4. facilitating student access to appropriate university resources

6. Methods of Evaluation

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

Proposal:	20% (evaluated by Advisor)
Progress:	30% (evaluated by Supervisor)
Written Report:	35% (evaluated by Supervisor & Advisor)
Presentation:	15% (evaluated by the Supervisors and Advisors of 4970 projects)

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

- All assignments are due at 11:55 pm EST unless otherwise specified
- Written assignments will be submitted to Turnitin (statement in policies below)
- Students will have 2 submissions to Turnitin prior to the final deadline
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Accommodated Evaluations

Every single component of this course is required to pass

- Late assessments without request for accommodations from the Academic Counseling office will be subject to a late penalty 10 %/day
- Late assessments with request for accommodations from the Academic Counseling office should be submitted within 24 hours of the end of the absence period, after discussion and approval from the course coordinator.

7. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

8. Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

9. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

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 Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Review Biology 2290 learning outcomes. You are expected to know what plagiarism is at this stage of your programme.

Turnitin aids in identifying plagiarism. All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. 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 The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Professionalism & Privacy:

Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission

10. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.

The following links provide information about additional support services at Western University.

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)

Table 1. Schedule of Dates for Biology 4970G, 2022. All forms and guidelines are found on OWL.

Classes begin: January 10 / Spring Reading Week: February 19-27 / Classes end: April 8

Date	Task
January 20 or earlier	Meet with Supervisor to organize project, arrange Advisor and co-supervisor if needed, and start working on research proposal, complete and submit Project Registration form on owl if not done yet
February 3	Meeting should be arranged with supervisor and advisor to briefly discuss project. Complete Project Approval form available on OWL and upload in your DropBox on owl
by February 17	Written research proposals are due for evaluation by the Advisor – also need to be provided to supervisor and submitted on owl. Guidelines for a Preparing Biology 4970F/G Research Proposals are available on OWL. Grade by advisor due March 1 st .
by March 24	Experimental or research work completed
April 7	Oral presentation
April 14	THESIS DUE. Submit on owl, and provide to advisor and supervisor. Guidelines for preparing a Biology 4970F/G Thesis are available on OWL. Grade by advisor and supervisor due May 1 st .