

Biology 3230F Course Outline Fall 2023

1. Course Information

Course Information

Biology 3230F, Field Research in Biology, Fall 2023

This course will include several field trips during the lab and lecture timeslots on Tuesdays and will require students to spend time in the field conducting individual research projects.

List of Prerequisites

A minimum mark of 60% in [Biology 1001A](#) or [Biology 1201A](#), and [Biology 1002B](#) or [Biology 1202B](#) or [Integrated Science 1001X](#), and [Biology 2244A/B](#) or [Statistical Science 2244A/B](#).

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course, and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructor: Dr. Ben Rubin, brubin2@uwo.ca

Teaching Assistant: Ms. Pilar Caicedo Argüelles, acaiced@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting the instructor or TA.
Office hours by appointment

3. Course Syllabus, Schedule, Delivery Mode

Description: This experiential learning course provides a theoretical and hands-on introduction to the planning and execution of field studies in biology. Course topics include planning, common field methods, data recording, and common methods of data analysis used by field biologists. Each of these will be presented during lectures and performed by students for credit. A breadth of study organisms and systems will be covered (e.g. trees, herbaceous plants, animals, aquatic ecosystems, terrestrial ecosystems). 2 lecture hours, 3 laboratory hours, 0.5 FCE

Course Learning Outcomes

At the end of this course, successful students will be able to:

1. Describe and perform the steps of preparing for field studies in biology, including
 - a. planning the logistics and travel arrangements,
 - b. researching and obtaining required permits,
 - c. considering ethical and safety concerns,
 - d. and taking appropriate steps to mitigate environmental damage and acquire requisite safety training.
2. Plan and execute an independent field research project, including
 - a. development of the experimental question or hypothesis,
 - b. design and implementation of the sampling and data acquisition,
 - c. choosing the appropriate analytical methods for the data,
 - d. presenting the results graphically and in writing,
 - e. placing findings in the context of related studies in the scientific literature,
 - f. and stating the significance of their work to conservation planning and management.
3. Identify some of the locally common taxa from a broad range of organisms.
4. Properly record biological observations and data in the field under favourable or inclement conditions.

Statement Regarding the COVID-19 Pandemic: The policies of this course are based on my moral priorities to first make the class environment safe and second to provide as valuable an educational experience as possible. With respect to COVID, the most important responsibility that we all bear is to avoid infecting others. **This means that if you are experiencing any possible symptoms of COVID, you should not come to class.** I promise to use the same caution each day before coming to teach you.

With that in mind, I have tried to develop policies that allow flexibility with course deadlines and attendance. However, field biology is, by nature, a hands-on activity. The experiential components of this course (collecting data in the field, analyzing it, and reporting the results) are essential to achieving the learning outcomes – you cannot miss everything and still expect to learn a lot and receive a good grade. **If you miss some components of the course because of illness or possible COVID exposure and feel that you need further support or flexibility, please contact me about it.** I cannot guarantee that I will grant every request, but I will hear you out, treat you with respect, and do my best to balance our safety needs with the academic integrity of the course.

Finally, I may need to ask for trust and flexibility from you, as well. By now, it should be evident to all of us that the state of the pandemic changes rapidly, and so can policy requirements and directives. All plans, including those in this course outline, are potentially subject to change. For example, it is possible that at some point in the term, this class or some components of it may need to be completed remotely. We have all experienced this disruption and know it is not easy. I ask for your patience and understanding should such changes become necessary.

Tentative Schedule

In this class, we will use the Tuesday lecture and lab times together for outdoor field trips or indoor activities (reporting workshops or individual progress meetings). Some of the outdoor activities require favourable weather. Therefore, the exact ordering of these activities is subject to change based on

weather forecasts and the final decision will be announced on Mondays by 5 pm. **It is your responsibility to check for the announcement and report to the corresponding location with appropriate clothing and equipment at 1:30 PM on Tuesday.**

Tuesday (Date & location)	Activity, equipment, and due dates	Thursday (Date & location)	Lecture topic & due dates
		Sep 7 PAB 150	Course Introduction
Sep 12 – BGS 3000	Pollinator abundance: Field trip 1 – marking pollinators Dress for the weather, including long pants. Bring water.	Sep 14 - PAB 150	Introducing individual projects
Sep 19 – BGS 3000	Pollinator abundance: Field trip 2 – recapturing pollinators Dress for the weather, including long pants. Bring water.	Sep 21 - PAB 150	Study design DUE: Two potential research questions
Sep 26 – BGS 3000	Crayfish allometry: Field trip Dress for the weather. Bring water.	Sep 28 - PAB 150	Designing datasheets
Oct 3 – UCC 66	Pollinator abundance: Reporting workshop Bring a laptop	Oct 5 - PAB 150	Field safety DUE: Research proposal
Oct 10 – BGS 3000	Individual meetings: Finalizing field methods No lecture or lab	Oct 12 – BGS 3000	Individual meetings: Finalizing field methods No lecture
Oct 17 – BGS 3000	Forest structure group project: Field trip Dress for the weather. Bring water. DUE: Field data collection plan	Oct 19- PAB 150	Review of linear models DUE: First three seed ideas for scientific blog post
Oct 24 – UCC 66	Forest structure: Reporting workshop Bring a laptop	Oct 26- PAB 150	Linear models in R
Reading Week			
Nov 7 – UCC 66	Crayfish allometry: Reporting workshop Bring a laptop	Nov 9 – BGS 3000	Office hours No lecture DUE: iNaturalist collection
Nov 14 – BGS 3000	Seed predators: Lab session 1 & field trip – creating and setting out feeding stations Dress for the weather. Bring water.	Nov 16 – BGS 3000	Office hours No lecture DUE: All five seed ideas for scientific blog post
Nov 21 – BGS 3000	Seed predators: Lab session 2 & reporting workshop – measuring giving up density Bring a laptop	Nov 23 – BGS 3000	Office hours No lecture DUE: Draft data analysis

Nov 28 – BGS 3000	Individual meetings: Finalizing data analysis No lecture or lab	Nov 30 – BGS 3000	Individual meetings: Planning data analysis No lecture DUE: Scientific blog post
Dec 5 – BGS 3000	Office hours 1:30 – 2:30 No lecture or lab DUE: Self-assessment of participation, leadership, and professionalism	Dec 7 – PAB 150	Field biology jobs and careers DUE: Final Paper

4. Course Materials

No required text.

Required software (all free):

- iNaturalist (inaturalist.org)
- R (cran.r-project.org)
- R Studio Desktop (rstudio.com)

Students are responsible for checking the course OWL site (<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.

All course material will be posted to OWL: <http://owl.uwo.ca>.

If students need assistance with the course OWL site, 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.

Technical Requirements

Should this course need to pivot to online delivery, participants will need access to a stable internet connection and a computer with a working microphone and webcam.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Course element
Class attendance, participation, leadership, and professionalism: 15%*
Reading reports: 4%
iNaturalist collection 8%
Scientific blog post: <ul style="list-style-type: none"> • Seed ideas (3%)

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- Final post (10%)
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Individual research projects

- Potential research questions 10%
 - Project Proposal: 10%
 - Field Data Collection Plan 5%
 - Draft Data Analysis: 5%
 - Final Project: 30%*
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Unless otherwise specified, assignments are due at 11:55 p.m. on the dates indicated.

*You must pass this element to pass the course. Students who do not pass one or both of these elements but who would otherwise have a calculated grade above 45% will be assigned a grade of 45%.

Students will not be penalized for failing to meet a requirement due to circumstances beyond their control. For example, if illness causes you to miss too many classes or field trips due to receive course credit, you will have the opportunity to complete those activities with the next offering of the course. In such a case, you will receive a grade of Incomplete (INC), and your maximum course load may be reduced during the term in which you complete the course requirements.

6. Student Absences, Accommodation, and Accessibility

Attendance will be taken at all class meetings. **If you are absent for more than 2 class meetings, you should document the reasons for all absences with your Academic Councillor.** If you will be absent for a lecture or a reporting workshop and can participate online, please email me 24 hours in advance and I will try to set up a Zoom link so you can listen in.

For further information, please consult Western's policy on academic consideration for student absences:

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

Policy for missing or late assignments: If you are unable to submit any course assignment on time, please contact me by email 48 hours before the deadline. I will either accommodate the lateness myself or ask you to document the reason with your academic counsellor.

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

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>

Accessibility

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

7. Academic Policies

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

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf ,

the centrally administered email account provided to students will be considered the individual's official university email address. It is the responsibility of the account holder to ensure that email received from the University at their 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

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>).

8. 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/>

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.

Western's Grading Standards: 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