Western Science

Department of Biology

Biology 2290F Course Outline

1. Course Information

Course Information
Biology 2290F/G is a teaching laboratory course in the UWO Biology program dedicated to enabling students to apply sound experimental investigation and analyses to biological questions. Selected technical, analytical, and communication skills are introduced in diverse biological contexts as students rotate through four areas of study.

The course is comprised of 3hrs of in-person laboratory/week plus 3 hrs of asynchronous online learning modules (OLMs)/week. The molecular biology/instrumentation unit is held in NCB 325/330 and field work/writing unit is held in NCB 331. **See schedule posted on OWL for more details.**

List of Prerequisites
A grade of at least 60% in Biology 1201a/1202b/1001a/1002b (Old 1222/1223) is a prerequisite for this course. Unless you have either the prerequisite for this course or written special permission from the academic counsellors in your faculty to enrol in it, you will be removed from the 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 the course for failing to have the prerequisites.

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

Instructors	Email	Office	Office Hours
Dr. Michelle Belton (Course Coordinator)	mharris7@uwo.ca	NCB301C	By appointment
Dr. Tim Hain	thain@uwo.ca	NCB301F	By appointment
TAs: TBD			

1. When communicating with instructors and TAs, use your @uwo.ca email account only**.** We will not respond to emails originating from non-uwo email accounts. Not checking your UWO account is not a valid excuse for missing essential communication.

2. **Include 2290F plus your lab section number in the subject line of any emails that you send. Address professors with appropriate salutation.**

3. All emails will be responded to within 48 hours during weekdays (not including weekends and holidays). Emails will usually be addressed during regular work hours (9:00 am to 5:00 pm). We may choose, at our discretion, to respond outside these hours, depending on availability.

3. Course Syllabus, Schedule, Delivery Mode

A laboratory course designed to promote understanding of the scientific method by acquainting students with selected technical and conceptual tools that will enable them to generate, analyze and communicate data from experimental investigations of their own design in the areas of cell biology, population biology and genetics

Learning Outcomes:

1. Perform proper pipetting technique
2. Utilize and understand the operation of basic scientific instruments using proper technique
3. Understand the process of bacterial cloning and purpose of each step of the cloning process.
4. Explain downstream applications of bacterial cloning
5. Describe the purpose of different controls used in experiments
6. Analyze data derived from experiments
7. Create tables and figures appropriate for scientific communication
8. Design an experiment that uses ecological field methods, employing appropriate controls.
9. Describe and analyze the variation that exists within species and ecological communities.
10. Present the findings of an experiment as a poster.
11. Perform a literature review and summarize the findings.
12. Write a scientific review describing an evolutionary process.

Lab Schedule and Delivery Mode:

Section	Day/Time	Mode of Delivery
200, 201, 202, 203	Tuesday 8:30-11:30	3 hours in-person lab 3 hours asynchronous online learning
204, 205, 206, 207	Tuesday 2:30-5:30	
208, 209, 210, 211	Wednesday 2:30-5:30	
212, 213, 214, 215	Thursday 8:30-11:30	
216, 217, 218, 219	Thursday 2:30-5:30	

Rotation Schedule

All sections will begin the course with the intro week which is 100% online, asynchronous learning. Following the intro week, students will move through two rotations (Molecular Biology/Instrumentation or Field Work/Writing) which consist of in-person labs and online learning modules. Half of the sections will begin with Molecular Biology/Instrumentation and the other half will begin with Field Work/Writing. See rotation schedule below for more details.

Rotation #	Unit	AM/PM	Tuesday	Wednesday	Thursday
Foundation Week Jan 6 - 8	Intro	AM	200, 201, 202, 203		212, 213, 214, 215
Foundation Week	Intro	PM	204, 205, 206, 207	208, 209, 210, 211	216, 217, 218, 219
Rotation 1 Jan 13 – Feb 12	Mol Bio Inst	AM	200 201		212 213
Rotation 1	Mol Bio Inst	PM	204 205	208 209	216 217
Rotation 1 Jan 13 – Feb 12	Ecology Writing	AM	202 203		214 215
Rotation 1	Ecology Writing	PM	206 207	210 211	218 219
Rotation 2 Feb 24 – March 26	Mol Bio Inst	AM	202 203		214 215
Rotation 2	Mol Bio Int	PM	206 207	210 211	218 219
Rotation 2 Feb 24 – March 26	Ecology Writing	AM	200 201		212 213
Rotation 2	Ecology Writing	PM	204 205	208 209	216 217

Key Sessional Dates:

Classes begin: Jan 6, 2025
Reading Week: Feb. 16-20, 2025
Classes end: April 2, 2025
Exam period: April 7 -30, 2025

4. Course Materials

Lab coats and safety glasses are required for all classes conducted in the NCB labs. Lab coats will be available to borrow from the prep room if you forget. If you forget your lab coat more than 2X, you will lose 1% of your final mark.

All course material will be posted to OWL: https://westernu.brightspace.com/

Students are responsible for checking the course OWL site (https://westernu.brightspace.com/)) 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.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace 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

Biology 2290F/G requires that you have the following:

 Stable internet connection

 Laptop or computer

 Working microphone

 Working webcam

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Molecular Biology/Instrumentation unit assignments	35%
Field Work/Writing Unit assignments	35%
Final Exam	30%

Introductory Week:

Lab Safety – quiz **(-1%** if not complete by Jan 13th,, ,11:59 pm)
Library Resources – quiz **(-1%** if not complete by Jan 13th,, 11:59 pm)
Communicating Research – quiz **(-1%** if not complete by Jan 13th,, 11:59 pm)
Academic Integrity and Plagiarism – quiz **(-1%** if not complete by Jan 13th,, 11:59 pm)

Molecular Biology/Instrumentation Unit Topics:

Week 1: Pipetting and Bacterial Cloning
Lab book check (1%) due by start time of your lab section
Week 2: Transformation, plating and miniprep OR pHing and Microscopy
Lab book check (2%) due by start time of your lab section
Week 3: Transformation, plating and mini prep OR pHing and Microscopy
Lab book check (2%) due by start time of your lab section
Quiz: covers OLMs from labs 1,2 and 3. Short answer, 30 min. (5%) Completed in lab
Week 4: Restriction mapping OR Spectrophotometry, standard curve and plate reader
Lab book check (2%) due by start time of your lab section
Plating assessment OR pipetting assessment (2%) completed in lab
Practice figure (2%) Due by 11:55 pm on day of your lab
Week 5: Restriction mapping OR Spectrophotometry, standard curve and plate reader
Plating assessment OR pipetting assessment (2%) completed in lab
Lab book check (2%) due by start time of your lab section
Lab Report – See OWL for due date (15%)

Field Work/Writing Unit Topics:

Week 1: Experiment planning for fieldwork OR Writing 1 (online lesson)
Lab book check for fieldwork group (1%)
Week 2: Experimentation for fieldwork OR Writing 2 (online peer review)
Lab book check for fieldwork group (1%)
Written assignment due 10 days after your scheduled lab (15%)
Week 3: Data collection and analysis in hours 2 and 3 OR Experiment planning in hour 1
Lab book check for both groups (1%)
Poster presentation due 10 days after your scheduled lab (15%)
Week 4: Writing 1 (online lesson) OR Experimentation
Lab book check for (new) fieldwork group (1%)
Week 5: Writing 2 (online peer review) OR Data collection and analysis in hours 1 and 2
Lab book check for fieldwork group (1%)
Written assignment due 10 days after your scheduled lab (15%)
Poster presentation due 10 days after your scheduled lab (15%)
Successful completion of knowledge check quizzes during this rotation is worth 2%. There are 3 quizzes during this rotation – two during the writing component (Intro to Communication and Language Arts), and one during the field component (Fieldwork equipment). They can be found in the Online Preparation tabs, or under the Tests & Quizzes tab.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult Accessible Education.

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:
https://registrar.uwo.ca/academics/academic_considerations/
All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Presentation/Group Project (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration) . In this course, this is the Field Work/Writing unit group Poster Presentation

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments
All assignments (excluding lab book checks, and Field Work/Writing Poster Presentation) in this course are due on the due date indicated on OWL/Gradescope but have a no late penalty period of 72 hours after the due date (including weekends and holidays). If you submit your assignment within this 72 hour time period, you do not require academic consideration and no late penalty will be applied. After the 72 hour period a penalty of 25%/day is applied to the assignment. The absolute last date for submission of an assignment (either with late penalty or academic consideration) is 1 week following the due date. If you have academic consideration after this time, the weight of the assignment will be transferred to your final exam.

Lab book checks are due on the due date with and do not have a "no late penalty period". If you are absent for a lab,and cannot submit your lab book, the weight of that lab book check will be moved to your final exam. A maximum of two lab books checks can be missed without academic consideration.

If you miss on of the practical assessments in Molecular Biology/Instrumentation, the weight of that assessment will be moved to your final exam.

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under Special Examinations), especially for those who miss multiple final exams within one examination period.

Essential Learning Requirements
Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

- Field Work/Writing Poster Presentation
- Field Work/Writing Written Assignment
- Molecular Biology/Instrumentation Lab Report
- A minimum attendance of 3 labs per Unit out of the 5 labs per unit

Coursework with Assessment Flexibility
By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Deadline with a No-Late-Penalty Period
Assignments. Students are expected to submit each of the assignments by the deadline listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and they are permitted to submit their assignment up to 72 hours past the deadline without a late penalty. Should students submit their assessment beyond (72 hours) past the deadline, a late penalty of 25% per day will be applied. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (48 or 72 hours).

6. Course Policies:

In Biology 2290F/G participation/attendance will be required for in-person activities.

- Course material (i.e. **lecture slides, videos, and other supplementary material** posted on OWL), **team projects, assignments, quizzes, tests, and exams** are the intellectual property of your instructor (**items bolded are shared with the student and the University**) and are for your personal use only.

Statement on Use of Generative AI (ie. ChatGPT):
Students are permitted to make use of available technological tools, including generative AI tools as supplementary resources in this course. When leveraging these technologies, students are encouraged to critically evaluate the generated content and to integrate it with their own understandings to produce original work. Students are responsible for all text they submitted, and are expected to be knowledgeable of all material in their assignments. In exceptional circumstances, students may be asked to demonstrate their knowledge of their work with an in-person meeting. Please note that large language models may make up incorrect facts and fake citations. Students should ensure that proper referencing of original sources are always included.

7. Student Absences

You are permitted to miss up to two labs per unit (Molecular Biology/Instrumentation and Field Work/Writing) without academic consideration.

- Students missing more than 2 in-person labs per unit will receive a **grade of "F" for the entire course.** Students who miss the first two in-person sessions for the Fieldwork component are expected to attend the third session, but the grade value for the poster will be shifted to the final exam.
- This "F" may be revised to "INC" (incomplete) only upon recommendation from the academic counsellors in your Dean's Office in cases of documented health or compassionate concerns. If an INC is granted by the academic counsellors, then the INC will be completed at the next offering of the course provided that the course is not full.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

8. Additional Statements

Religious Accommodation
When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

https://www.edi.uwo.ca.

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.

Academic Policies
The website for Registrar Services is https://www.registrar.uwo.ca/.

In accordance with policy,

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

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 their official university address is attended to in a timely manner.

Calculators will be allowed during exams

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:

https://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).

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising 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 Learning Development and Success (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 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 Advising 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.