

BIOLOGY 4420A Course Outline

1. Course Information

Insect Biology (Biology 4420A), Fall term of 2026/27

List of Prerequisites

Biology 2483A/B and 0.5 Biology course at the 3000-level.

Unless students have either the prerequisites for this course or written special permission from the Department of Biology to enroll in it, they may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on their academic record. This decision may not be appealed.

2. Instructor Information

TBD

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Emails originating from other email addresses will not be responded to.

3. Course Syllabus, Schedule, Delivery Mode

Course objectives

An introduction to external and internal insect anatomy, and fundamentals of insect physiology, ecology, and evolution. The course will examine how variations in morphological and physiological traits allow insects to exploit diverse habitats worldwide. The laboratory component will focus on the characteristics of major insect orders and families.

Learning outcomes

- Recognize and name key anatomical traits of insects, both internal and external
- Understand and describe insect physiological systems and assess the key environmental variables that determine insect survival, growth, and reproduction
- Understand, describe, and evaluate the role of insects in diverse ecosystems and biomes
- Recognize and describe distinguishing characteristics of the major insect orders
- Understand and apply techniques to collect, preserve, and identify insects

Delivery mode

All lectures and labs are in-person. Lecture slides will be posted to the OWL Brightspace prior to each lecture.

Tentative lecture schedule

Topic	Textbook readings
Intro & course overview	
Insect biodiversity	Chapter 1 (1.1 – 1.4)
External anatomy	Chapter 2
Phylogeny, classification and naming	Chapter 7
Major insect orders	Taxoboxes
Internal anatomy & physiology	Chapter 3
Sensory systems and behaviour	Chapter 4
Guest Lecture	
MIDTERM TEST 1	
Reading Week	
Reading Week	
Reproduction	Chapter 5
Development & life history (migration)	Chapter 6
Evolution – broad patterns	Chapter 8
Soil insects	Chapter 9
Aquatic insects	Chapter 10
Insect-plant coevolution	Chapter 11
Insect societies	Chapter 12
Guest Lecture	
MIDTERM TEST 2	
Insect predation & parasitism	Chapter 13
Medical & veterinary entomology	Chapter 15
Insect pest management	Chapter 16
Guest lecture	
Insects in a changing world	Chapter 17
Insect Conservation	Chapter 1 (1.7)

Tentative laboratory schedule

Topic / Activity
Intro to insect diversity and labs
Field sampling (we will be outside – dress appropriately!)
Field sampling (we will be outside – dress appropriately!)
Field sampling / Visit Biodiversity Gallery (we will be outside – dress appropriately!)
Thanksgiving / Reading Week
Internal & external insect anatomy - grasshopper model – Biodiversity Gallery Assignment DUE
Insect identification using a dichotomous key
Major Orders: Coleoptera – Insect Anatomy Assignment DUE
Creating a pinned specimen collection (Guest Instructor)
Major Orders: Hymenoptera
Major Orders: Lepidoptera
Major Orders: Diptera

Essential Learning Requirements:

Even when Academic Consideration is granted for missed coursework, the following are essential to earn a passing grade in this course:

- the Specimen Collection must be completed
- the final exam must be completed

When a student has not demonstrated proficiency in an essential learning requirement listed above, and when the shortfall results from a granted Academic Consideration, they will be withdrawn (WDN) from the course. The student may appeal to the Associate Dean (Academic) for reinstatement with an Incomplete (INC) standing. Where an appeal for INC is granted, their maximum course load may be reduced during the term in which they complete the outstanding course requirements.

4. Course Materials

Required textbook

The Insects: An Outline of Entomology, by P.J. Gullan & P.S. Cranston (Fifth edition; 2014; Wiley Publishing).

Hardcover books (\$154.99) and eBooks (\$122.00) are available through the Book Store website:

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2026A&courses%5B0%5D=001_UW/BIO4420A

Students are welcome to purchase second-hand hardcopy editions of this textbook if they can find them.

Other course materials

All other course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/>, or provided as hardcopy hand-outs.

Students are responsible for checking the course OWL Brightspace site regularly, and attending lectures and labs, for news and updates. These are the primary methods by which information and materials will be disseminated to all students in the class.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

Biodiversity Gallery assignment	5%	
Insect anatomy assignment	10%	
Specimen Collection	25%	
Midterm Test #1	15%	(in class)
Midterm Test #2	15%	(in class)
Final Exam	30%	(University Exam Period)

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://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.

Midterms and Tests

This course has 2 midterm test(s) and a **cumulative** final exam. There is no makeup test for a missed midterm. If a student misses a midterm, its weight will shift automatically to their final exam grade. If their final exam grade is higher than their midterm grade, their final exam grade will replace the midterm's weight in their overall grade. They do not need to request Academic Consideration for a missed midterm; the reweighing will be done automatically.

The only exception is an early sitting, offered solely for a university-sanctioned schedule conflict (e.g., conflict of two midterms, Varsity competitions) or a religious accommodation that prevents a student from writing the midterm at its scheduled time. If a student requires this accommodation, they must notify their instructor in writing no later than one week before the test. No other circumstance, including illness, qualifies for an early sitting or makeup; these are addressed through the automatic reweighing described above.

Lab Assignments

This course has 3 lab assignments (Biodiversity Gallery Assignment, Insect Anatomy Assignment, and Specimen Collection). If students miss the Biodiversity Gallery Assignment or Insect Anatomy Assignment, they do not need to request Academic Consideration; the weight of the missing item(s) will be moved to the Specimen Collection, which is a **cumulative** assignment.

The skills assessed in the Specimen Collection are cumulative and essential to this course. They cannot be assessed through their tests or final exam. Students will have the entire term to prepare the specimen collection. If students do not successfully complete the Specimen Collection, they will not meet the requirements of the course. See Essential Learning Requirements above for what happens in that case.

Deadlines: The 48-Hour No-Late-Penalty Period

All take-home assignments, quizzes, and labs with a stated due date include an automatic 48-hour period after the deadline during which students may still submit without a late penalty. For example, if an assignment is due on November 5, they may submit it until November 7 without penalty. After this 48-hour period, no further submissions will be accepted, and students do not need to request Academic Consideration for a missed deadline; their grade for this component will be calculated as described above.

Special Examination

Per university policy, Academic Consideration requests with supporting documentation are required for the final examinations scheduled during official examination periods by the Registrar's Office.

If the student has been approved by the Academic Advising Office to write a Special Examination (SPC) and the final exam is their only outstanding course component, an SPC will be assigned to them and scheduled by the instructor per university policy.

If the student misses their SPC exam and is approved for Academic Consideration, they will be withdrawn from the course without academic penalty. If they experienced extenuating circumstances such as prolonged illness, they may appeal to the Associate Dean (Academic), on a case-by-case basis, for the opportunity to write the final exam the next time the course is offered. An outstanding SPC will reduce their course load for the term in which the exam is deferred, as outlined in the [Definitions of Types of Examinations](#) policy.

If the student misses their SPC exam and Academic Consideration is not approved, or was not requested, they will receive a grade of zero on the exam.

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday either requires a student to be absent from the University, or requires or prohibits an activity that makes it impossible for them to complete an academic requirement scheduled that day, they are entitled to accommodation. No student will be penalized for an absence for religious reasons, and an alternative means of satisfying the requirement will be arranged. This accommodation is provided in accordance with the University's policy on Accommodation for Religious Holidays:

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

The student should submit their requests through the Student Absence Portal (SAP), identifying the conflict and the specific course component(s) affected (e.g., test, midterm, exam).

Midterms and Tests: If a religious observance conflicts with a midterm test, they must submit their request no later than **one week** before the test. Their instructor will arrange an early sitting of the test. As set out above, no makeup test is offered for any other reason; this early sitting is available specifically for this accommodation.

Final Examinations: If a religious observance conflicts with the final exam, the student must submit their request no later than **two weeks** before the exam. Their instructor will arrange a Special Examination to take place no later than one month after the end of the examination period.

Students are responsible for finding out what was covered in any class they miss due to a religious observance, and for taking the appropriate steps to keep up with the course.

If a suitable arrangement cannot be reached between a student and their instructor, they should consult the Undergraduate Chair of the department offering the course, and if necessary, the Associate Dean (Academic) of the Faculty of Science.

For a list of recognized religious observances, please visit the calendars posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca> (About Us – Resources – Additional Resources – Calendars).

6.2 Academic 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.

6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments In courses offered by the Faculty of Science, the **possession** of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, hidden cameras and wireless earbuds.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at a student's desk, on their person, or within reach during an assessment will be treated as a scholastic offence, **even if the device is not in use**.

Effective September 2026, the typical penalty for this offence is a failing grade in the course AND a 12-month prohibition on retaking the course.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is their responsibility to review and comply with these expectations.

Use of Generative AI Tools Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is the student's responsibility to seek clarification before using any AI tools in academic work.

6.5 Support Services

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

Mental Health Support. 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.

Gender-Based and Sexual Violence. Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these

traumatic events. If a student has experienced GBSV (either recently or in the past), they can 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.

Accessibility for Coursework. A student may contact the course instructor if they require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to them. If they have any questions regarding accommodations, they may also contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

Learning Development and Success. Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help students improve their learning skills. The facility offers 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.

Student Councils.

Student-run support services are offered by the University Students' Council (<https://westernusc.ca>) and the Science Students' Council (<https://www.westernssc.ca>).

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