

Last Updated: July 2022

Course Title: Introductory Entomology

Department: Entomology

Course Number: ENTM 2050

Faculty of Agricultural and Food Sciences



**University
of Manitoba**

Academic Session: Fall 2022

Credit Hours: 3

Prerequisites: None

Location:

Lecture: 220 Animal Science/Entomology building

Lab: 203 Animal Science/Entomology building

Meeting Days and Class Hours:

Lecture: Tuesday Thursday 11:30 pm – 12:45 pm

Lab: Monday 2:30 pm – 5:25 pm

Instructor Information

Name & Title: Jordan Bannerman, Instructor, Department of Entomology

Email Address: jordan.bannerman@umanitoba.ca

Office Location: Animal Science/Entomology Building 206

Office Phone Number: 204-480-1021 (Messages left at this number are emailed to me)
Toll free 1-800-432-1960 ext. 1021

Office Hours: 10:30 AM – 12:30 PM Monday and Wednesday
In-person drop in + pre-booked virtual availability

Course Description

Undergraduate Calendar Description

An introductory course in insect biology suitable for students of biology, environment, or agriculture, and for those planning to take more advanced courses in entomology. The course emphasizes the diversity in form and function of insects from various perspectives. After an introduction to adaptations in basic anatomy, patterns of growth and development, and physiological and behavioural processes, the ecological roles of insects are examined. Special consideration is given to adaptations of soil arthropods and of insects in aquatic ecosystems, and to relationships of insects with plants and vertebrates. The biological control potential of predators, parasitoids and pathogens of insects is analyzed. Laboratory sessions parallel lecture material and emphasize field identification and basic biology of common families of insects. Fall term, offered every year. Lectures and laboratory.

Instructional Methods

In person. Lectures focus on insect biology and ecology while the labs promote hands-on learning about insect diversity and identification.

Course Objectives and Learning Outcomes

This course examines insect biology and ecology, with an emphasis on the diversity of form and function observed in insects.

Course objectives include:

- Gain an appreciation of the diversity and importance of insects
- Relate insect form to function in the environment
- Develop skill in critical appraisal and communication of primary scientific literature
- Develop the knowledge required for insect identification

Description of Examinations

Lecture: There is one midterm, worth 20% and a cumulative final examination worth 30%. Both tests focus on course content covered in the lecture portion of the course.

Lab: There are 3 lab exams, worth 40% of your course grade. Lab exams 1 and 2 are worth 10%, and the final cumulative lab examination is worth 20%. Lab exams test knowledge of insect biology, ecology and identification learned during the lab portion of the course.

Description of Assignments

Lecture: Students must write a paper discussing the biology and economic importance of a family of insects of their choice. The essay is worth 10%. For full assignment details and a grading rubric see the term paper handout.

Assignment Due Dates:

Term paper..... November 23, 2022

Grade Evaluation

Midterm.....	20%
Final.....	30%
Term paper.....	10%
Lab exams.....	40% (3 in total, 10%, 10%, 20%)

Letter Grade Equivalency:

A+ = >90%; A=80-89%; B+ =75-79%; B=70-74%; C+=65-69%; C=60-64%; D=50-59%; F=<50%.

Important Dates

First day of course.....	September 7, 2022
Voluntary withdrawal date.....	November 22, 2022
Fall Term Break.....	November 7-10, 2022
Final day of course.....	December 12, 2022
Exam period.....	December 13-23, 2022

Texts, Readings, Materials

Optional Text:

Gullan, P.J. and Cranston, P.S. 2014. The Insects: An Outline in Entomology. 5th ed. Blackwell Science. Oxford. 565 pp.

Course Philosophy and Policies

Students' Learning Responsibilities

Students should approach this course with academic integrity, take responsibility for their actions and honor their academic commitments. Regular attendance to lectures and labs is essential for success in this course. Students are encouraged to ask for assistance whenever they feel it is necessary. Students should treat their fellow students with respect and foster a cooperative learning environment where other's ideas are heard and discussed.

Why this course is useful?

Insects are an incredibly diverse and important invertebrate group. Insects influence all aspects of human life to a greater or lesser extent. This course provides a broad overview of insect biology and ecology, which enables students to appreciate the important role that insects play in the structuring and functioning of terrestrial and freshwater aquatic ecosystems. This course is useful for students pursuing careers in entomology, agriculture, ecology, biology, forestry, horticulture, pest control, or conservation.

How this course fits into the curriculum?

This course is designed to provide a foundation of insect biological and ecological knowledge to support learning in further upper-level entomology courses offered by the department. ENTM 2050 is a prerequisite for ENTM 4280 Aquatic Entomology, ENTM 4500 Insect Taxonomy and Morphology, and ENTM 4520 Physiological Ecology of Insects. It is also recommended that students complete this course prior to enrolling in ENTM 3180 Field Techniques in Entomology.

Inquiries to Instructor

Students are encouraged to contact their instructor by e-mail or phone whenever assistance is required. You are required to obtain and use your U of M email account for all communication between yourself and the university.

UM Learn ([UM Learn portal](#))

Course materials (i.e. lecture notes, lab handouts) will be uploaded to UM Learn, it is your responsibility to learn how to access this page.

Late or Missed Assignments

Penalties for late submission of assignments are 10% of the maximum grade per day late. For assignments submitted electronically, the timestamp/date when the e-mail is received into my inbox, or the assignment is uploaded to UM Learn, will be used as the assignment submission date. Assignments submitted ten or more days late will receive a mark of zero.

When an assignment is missed due to an extenuating circumstance (See: [temporary student absence form](#)), or with prior written approval from the course instructor, a new due date for the assignment must be arranged by contacting the instructor. False declarations on the temporary student absence form are considered a breach of academic integrity and can result in discipline. Further documentation may be requested for absences/study disruptions of longer than 3 days and in cases in which a student has made multiple requests for temporary absences.

Missed midterm exam

When a midterm exam is missed due to an extenuating circumstance (See: [temporary student absence form](#)), or with prior written approval from the course instructor, the marks allocated for the midterm exam will re-allocated to the final exam. False declarations on the temporary student absence form are considered a breach of academic integrity and can result in discipline.

Recording of Classes

All synchronous online lab sessions will be recorded and posted. Jordan Bannerman holds copyright over the course materials, presentations and lectures which form part of this course. No additional audio or video recording of lectures or presentations is allowed in any format without Jordan Bannerman's permission. Course materials, both paper and digital, are for the participant's private study and research only, and are not to be distributed to others.

Academic Integrity

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious [academic discipline](#). Cheating on examinations or tests may take the form of copying from another student or using unauthorized materials during an exam. Academic misconduct on exams and assignments can also include impersonation, duplicate submission, and inappropriate collaboration. A student found guilty of contributing to cheating in examinations or assignments is also subject to serious academic discipline. Electronic detection tools may be used to screen assignments in cases of suspected academic misconduct. False declarations on the temporary student absence form are also considered a breach of academic integrity and can result in discipline. Students should acquaint themselves with the University's academic integrity policies at <http://umanitoba.ca/student-supports/academic-supports/academic-integrity>

Course schedule, Fall 2022

Week	Date	Tentative lecture topics	Lab topics
1	Sept 8	Introduction	No Lab
2	Sept 13	Anatomy, form, and function	No Lab
	Sept 15	Anatomy, form, and function	
3	Sept 20	Taxonomy and classification	Insect morphology
	Sept 22	Growth, development	
4	Sept 27	Life history – survival under adversity	The insect orders
	Sept 29	Communication + Reproduction	
5	Oct 4	Evolution	Lab Exam 2 (10%), Oct 3
	Oct 6	Movement	
6	Oct 11	Ground-dwelling insects	No Lab - Thanksgiving
	Oct 13	Forensic entomology	
7	Oct 18	Aquatic entomology	Odonata, Orthoptera and other orders
	Oct 20	Midterm	
8	Oct 25	Insects and plants - herbivory	Hemiptera
	Oct 27	Insects and plants - pollination	
9	Nov 1	Predator and parasitoids	Lab Exam 2 (10%), Oct 31 Lepidoptera
	Nov 3	Insect defense and mimicry	
10	Nov 8	Fall Break	No Lab - Remembrance Day
	Nov 10	Fall Break	
11	Nov 15	Parasites and pathogens of insects	Coleoptera
	Nov 17	Social insects	
12	Nov 22	Insect invaders	Diptera
	Nov 24	Insect pest management	
13	Nov 29	Insect pest management - biocontrol	Hymenoptera
	Dec 1	Climate change	
14	Dec 6	Insects of veterinary importance	Lab exam 3 (20%), Dec 5
	Dec 8	Insects of human medical importance	