Last Updated: August 2021

Course Title: Introductory Entomology
Department: Entomology
Course Number: ENTM 2050
Faculty of Agricultural and Food Sciences

Academic Session: Fall 2021
Credit Hours: 3
Prerequisites: None

Location:
Lecture: Online via Webex
Lab: Online via Webex

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 also emailed to me)
Toll free 1-800-432-1960 ext. 1021

Office Hours: Online (and potentially in-person) availability:
10:30 AM – 12:30 PM Monday and Wednesday (For a virtual appointment, book on Cisco Webex appointments tab), or by appointment via email

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

Online combination of synchronous and asynchronous instruction. 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. Respondus lockdown browser is required.

Lab: There are 2 lab exams, worth 24% of your course grade. Each exam is worth 12%. 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.

Lab: Most labs will require the completion of short assignments to promote engagement with the course materials and prepare students for the lab exams. In total, these assignments are worth 16% of your overall course grade (2% per lab). For further details please refer to the lab assignment general guidelines document posted on the course page and the individual lab handouts.

Assignment Due Dates:

Term paper……. November 23, 2021
Lab assignments…….. Due at the beginning of the next scheduled lab

Grade Evaluation

Midterm…… 20%
Final…… 30%
Term paper…… 10%
Lab Assignments…….. 16%
Lab exams…… 24% (2, 12% each)

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 9, 2021
Voluntary withdrawal date…….. November 22, 2021
Fall Term Break…… November 8-11, 2021
Final day of course…… December 9, 2021
Exam period…… December 11-23, 2021

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 inset 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 (https://universityofmanitoba.desire2learn.com/d2l/login)

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

Late 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 Dropbox will be used as the assignment submission date.

Missed Assignments

Assignments ten or more days late will receive a mark of zero. When assignments are missed and excused through written notification such as a doctor's note, evidence of death in the family, or other circumstances beyond the control of the student, a new due date for the assignment may be arranged by contacting the instructor.

Recording of Classes

All synchronous online course lectures and labs will be recorded and posted. Jordan Bannerman holds copyright over the course materials, presentations and lectures which form part of this course. No 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. Students should acquaint themselves with the University's policy on plagiarism, cheating, exam impersonation and duplicate submission at http://umanitoba.ca/student-supports/academic-supports/academic-integrity

Course schedule, Fall 2021

Week	Date	Tentative lecture topics	Lab topics
1	Sept 9	Introduction	No Lab
2	Sept 14	Anatomy, form, and function	No Lab
	Sept 16	Anatomy, form, and function	
3	Sept 21	Taxonomy and classification	Insect form and function
	Sept 23	Growth, development	
4	Sept 28	Life history – survival under adversity	The insect orders
	Sept 30	Communication + Reproduction	
5	Oct 5	Evolution	Odonata, Orthoptera and other orders
	Oct 7	Movement	
6	Oct 12	Ground-dwelling insects	**No Lab - Thanksgiving**
	Oct 14	Forensic entomology	
7	Oct 19	Aquatic entomology	Hemiptera
	Oct 21	**Midterm**	
8	Oct 26	Insects and plants - herbivory	Lepidoptera
	Oct 28	Insects and plants - pollination	
9	Nov 2	Predator and parasitoids	Lab Exam 1 (12%), Nov 1
	Nov 4	Insect defense and mimicry	
10	Nov 9	**Fall Break**	**No Lab - Remembrance Day**
	Nov 11	**Fall Break**	
11	Nov 16	Parasites and pathogens of insects	Coleoptera
	Nov 18	Social insects	
12	Nov 23	Insect invaders	Diptera
	Nov 25	Insect pest management	
13	Nov 30	Insect pest management - biocontrol	Hymenoptera
	Dec 2	Climate change	
14	Dec 7	Insects of veterinary importance	Lab exam 2 (12%), Dec 6
	Dec 9	Insects of human medical importance	