

DEPARTMENT OF ENTOMOLOGY
Physiological Ecology of Insects
ENTM 4520
Winter 2016
Course Information

Course Description: The effect of environmental factors such as temperature, moisture, light and other organisms on the physiology and ecology of insects.

Prerequisites: ENTM 2050 Introductory Entomology, or consent of instructor

Instructors: Dr. Alejandro C. Costamagna, Assistant Professor
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Consultation Times: ACC: After class
Or by appointment.

RWC: After class
Or by appointment.

Course Schedule: **T TH: 11:30 am – 12:45 pm**
Room 220, Animal Science/Entomology Building

Course Handouts: Some course handout material may be made available to students through the D2L system <https://universityofmanitoba.desire2learn.com/d2l/home>

Grade Assignment:

Ecology reading and discussion assignments	15%
Physiology assignment	15%
Term Test	30%
Final Examination	40%

The term test and at least one assignment will be marked and returned before the voluntary withdrawal date of **18 March 2016**.

Assignments: Details of the assignments will be made available separately during the related lecture section. The due date for the Physiology assignment is 20 March 2016. Dates for Ecology reading and discussion assignments for each student will be determined during the first two weeks of classes.

For their own protection, students should keep copies of all term work as submitted. Late submission will result in a penalty of 1% of the allocated mark per day. For good cause, a student may negotiate a single extension for each deadline. If the student fails to conform to the new deadline, the 1% penalty will come into force. There are several suitable style guides available to aid students in preparation of assignments. One such guide is that by R.A. Day (How to Write and Publish a Scientific Paper, 5th Edition, 1998. Oryx Press, Phoenix & New York, or any earlier edition).

Term Test: The term test is scheduled for 23 February 2014. The test will be returned as soon as it is graded, and before the voluntary withdrawal date.

Final Examination: The final examination will be 2 hours in length and will be scheduled during the regular examination period. The format of the examination will be announced closer to the event, but regardless of format, students will be expected to integrate information from all parts of the course in their answers. Grading of the examination will be based not only on factual content, but on organization as well.

Grading scale:

Percentage	Letter Grade
≥90	A+
80-89	A
75-79	B+
70-74	B
65-69	C+
60-64	C
50-59	D
<50	F

N.B. All components of the course, including participation in all in-class discussions, are required and must be completed if a grade is to be assigned.

N.B.B. Academic dishonesty (as described in the section on General Academic Regulations and Policy in Section 7 of the University General Calendar) will lead to serious academic penalty, see <http://webapps.cc.umanitoba.ca/calendar06/regulations/plagiarism.asp>

Schedule ENTM 4520 / 7240 - Winter 2016

Lecture	date	day of week	Lecturer	Topic
1	07-Jan	Thu	All	Outline, introductions, objectives & overview
2	12-Jan	Tue	ACC	Population growth
3	14-Jan	Thu	ACC	Population dynamics
4	19-Jan	Tue	ACC	Life histories
5	21-Jan	Thu	RWC	Nervous system, structure and function
6	26-Jan	Tue	RWC	Integration
7	28-Jan	Thu	ACC	Competition /Mutualism
8	02-Feb	Tue	ACC	Predator - Prey / Host - parasite interactions
9	04-Feb	Thu	RWC	Signal reception and signal production
10	09-Feb	Tue	RWC	Digestion
11	11-Feb	Thu	RWC	Respiration and water balance
	16-Feb	Tue		Mid-Term Break
	18-Feb	Thu		Mid-Term Break
	23-Feb	Tue	All	MID TERM EXAM
12	25-Feb	Thu	ACC	Plant - herbivore interactions
13	01-Mar	Tue	ACC	Insect Behavior
14	03-Mar	Thu	RWC	Muscles
15	08-Mar	Tue	RWC	Hormones
16	10-Mar	Thu	ACC	Community structure / Multitrophic interactions
17	15-Mar	Tue	ACC	Landscape ecology of insects
18	17-Mar	Thu	RWC	Hormones/Light
19	22-Mar	Tue	RWC	Light
20	24-Mar	Thu	ACC	Biodiversity
21	29-Mar	Tue	ACC	Climate change, invasions, conservation
22	31-Mar	Thu	ACC	Ecology and physiology of aphids
23	05-Apr	Tue	RWC	Temperature
24	07-Apr	Thu	RWC	Ecology and physiology of bees

Suggested literature:

- ***Chapman, R., S. Simpson, and A. Douglas. 2013.** The insects: structure and function, 5th ed. Cambridge University Press.
- ***Chown, S.L. and S.W. Nicolsen. 2004.** Insect physiological ecology: Mechanisms and Patterns. Oxford University Press.
- ****Gotelli, N. J. 2008.** A primer of ecology, 4th ed. Sinauer Associates.
- ***Harrison, J. F., H. A. Woods, and S. P. Roberts. 2012.** Ecological and environmental physiology of insects. Oxford University Press.
- ***Heinrich, B. 1996.** The thermal warriors. Strategies of insect survival. Harvard University Press.
- ***Klowden, M. J. 2010.** Physiological systems in insects. Elsevier.
- ***Nation, J. L. 2008.** Insect physiology & biochemistry. CRC Press
- ****Price, P. W., R. F. Denno, M. D. Eubanks, D. L. Finke, and I. Kaplan. 2011.** Insect ecology: behavior, populations and communities, Cambridge University Press Cambridge.
- ****Schowalter, T. 2011.** Insect Ecology: an ecosystem approach, 3rd ed. Academic Press, San Diego, CA.
- ****Speight, M. R., M. D. Hunter, and A. D. Watt. 2008.** Ecology of insects: concepts and applications, 2nd ed. Wiley - Blackwell Science Ltd.

* and ** indicate the preferred books for the physiology and ecology sections, respectively