

Biology 325: Fall 2013

Insect Biology

Instructor: Robert C. Elson, Ph.D.
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Office hours: T 9.30-11.30 am; T 1.30- 5.30 pm; R 9.30-11.30 am.
...or we can arrange some other mutually agreeable time.

Lectures: Rohr Science 211 (after 9/4/13) MWF 1:30 pm — 2:20 pm
Labs/fieldtrips: Rohr Science 14 or field. F 2.45 pm — 6.15 pm

Objectives/outcomes:

1. Distinguish insects from other arthropods and assign them to a place in arthropod phylogeny.
2. Explain the principal features of the insect body, external and internal.
3. Account for basic aspects of insect
 - physiology
 - behavior
 - development
 - societies
 - ecology
 - origins
 - effects upon humans.
4. Investigate insect structure, function, and development in lab.
5. Identify insects in the field and account for their occurrence in different habitats.

Eclass site: FA13 BIO325 Section 1

Textbook:

Elzinga, Richard J. *Fundamentals of Entomology*, 6th edition (2003). Prentice Hall.
ISBN-13: 978-0130480309.

This is an excellent textbook, and it is essential that you access it because it contains material that I expect you to study on your own and that I will not duplicate in lecture.

The problem is its expense. I recommend looking for sources where you can rent the book. To allow you time to get the book, I will post a copy of the first chapter on the Eclass site. I have also placed a reserve copy in Ryan library.

Lecture course format

The course material is in a sequence of Topics. Each has a study guide that I will post in advance. The guide identifies readings from the textbook and the questions that I expect you to answer from those pages. I see no point in using class time to reproduce the book material. Instead, I aim to explain the more difficult concepts and to apply them to real examples. I expect you to know and understand the material from the textbook *and* the things that I add in lecture. Both things are identified in the study guides.

Lecture course assignments and tests

Assignments: You will read critically and summarize up to four articles on insect science taken from primary and secondary literature. For each, there will be in-class discussion and an individual short writing component. I will give full instructions.

Lecture exams: There are three midterm exams and a final. The exams will include multi-choice and short-answer questions.

Labs/field trips

Lab exercises take place in RS14. Investigations include insect body form and function, development, and behavior. You complete a short worksheet.

Field work. I envisage that we will look for insects on campus and at Kumeyaay Lake in Mission Trails Regional Park. The on-campus “trip” is easily walkable from Rohr Science. The Lake trip will probably be done by car pooling. You receive credit for field trip participation.

Point scores:

Lecture class

3 midterm exams (drop worst)	80 pts
Final exam	30 pts
Assignments	40 pts

Lab/field work

100 pts

Total: 250 pts

Grade calculation:

A: 90-100% B: 80-89.9% C: 70-79.9% D: 60-69.9% F: below 59.9%

Plus and minus grades will be assigned, as appropriate, within the above categories.

A: 95—100 A-: 90—94.9
 B-: 80.0—82.9 B: 83.0—86.9 B+: 87.0—89.9, etc.

Lecture class attendance policy

Regular and punctual attendance at lecture. Poor attendance is highly correlated with low exam scores. Please contact me via email or during class if you need to negotiate an absence. **Roll will be taken at lecture once each week** (M, W, or F at random). If you are absent at 4 or more roll-calls, I will deduct 5% from your total point accumulation (legitimate absences excepted).

For 5 or more such absences, I must contact the Vice-Provost for Academic Administration for possible de-enrollment. For 10 or more such absences, de-enrollment is automatic (see your Catalog).

Electronics policy

Computer activity in class must be course-related. Misuse in this regard could lead to me banning all personal computers in class. Please turn off cell phones in class.

Academic Integrity

I expect that each of you will do your own work. Cheating will not be tolerated in this course, either on exams, lab write-ups, or other assigned course work. The penalty for cheating will at a minimum be reduction of the final course grade by a full letter grade (e.g., a “B” to a “C”) and referral for discipline to the Academic Vice President of the University.

Academic accommodations

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the university in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

Lecture schedule (approx.); notes on holidays, tests, etc.

Week beginning	Lecture topic	Text*	Notes
Sept. 2	1. Introduction to insects	ch. 1	
Sept. 9	Introduction to insects	ch. 1	
Sept. 16	2. The exoskeleton	ch. 2	
Sept. 23	Exoskeleton	ch. 2	
Sept. 30	3. Insect physiology	ch. 3	<i>F Oct. 4: 1st midterm</i>
Oct. 7	Physiology	ch. 3	
Oct. 14	4. Metamorphosis	ch. 4	
Oct. 21	Metamorphosis	ch. 4	<i>F Oct 25: Fall Break</i>
Oct. 28	5. Adaptation to environment	ch. 5	<i>F Nov. 1: 2nd midterm</i>
Nov. 4	Adaptation to environment	ch. 5	
Nov. 11	6. Insect behavior	ch. 6	
Nov. 18	Behavior	ch. 6	
Nov. 25	7. Insect societies	ch. 7	<i>Nov. 25-27: Thanksgiving</i>
Dec. 2	Insect societies	ch. 7	<i>F Dec. 6: 3rd midterm</i>
Dec. 9	8. Insects and humans	ch. 8/10	
(Dec. 16)	<i>Final exam W Dec 18 10.30am – 1pm</i>		

**see topic study guides for detailed references*

Lab schedule (provisional)

Date	Lab or field investigations
F Sept. 6	Arthropods extant and extinct
F Sept. 13	Campus field trip
F Sept. 20	Insect bodies: external anatomy
F Sept. 27	Insect bodies: internal anatomy
F Oct. 4	1 st Midterm lecture exam
F Oct. 11	Kumeyaay Lake field trip
F Oct. 18	Metamorphosis part 1
F Oct. 25	No lab – Fall Break
F Nov. 1	2 nd Midterm lecture exam
F Nov. 8	Metamorphosis part 2
F Nov. 15	TBD
F Nov. 22	TBD
F Nov. 29	No lab – Thanksgiving Recess
F Dec. 6	3 rd Midterm lecture exam
F Dec. 13	No lab