Syllabus BSC 301 Entomology

Fall 2012

Instructor: Dr. Steven Juliano
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Syllabus, Lectures, Other Course materials: Available on ReggieNet
Lecture: MWF 12:00 - 12:50PM, FSA 136
Laboratory: M 1:00-3:50PM , FSA 136
Required Textbook: *The Insects: An outline of Entomology,* 4th ed.
(PJ Gullan & PS Cranston), Wiley-Blackwell
Peterson Field Guide: Insects 2nd ed.
(DJ Borror & RE White), Houghton, Mifflin, Harcourt
Examination Schedule (Dates may be adjusted):
In class examinations: **Monday 24 September; Friday 26 October**
Final examination: **Week of Dec 10** As scheduled by the university

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Course goals: Entomology is a major's course designed to introduce students to the biology of the Class Insecta and related taxa. This potentially includes all aspects of insect science, but the emphasis of this course will be on the evolution, classification, ecology, structure, and function of this group. This course is designed for people seeking a career in biology and biology education. After successfully completing this course, you should have a thorough understanding of the biology and evolution of insects, their diversity, their role in natural ecosystems, the basics of their physiology, development, and behavior, and the many important ways they affect human life.

Grades:
Lecture - 66%. There will be **2** in-class exams during the semester (see above for dates). These exams will be essay and short answer. There will also be a **cumulative final** given during final examination week, (Week of 10 December; Schedule to be determined by the university). The 2 in-class exams together are worth 50% of your lecture grade and the final is worth 50% of your lecture grade.

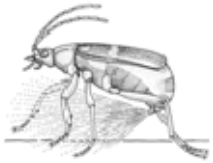
Laboratory - 33%. The laboratory grade will be based on your **insect collection** (see Laboratory Schedule, below) and **2 laboratory practical exams**. The collection is worth 50% of the lab grade and the two practicals together are worth 50% of your lab grade.

Overall grading system: Lecture and laboratory grades will be combined and you will be graded based on the following scale: **90-100% -- A; 80-89% -- B; 70-79% -- C; 60-69% -- D; <60% -- F**

Grading of essay exams: Essays on exams will rated on a 100% scale as follows:

90-100%	Excellent. All necessary information; well organized; good examples; no irrelevant material.
80-89%	Good. All major points made; no major errors; good examples.
70-79%	Mostly adequate, but some major point missing or wrong, or with inappropriate examples.
60-69%	Inadequate. Major errors or omissions; evidence of serious misunderstanding of the material.
<60%	Complete lack of understanding, or did not answer the question that was asked.

Questions about scores on examinations must be presented within one week after the exams are returned.



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Lecture Outline

The instructor reserves the right to change the schedule of lectures at any time.

	Topics	**Lectures**	**Reading**
Week 1	Introduction; Insect Biodiversity; Collecting and preserving insects	1	Chs. 1, 17
	Insect external anatomy	2	Ch. 2
Week 2	Insect internal anatomy & physiology	3	Ch. 3
Week 3	Development, life history	3	Ch. 6
Week 4	Reproduction and reproductive physiology	3	Ch. 5
Week 5	Sensory systems and behavior	3	Ch. 4

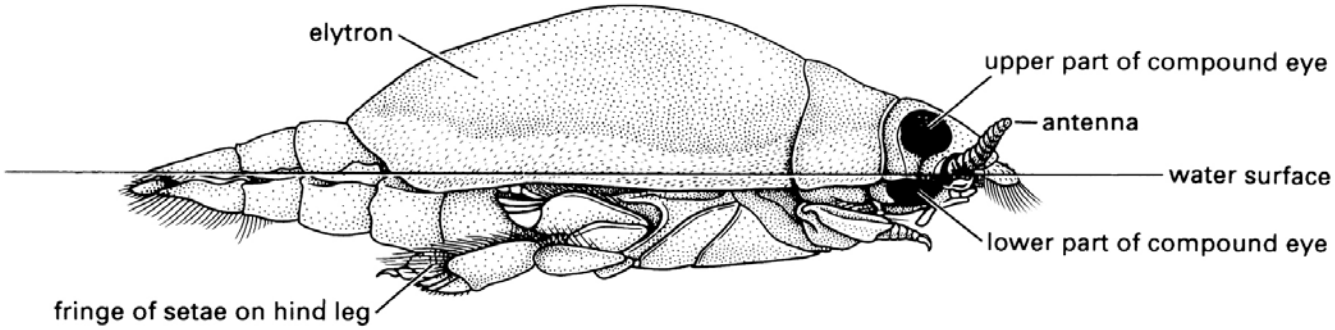
Exam #1: Monday 24 September

Week 6	Systematics and Classificiation	2	Ch. 7
Week 7	Evolution	3	Ch. 8
Week 8	Insects and plants	3	Ch. 11
Week 9	Predators and parasitoids	3	Ch. 13
Week 10	Ground dwelling insects	2	Ch. 9

Exam #2: Friday 26 October

Week 11	Aquatic insects	3	Ch. 10
Week 12	Social Insects	3	Ch. 12
Week 13	Insect defenses	3	Ch. 14
	Thanksgiving break		
Week 14	Medical, veterinary, forensic entomology	3	Ch. 15
Week 15	Insects as pests	3	Ch. 16

Final Exam: as scheduled



Academic Dishonesty

We, your instructors, have a professional and ethical obligation to prevent cheating and plagiarism during lecture examinations and in the preparation of laboratory reports. We take this obligation very seriously, and will maintain a zero-tolerance policy toward any academic dishonesty. If cheating occurs, the student will receive a zero on that examination or laboratory report, and the incident will be reported to the Director of the School of Biological Sciences and to the Student Dispute Resolution Services (SDRS). Your laboratory and lecture instructors assume that you understand your obligations concerning academic honesty and the consequences of not meeting those obligations. Indeed, we shouldn't even have to say these things … honest effort should be the minimum expectation of university students. Because it is vital that you understand those responsibilities and the University's policies on academic honesty, we urge you to read the Academic Dishonesty portion of the Student Code of Conduct: http://www.deanofstudents.ilstu.edu/downloads/crr/code-of-student-conduct.pdf

- Read, in particular, pages 7,8,17, and 18

Laboratory Schedule

Instructor and TA reserve the right to change the lab schedule whenever they feel like it.

Week 1 (20 Aug.)	Class collecting trip #1	Field*
Week 2 (27 Aug.)	Arthropods as a group and Insect orders	
Week 3 (3 Sept.)	Class collecting trip #2	Field*
Week 4 (10 Sept.)	External anatomy	
Week 5 (17 Sept.)	Class collecting trip #3	Field*
Week 6 (24 Sept.)	Internal anatomy	
Week 7 (1 Oct.)	Entognatha, Archaeognatha, Zygentoma, Ephemeroptera, Odonata, & Plecoptera	
Week 8 (8 Oct.)	Orthopteroid orders, Dermaptera, Embioptera, Zoraptera, Isoptera	
Week 9 (15 Oct.)	**Lab practical #1**	
Week 10 (22 Oct.)	Hemiptera, Thysanoptera, & Psocodea	
Week 11 (29 Oct.)	Coleoptera, Neuroptera, Megaloptera, & Strepsiptera	
Week 12 (5 Nov.)	Diptera, Mecoptera, & Siphonaptera	
Week 13 (12 Nov.)	Lepidoptera & Trichoptera	
(19 Nov.)	***Thanksgiving break – no meeting***	
Week 14 (26 Nov.)	Hymenoptera	
Week 15 (3 Dec.)	**Lab practical #2**	

* Field laboratory. **Be on time.** Dress appropriately – long pants, sturdy shoes, and clothes suitable for rooting around in vegetation. Waterproof clothes or warm clothes should be worn when the weather dictates. Central Illinois weather is very rarely bad enough to cause cancellation of a field laboratory, so show up for the laboratory regardless of the weather.

Laboratories meet in FSA 136. **Attendance and participation in the laboratories are <u>required</u>**.

Lab practicals will consist of specimens that you will examine, and about which you will answer questions (e.g., identify the specimen, identify the part indicated, identify the life cycle stage, describe something about its natural history or ecology or development.

Overall grade (based on 1200 pts)

Laboratory

Two lab practicals	200 pts
Collection	200 pts
Total	**400 pts**

Lecture

Two in-class exams	400 pts
Cumulative Final	400 pts
Total	**800 pts**

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Insect Collection

You will turn in a collection of properly preserved (pinned, pointed, in ethanol, etc. as appropriate), properly labeled **hexapods** as part of the lab. Traditional entomology collections require a certain number of taxa. For this class we are going to emphasize ecology, natural history, and behavior of insects, hence your collection will require not a certain number of taxa, but representatives of the major ecological roles of insects.

Your collection will be graded the following requirements (**200 pts total**):

Requirement	**Maximum points**
1. 60 numbered specimens, properly preserved and labeled; identified to family (1/2 pt each)	**30 pts**
2. Up to 20 specimens identified to genus (1 pt each)	**20 pts**
3. Up to 10 specimens identified to species (2 pts each)	**20 pts**
4. An annotated list of specimen numbers with information about the biology of the specimen. In addition to identifying the required habitats, trophic groups, and natural history groups (see item 5) for each specimen, this list could include additional information on any aspect of the biology of the specimen (e.g., host plant identity for herbivores, prey consumed for predators, hosts for parasites/parasitoids, origin of non-native species, pest status, etc.). This list will be graded based on thoroughness, accuracy, and clarity	**30 pts**
5. 2 specimens from each of the following ecological groups	

Habitats	**Trophic groups**	**Natural history groups**
Forest	Herbivores	Cryptic coloration
Grassland	Predators	Aposematic coloration
Agricultural	Parasitoids	Chemical defense
Aquatic	Parasites	Mimic
Domestic	Detritus/Carrion/Microbial	Non-native to North America
Subterranean/Soil	Pollen/Nectar	Social
		Pest
		Disease vector
30 pts	**30 pts**	**40 pts**

Within each column you are required to have **2** specimens in each group, which are worth **5 pts** per group (yielding the total points in each column). The same specimen can fulfill requirements in >1 column (but not **within** a column; e.g., a honey bee can fulfill the requirements of a pollen/nectar feeder, and social insect, but cannot fulfill the requirements of social insect and aposematic coloration). These requirements will obviously demand that you learn quite a bit about the biology of the insects you collected. That is exactly the point.

Several kinds of specimens are not allowed

1. No non-hexapods.
2. No specimens from the Rainforest Ecology field trip to Costa Rica.
   (this is to discourage general collecting on that trip,
   in part because of permit requirements)
3. No commercially purchased specimens of any kind.

If in doubt about using a specimen, ask us.