

**COURSE TITLE:**  
**ECOL497S-597S Topics in social insect biology**  
Fall 2010

**Instructor:**

**Dr. Anna Dornhaus**

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Office Hours by appointment

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**Course description**

We will discuss current and classic literature on social insect research, including, but not limited to topics such as insect ecology, collective and individual behavior, multilevel selection and conflict within colonies, and sociogenomics. After introductory lectures, the course will include student presentations, discussions of current papers, and guest lectures by experts on various topics.

**Objectives**

The goal of this class is to help students get a solid foundation of knowledge in insect sociobiology, including multilevel selection theory, complex systems theory, behavioral ecology, etc. In addition, students will be introduced to different methods and approaches used in this field, including modeling, lab and field techniques, and genetic tools, and led to consider the use of such methods for their own research. Finally, students will be trained in presentation skills, as well as learning about the career paths of various successful researchers in this field.

**Expected learning outcomes**

Students will become familiar with the terminology and methods used in social insect research and elsewhere. Students will practice reading and discussing current research. They will also be trained in presenting on their own field/interests to a non-specialist audience.

**Outline of possible topics – actual topics will depend on student interest**

1. A brief introduction to insect biology
2. Social insects: model systems for complex systems, aging, sociogenomics, and ecology research
3. Social insect phylogeny & systematics
4. Ant ecology
5. Bee ecology
6. Collective behavior: foraging
7. Collective behavior: division of labor
8. Social insect physiology: hormones and development
9. Social insect physiology: aging and reproduction
10. Sociogenomics
11. Reproductive conflict
12. Superorganisms and multi-level selection
13. Conclusion & Discussion

**Student Presentations (1)**

Each student will give a presentation in class, prepare a one-page handout, and lead a discussion on the same topic afterwards. If class size permits, each student will give two presentations. Presentation topics should be current research on the respective topic, or a historical review of the respective field. Students are encouraged to make links with own

research. Graduate students' presentations should be 30 minutes; undergrads' should be 15 minutes.

### **Student Presentations (2): Who's who**

All students will also give 5 mini-presentations (5 min max, 1 slide), each on a prominent researcher in the field covered by the class. These presentations should contain biographical facts (place of birth, where/when PhD was completed, where they work currently) as well as a (brief) description of their model organism and their major scientific contributions.

### **Wiki article**

Every student will write or revise a Wikipedia article based on their talk topic.

### **Grading**

Final grade will be determined from the presentation(s) (40%), attendance and participation in class discussions (40% and 20%).

A: 90-100 %

B: 80-89 %

C: 70-79 %

D: 60-69 %

E (fail): 0-59 %

### **Readings**

TBD

### **Course website**

You will be able to obtain readings and check the current class schedule at the course website: <http://www.eebweb.arizona.edu/Faculty/Dornhaus/labwww/classes.html>

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### **Policy on Expected Classroom Behavior**

Enrollment in the course signifies that a student will participate to the best of his or her abilities in each class session. No electronic communication devices should be used during the class session. Each student is expected to attend every class session; however, all holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion, and absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored.

### **Policy Against Plagiarism**

<http://dos.web.arizona.edu/uapolicies>

### **Policy Against Threatening Behavior**

<http://policy.web.arizona.edu/~policy/threaten.shtml>.

### **Academic Integrity**

Integrity is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. This principle is furthered by the *Student Code of Conduct* and disciplinary procedures established by ABOR Policies 5-308 - 5-403, all provisions of which apply to all University of Arizona students. For further information, please see: <http://w3.arizona.edu/~studpubs/policies/cacaint.htm>.

**Special Needs and Accommodations Statement**

Students who need special accommodation or services should contact the SALT (Strategic Alternatives Learning Techniques), the Center for Learning Disabilities (SALT Center, Old Main, PO Box 210021, Tucson, Arizona 85721-0021, (520) 621-1242, FAX (520) 621-9448, TTY (520) 626-6072), <http://www.salt.arizona.edu/>, and/or the Disability Resources Center, 1540 E. 2nd Street, PO Box 210064, Tucson, Arizona 85721-0064, (520) 621-3268, FAX (520)621-9423, <http://drc.arizona.edu/>. The appropriate office must document the need for accommodations.