ENTO 8900 Entomology Special Problems, Fall 2009
Bee Biology and Management, 3 credit hours

Lectures Mondays 1:25 - 4:25 pm, UGA Bee Lab 1221 Hog Mountain Road, Watkinsville

Professor Dr. Delaplane, 542-2816, 463C Biol. Sci., ksd@uga.edu, www.ent.uga.edu/bees

Description A survey of the biology, pathology, management, ecology, and crop pollinating activities of honey bees and other bees of the Southeast.

Sting Risk Statement

Stings are an integral risk associated with the study of bees. A sting kit (epi-pen and Benadryl) will be available at the bee lab. Students with life-threatening allergies to insect stings are responsible for procuring and carrying on their persons appropriate emergency sting treatments at all times the class is working at the lab. The lab will provide complete bee suits for all students, but for extra protection it is advisable to wear pants, long-sleeved shirt with a collar, and high-top shoes. Do not wear sandals or low-cut shoes with dark socks. By enrolling in this course, student agrees to absolve The University of Georgia, the Department of Entomology, and all instructors and staff from any and all liability associated with insect stings.

Final Lecture Exam

Wednesday, December 16, 12:00-3:00 pm

University Academic Honesty Policy Statement

"All students are responsible for maintaining the highest standards of honesty and integrity in every phase of their scholarly careers. The penalties for academic dishonesty are severe and ignorance is not an acceptable defense."

Attendance

Lectures are the primary mode of information delivery in this course, hence regular attendance and note-taking are crucial to a student's success.

Paper Reviews

Each student will be required to read and prepare five written reviews, each 2-4 pages in length and covering an original research paper of general applicability to subjects covered in previous lectures. There is no chronological priority, except that students should avoid papers that have been topically superseded by later discoveries. Each review should consist of (1) an overview of the hypotheses and experimental procedures, (2) major conclusions, and (3) impacts of the knowledge on the state of bee science.

Insect Collection

Each student will be required to make a properly-mounted and labeled collection of bees, wasps, parasites, and nest associates. Points are available for properly identifying and associating the following taxa and categories on the following basis: (1) each family (5 points each), each different genus within family (5 each), each different species within genus (2 each), each different gender and caste within species (2 each), each nest associate species (2 each). Additionally, a maximum of ten points is available for proper and orderly presentation. One day will be dedicated for students to present and defend collections. All material will become property of the UGA bee lab collection.

Grading

Grading scale is 98-100 A+, 93-97 A, 90-92 A-, 87-89 B+, 83-86 B, 80-82 B-, 77-79 C+, 73-76 C, 70-72 C-, 67-69 D+, 63-66 D, 60-62 D-, < 60 F. Grades are awarded based on student performance on exams, reviews, and an insect collection weighted as follows:

- Mid-term 30%
- Paper reviews (3% each) 15%
- Lecture final 30%
- Collection 25%

100%

1. M, AUG 17 Course introduction, what are bees? immature development, basic life history
2. M, AUG 24 Classification, morphology I
3. M, AUG 31 Classification, morphology II
4. M, SEP 7 Labor Day holiday
5. M, SEP 14 Sociobiology, evolution, solitary versus social bees, bumble bee life history and management **Paper review 1 due**
6. M, SEP 21 Superorganism theory and organization of insect societies
7. M, SEP 28 The genus *Apis*, honey bee biogeography, sexes and castes, nest architecture
8. M, OCT 5 Honey bee seasonal life history, thermodynamics **Paper review 2 due**
9. M, OCT 12 **Mid-term exam**
10. M, OCT 19 Honey bee communication, foraging biology, defensive behavior, pheromones
11. M, OCT 26 History of beekeeping, year-round management, products of the honey bee hive, beekeeping in Georgia, beekeeping around the world **Paper review 3 due**
12. M, NOV 2 American foulbrood, European foulbrood, fungi, vertebrates, toxic nectars, pesticides, non-infectious disorders
13. M, NOV 9 Tracheal mites, viruses, nosema, wax moths, small hive beetles, *Varroa* mites, IPM theory and practice
14. M, NOV 16 Africanized honey bees, honey bee genetics and breeding **Paper review 4 due**
15. M, NOV 23 Thanksgiving holiday
16. M, NOV 30 Bee ecology, pollination, bee conservation, principles of sustainable agriculture
17. M, DEC 7 **Present and defend collection** **Paper review 5 due**