

**ENTO 4300/6300 4300L/6300L, Spring 2003**  
**Keith S. Delaplane**  
**Bee Biology, Culture and Management, 3 credit hours**

**Lectures** T, Th 11:00-12:15      **Labs** Th 2:00-4:45  
**Professor** Dr. Delaplane, 542-2816, 463C Biol. Sci., [ksd@uga.edu](mailto:ksd@uga.edu), [www.ent.uga.edu/bees](http://www.ent.uga.edu/bees)  
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**Lab Manager** Jennifer Berry, 769-1736, Bee Lab, [jbee@bugs.ent.uga.edu](mailto:jbee@bugs.ent.uga.edu)  
**Description** A comprehensive survey of the biology, pathologies, management, 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, thongs, 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.

**Laboratory**

All Thursday labs are at the UGA Bee Laboratory at the Horticulture Farm, Hog Mountain Rd., Watkinsville. Take 441 south toward Watkinsville. Turn right onto Hog Mountain Road. The Horticulture Farm is the first place on the left. Follow the lane back to the white building with blue windows.

**Final Lecture Exam**

Wednesday, May 7, 8:00-11:00 am, room 426; ½ on lectures 1-21, ½ on lectures 23-30.

**Graduate Credit Requirement**

Students enrolled for graduate credit (6300, 6300L) will be required to do (a) a literature review on a pre-approved topic of bee biology, or (b) a pre-approved original experiment and report, or (c) an insect collection of bees, parasites, and nest associates.

**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. There will be five unannounced quizzes during lecture over the course of the semester.

**Grading**

Grading scale is 90-100 A, 80-89 B, 70-79 C, 60-69 D, < 60 F. A daily penalty of 5% will apply toward assignments turned in late. Grades are awarded based on student performance on exams, quizzes, reports, and projects weighted as follows:

■	Lecture exam 1	10%
■	Lecture exam 2	10%
■	Quizzes (2% each)	10%
■	Lecture final	20% (15% for 6300)
■	Lab reports (5% each)	25%
■	Lab practical	25% (20% for 6300)
■	(6300 project)	<u>(10%)</u>
		100%

1. Th, JAN 9—Course introduction, What are bees? <u>Lab 1</u> —lab orientation, gross morphology, taxonomic identifications, preserving bee specimens, nest structure	17. Th, MAR 6—Fungi, vertebrates, toxic nectars, pesticides, non-infectious disorders <u>Lab 9</u> —principles of queen rearing, managing starter boxes and cell builders, grafting queen cells (project III day=0)
2. T, JAN 14—Classification, bee morphology, immature development	18. T, MAR 11—Tracheal mites
3. Th, JAN 16—Basic life history of bees, solitary versus social bees <u>Lab 2</u> —disease and parasite diagnosis, tracheal mites, <i>Varroa</i> mites, nosema, AFB, wax moths	19. Th, MAR 13—Viruses, nosema, wax moths, small hive beetles <u>Lab 10</u> —checking queen pupae, setting up mating nucs, installing queen cells (project III day=7)
4. T, JAN 21—The genus <i>Apis</i> , honey bee biogeography, sexes and castes	20. T, MAR 25— <i>Varroa</i> mites, mite IPM
5. Th, JAN 23—Nest architecture <u>Lab 3</u> —queen pheromones (project I day=0)	21. Th, MAR 27—lecture review <u>Lab 11</u> —checking mating nucs (project III day=21), bee behavior at blueberry flowers (project IV)
6. T, JAN 28—Honey bee seasonal life history	22. T, APR 1— <b>Lecture exam 2</b>
7. Th, JAN 30—Honey bee seasonal life history II, thermodynamics <u>Lab 4</u> —project I day=7	23. Th, APR 3—Africanized honey bees <u>Lab 12</u> —mixing medications, setting up hives, installing packages (project V day=0), <b>project III report due, project IV report due</b>
8. T, FEB 4—Honey bee communication, foraging biology, defensive behavior	24. T, APR 8—Honey bee genetics and breeding
9. Th, FEB 6—Pheromones <u>Lab 5</u> —excursion into bee hives, bee hive equipment, protective clothing, basic hive observations, colony quality criteria, <b>project I report due</b>	25. Th, APR 10—Beekeeping in Georgia <u>Lab 13</u> —troubleshooting (project V day=7)
10. T, FEB 11—lecture review	26. T, APR 15—Beekeeping around the world
11. Th, FEB 13— <b>Lecture exam 1</b> <u>Lab 6</u> —honey bee defensive behavior (project II)	27. Th, APR 17—Bumble bee life history <u>Lab 14</u> —project V day=14, harvesting honey
12. T, FEB 18—History of beekeeping	28. T, APR 22—Biology of pollination
13. Th, FEB 20—Winter and spring management <u>Lab 7</u> —building brood frames, installing foundation, installing cut comb foundation, <b>project II report due</b>	29. Th, APR 24—Crop pollination, bee conservation <u>Lab 15</u> — <b>Lab practical exam, project V report due</b>
14. T, FEB 25—Summer and fall management	30. T, APR 29—lecture review
15. Th, FEB 27—Products of the honey bee hive <u>Lab 8</u> —spring management, treating for tracheal mites, preventing swarms, equalizing, troubleshooting	W, MAY 7— <b>Lecture final, 8:00-11:00</b>
16. T, MAR 4—American foulbrood, European foulbrood	