

Department Name and Number _____

Recommended SCNS Course Identification			
Prefix ___ ___ ___	Level ___	Course Number ___ ___ ___	Lab Code ___
Course Title (please limit to 21 characters) _____			

Effective Term and Year _____	Rotating Topic <input type="checkbox"/> yes <input type="checkbox"/> no
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Amount of Credit ___	Contact Hour: Base ___ or Headcount ___	S/U Only <input type="checkbox"/> yes <input type="checkbox"/> no
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Repeatable Credit <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, ___ total repeatable credit allowed
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Variable Credit <input type="checkbox"/> yes <input type="checkbox"/> no	If yes, ___ minimum and ___ maximum credits per semester
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Course Description (50 words or less)

Prerequisites	Co-requisites
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Degree Type (mark all that apply) <input type="checkbox"/> Baccalaureate <input type="checkbox"/> Graduate <input type="checkbox"/> Professional <input type="checkbox"/> Other _____

Category of Instruction <input type="checkbox"/> Introductory <input type="checkbox"/> Intermediate <input type="checkbox"/> Advanced

Rationale and place in curriculum

Department Contact	Name _____	Phone _____	Email _____
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College Contact	Name _____	Phone _____	Email _____
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ENY 5***

Apiculture

Summer 2011

Instructor: Jamie Ellis, PhD

Office Room #: ENY building (Bldg 970), room 3207

Office Address: Building 970 Natural Area Drive, P.O. Box 110620, Gainesville, FL 32611

Office Phone #: 352-273-3924 (please email me before calling)

E-mail: jdellis@ufl.edu

Website: www.UFhoneybee.com

Office Hours: Monday and Wednesday, 9:30 – 11:30 am (ENY is Building 970 on the campus map - <http://campusmap.ufl.edu/>). If you cannot make office hours, other times are available by appointment (email scheduling preferred).

Course Description: The biology of honey bees and the craft of apiculture will be examined by exploring the natural history, biogeography and ecology of honey bees. Honey bee anatomy, physiology, colony social structure, pests/diseases, pollination ecology, management and current topics in beekeeping will be discussed.

*This course is co-taught with ENY 4***: *Beekeeping*.

Course Objectives:

1. Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.
2. Examine the diversity and biogeography of honey bees.
3. Discover the intricacies of honey bee biology, anatomy, physiology.
4. Determine the contributions of nest structure, eusocial behavior, and colony superorganismic traits to the success of honey bees globally.
5. Appraise the history, development, and practice of apiculture.
6. Link apiculture to production agriculture, ecosystem health, and human success.
7. Synthesize transcending topics (such as parasitology, invasive species biology, IPM, etc.) using apiculture as a model.
8. Demonstrate the ability to disseminate apiculture information through university extension outlets.
9. Become familiar with refereed apiculture literature and common academic outlets for apiculture research publications.

Recommended Texts (not required):

1. Caron, D.W. 1999. Honey Bee Biology and Beekeeping. Wicwas Press. Cheshire, CT, 356 pp.
2. Delaplane, K.S. 2006. Honey Bees and Beekeeping: A Year in the Life of an Apiary, 3rd Edition. The Georgia Center for Continuing Education, Athens, GA, 108 pp.

Required Supplemental Readings for Students Registered for Graduate Credit:

Supplemental reading materials have been provided in each lecture folder on the course CD. These include scientific papers, review articles, and extension publications. You **will** be tested on some of the information provided in **select** supplemental readings from the lectures. Though additional

supplemental readings are provided for each lecture, *only those in the list below are required readings*. They are included below with a reference to the lecture folder in which you will find the article.

Arias, M.C., Sheppard, W.S. 2005. Phylogenetic relationships of honey bees (Hymenoptera: Apinae: Apini) inferred from nuclear and mitochondrial DNA sequence data. *Molecular Phylogenetics and Evolution* 37: 25-35. (Lecture 4)

Collison, C. H., Frazier, M, Caron, D., Harmon, A., VanEngelsdorp, D. 2004. *Beekeeping Basics*. MAAREC, Penn State College of Agriculture and Life Sciences Cooperative Extension. 99 pp. (Lecture 12)

Morse, R.A., Calderone, N.W. 2000. *The Value of Honey Bees as Pollinators of U.S. Crops in 2000*. Research Review. 31 pp. (Lecture 21)

Kogan, M. 1998. Integrated Pest Management: historical perspectives and contemporary developments. *Annual Review of Entomology* 43: 243-270. (Lecture 15)

Kremen, C., Williams, N.M., Throp, R.W. 2002. Crop pollination from native bees at risk from agricultural intensification. *Proceedings of the National Academy of Sciences in the U.S.* 99(26): 16812-16816. (Lecture 2)

Engel, M.S., Hinojosa-Diaz, I.A., Rasnitsyn, A.P. 2009. A honey bee from the Mioocene of Nevada and the biogeography of *Apis* (Hymenoptera: Apidae: Apini). *Proceedings of the California Academy of Sciences* 60(3): 23-38. (Lecture 3)

Sanford, M.T. 2003. *Beekeeping: Florida Bee Botany*. EDIS, University of Florida, 5 pp. (Lecture 20)

Seeley, T.D. 1989. The honey bee colony as a superorganism. *American Scientist* 77:546-553. (Lecture 9)

vanEngelsdorp, D., Evans, J.D., Saegerman, C., Mullin, C., Haubruge, E., Nguyen, B.K., Frazier, M., Frazier, J., Cox-Foster, D., Chen, Y., Underwood, R., Tarp, D.R., Pettis, J.S. 2009. Colony collapse disorder: a descriptive study. *PLoS ONE* 4(8): e6481.doi:10.1371/journal.pone.0006481. (Lecture 24)

Winston, M.L. 1992. The biology and management of Africanized honey bees. *Annual Review of Entomology* 37:173-193. (Lecture 23)

Lectures: This is an online/CD-based course. All lectures for this course are narrated presentations and include some videos. Each lecture is placed in its own folder with accompanying supplemental reading materials. Furthermore, PDFs of the slides* for each lecture are available in their respective folders. It is suggested that you print the slide PDFs prior to viewing the narrated lectures so that you can take notes on the slide printouts. Not all information covered during the narrated presentations will exist as printed material on lecture slides. Therefore, you should pay close attention to the narrated lectures as the spoken information is critical for success in this course.

*You can adjust printing preferences to have one or multiple slides per printed page and to print in color or black and white.

Evaluation: The course grade is based on total points earned (out of 450 possible points).

-Exam 1	100 pts
-Exam 2	100 pts
-Exam 3	100 pts
-Written Report	50 pts
-Extension/Research	100
Review Article	

Total Points: ENY 5*** 450 pts

*For additional information on the University of Florida's grading policy, see:
<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

FINAL GRADING		
% grade	Letter grade	Points needed to achieve letter grade
100-93	A	≥418
90-92	A-	405-417
87-89	B+	391-404
83-86	B	373-390
80-82	B-	360-372
77-79	C+	346-359
73-76	C	328-345
70-72	C-	315-327
67-69	D+	301-314
63-66	D	283-300
60-62	D-	270-282
0-59	E	0-269

Tentative Course Schedule: Since this course is offered via CD or online as a distance education course, students may work at their own pace. However, students are expected to complete chapters 1-8 by the first exam, chapters 1-16 by the second exam, and 1-24 by the third exam. All exams are cumulative. Exam III is the "final" and will be administered during the last week of classes.

Week	Date	Topics Covered and Assignment/Exam Date
Week 1	9 – 13 May	Chapter 1. An Introduction to the Hymenopterans and bees Chapter 2. Sociality and Honey Bees
Week 2	16 – 20 May	Chapter 3. Biogeography of Honey Bees
Week 3	23 – 27 May	Chapter 4. Biology I: Honey Bee Biology Chapter 5. Biology II: Honey Bee Anatomy
Week 4	30 May – 3 June	Chapter 6. Biology III: Physiology and Pheromonal Communication Chapter 7. Nutrition and Immune Response
Week 5	6 – 10 June	Chapter 8: Honey Bees as a Superorganism EXAM I – 10 June 2011 Field Day at UF Bee Biology Unit – 11 June 2011
Week 6	13 – 17 June	Chapter 9: The History of Beekeeping Chapter 10. Beekeeping Equipment
Week 7	20 – 24 June	Chapter 11: Getting Started in Beekeeping Chapter 12: Pests and Predators of Honey Bees
Week 8	27 June – 1 July	Chapter 13: Pathogens and Diseases of Honey Bees Chapter 14: Integrated Pest Management in Apiculture
Week 9	4 – 8 July	Chapter 15: Yearly Beekeeping Management I: April – August Chapter 16. Yearly Beekeeping Management II: September – March BEEKEEPING REPORTS DUE – 8 July 2011
Week 10	11 – 15 July	EXAM II – 11 July 2011 Chapter 17. History and Theory of Honey Production Chapter 18. Other Products of the Hive
Week 11	18 – 22 July	Chapter 19. Bee Botany Chapter 20. Pollination Ecology
Week 12	25 – 29 July	Chapter 21. Queen and Packaged Bee Production Chapter 22. African Honey Bees Chapter 23. Colony Collapse Disorder (CCD) GRADUATE COURSE EXTENSION REPORTS DUE – 29 July 2011
Week 13	1 – 5 August	Chapter 24. Research and Extension Efforts in Apiculture EXAM III (Final Exam) – 3 August 2011

Exams: There will be three, 100 point exams during the semester. Exams will be true/false and multiple choice and will be taken electronically. All exams are cumulative and will be offered online. To find the exams online, go to <http://entnemdept.ifas.ufl.edu/honeybee/index.shtml> and click on “Instruction” on the left side of the page. Once there, click ENY 5*** and follow the instructions for “Taking the online exam”. Exams will be timed (90 minutes allowed) and administered on set dates. You should take every opportunity to adhere to the suggested chapter review timeline above so that you are prepared for the exams. You must log in to take the exam between 8:00 - 10:00 AM on the dates indicated on the course outline page. Once you begin the exam, it must be submitted within 90 minutes.

Beekeeping Report: One of the most useful skills in any profession is writing. As such, you are expected to produce a 4-5 page written report (12 point, Times New Roman font, double spaced) by participating in one of the following 2 activities:

1) You can shadow a local beekeeper and write report on his/her beekeeping operation. You can discuss how the operation is managed, what the purpose of the operation is (pollination, honey production, etc.), key obstacles the beekeeper has to overcome in his/her operation, etc. Your visit with the beekeeper should be photo-documented (you can include photos as figures in the report, though they must be in addition to the 4-5 pages of text). Please contact the Instructor if you need help finding a local beekeeper in your area.

2) You can attend the Honey Bees and Beekeeping Field Day provided at the University of Florida Honey Bee Biology Unit in Gainesville, FL. On 11 June 2011 (Saturday), we will host a field day during which students will construct beekeeping equipment, work live honey bee colonies, extract honey, etc. The laboratory will begin at 9:00 am and conclude at 3:00 pm (pizza lunch provided). Participants must wear socks, close-toed shoes, long pants (no shorts allowed) and long-sleeved shirts. Following the Field Day, students must write a 4-5 page report on their experience with honey bees and beekeeping during the event. Students planning on attending the field day must contact Dr. Ellis by 3 June 2011 to register for a spot. Once registered, a map and driving directions to the UF Bee Biology Unit will be provided.

Extension Review: Students enrolled in ENY 5*** for graduate credit are required to produce an additional report in the form of a Featured Creatures article (<http://entnemdept.ufl.edu/creatures/>) or EDIS document (<http://edis.ifas.ufl.edu/>) with the potential for publication through the University of Florida's extension branch (Cooperative Extension Service). If writing a Featured Creatures document, you must choose a bee pollinator of interest and write about it following the Featured Creature guidelines which are included in your course folder. EDIS documents can be written on a special topic regarding honey bees or beekeeping. For Featured Creatures and EDIS documents, you MUST check with me before beginning your project so I that can verify that such a document does not already exist on your topic. If you need guidance in selecting a topic, I can provide some suggestions.

Make-up Policy: There will be no make-up for exams or other assignments missed without prior approval from the instructor. If you would like to take your exam on a day prior to the listed exam date, please contact your instructor at least one week in advance. You will not be allowed to take the exam after the exam date unless prior arrangements have been made. If you are ill, you need to contact the instructor before the exam. A doctor or infirmary must confirm illness before you may schedule a make-up exam. To make up a missed examination you will be required to provide appropriate written documentation (e.g., from a doctor in case of severe illness or a funeral notice or obituary in the unfortunate event of the death of a close relative).

Class Attendance: This is a distance education course so attendance is not required.

Academic Honesty: In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

Preamble: In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

(Source: 2010-2011 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

UF Counseling Services: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Training Programs
Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

Information for Students with Disabilities: Students with disabilities are encouraged to register with the Office for Student Services to determine the appropriate accommodations. Any student requesting special accommodations must be registered with the Dean of Students Office, P202 Peabody Hall, 392-1261(TDD - 392-3008), and have documentation on file in the office of Student Services in order to receive special accommodations such as examination accommodations. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor

when requesting accommodation. For students with hearing disabilities trying to contact an office that does not list a TDD, please contact the Florida Relay Service at 1- 800-955-8771.

UF Policy on E-mail: “Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent exclusively to GatorLinkUserName@ufl.edu. The preferred email address recorded for all students will be the GatorLink address. This is the email address displayed in the online phonebook. Students may continue to use the forwarding mechanism to deliver their email to other mail services, if they wish. However, it is the student’s responsibility to insure that the forwarding address is current so that they receive official communications from the University”.

Software Use: All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damage and/or criminal penalties for the individual violator. Because such violations are against University policies and rules, disciplinary action will be taken, as appropriate.

Plagiarism: Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the World Wide Web. Plagiarism is defined as representing the words or ideas of another person as one’s own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism, as you will read on the Guide to Plagiarism website referenced below.

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code (<http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>). The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course, to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one’s scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers.

In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida consider to be plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it.

Students who plagiarize will be caught and consequences will be applied. I check all written assignments using an anti-plagiarism software called Turnitin® (<http://www.at.ufl.edu/~turnitin/about.html>). Students who plagiarize will receive a grade of zero on the assignment. The second instance of plagiarism in the course will result in an automatic failing grade in the course.

For further information and examples of plagiarism, I strongly suggest that you please read the George Smathers’ Library Guide to Plagiarism <http://www.uflib.ufl.edu/msl/07b/students.html>.

Please understand that our purpose in bringing to your attention the matter of plagiarism is to help train you to be ethical scientists, not to impugn your character.

ENY Beekeeping (4000 level) and Apiculture (5000 level)

Level of Instruction

Undergraduate	Graduate
Narrated Lectures through Sakai	Narrated Lectures through Sakai + required reading of select refereed manuscripts

Objectives

Undergraduate	Graduate
Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.	Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.
Examine the diversity and biogeography of honey bees.	Examine the diversity and biogeography of honey bees.
Discover the intricacies of honey bee biology, anatomy, physiology.	Discover the intricacies of honey bee biology, anatomy, physiology.
Determine the contributions of nest structure, eusocial behavior, and colony superorganismic traits to the success of honey bees globally.	Determine the contributions of nest structure, eusocial behavior, and colony superorganismic traits to the success of honey bees globally.
Appraise the history, development, and practice of apiculture.	Appraise the history, development, and practice of apiculture.
Associate apiculture with production agriculture, ecosystem health, and human success.	Associate apiculture with production agriculture, ecosystem health, and human success.
Synthesize transcending topics (such as parasitology, invasive species biology, IPM, etc.) using apiculture as a model.	Synthesize transcending topics (such as parasitology, invasive species biology, IPM, etc.) using apiculture as a model.
	Demonstrate the ability to disseminate apiculture information through university extension outlets.
	Become familiar with refereed apiculture literature and common academic outlets for apiculture research publications.

Level of Performance & Assessment Techniques

Undergraduate	Graduate
Exams(3)	Exams(3)
Written report on beekeeping	Written report on beekeeping
	EDIS/Featured Creatures document on beekeeping topic

Explain how the exams, class presentation and case studies differ (if they do) and how you will assess them differently – e.g., the difference in your assessment criteria.

- All students will take the same objective portions of the exam. Exams for students taking the graduate level course will have an additional section which will include questions taken from the required reading material (material undergraduate students are not required to read).
- All students will produce a 4-5 page written report on practical experiences in beekeeping. This will follow student participation in a beekeeping assignment where they either (1) attend a beekeeping field day at the Bee Biology Unit in Gainesville or (2) shadow a local beekeeper for a day.
- Student taking the course for graduate credit are required to produce either a University of Florida EDIS document (<http://edis.ifas.ufl.edu/>) or a Featured Creatures (<http://entnemdept.ufl.edu/creatures/>) document on a beekeeping or pollinator topic. The topic has to be approved by the instructor. Students taking the course for undergraduate credit are not required to do this.

All UCC1 forms and each UCC2 form that proposes a change in the course description or credit hours must include this checklist in addition to a complete syllabus. Check the box if the attached syllabus includes the indicated information.

Syllabus MUST contain the following information:

- Instructor contact information (and TA if applicable)
- Course objectives and/or goals
- A topical outline (at least tentative) of subjects to be covered
- Required and recommended textbooks
- Methods by which students will be evaluated and their grades determined
- Policy related to class attendance
- Policy related to make-up exams or other work
- Statement related to accommodations for students with disabilities
- Information on current UF grading policies for assigning grade points

It is recommended that syllabi contain the following information:

1. Critical dates for exams and other work
2. Class demeanor expected by the professor (e.g., tardiness, cell phone usage)
3. UF's honesty policy
4. Contact information for university counseling and mental health services

The University's complete Syllabus Policy can be found at:

<http://www.aa.ufl.edu/policy/SyllabiPolicy.pdf>