

# BIOL 3388 - Honey Bee Biology

## Fall 2016

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### Course Information

BIOL 3388 – Honey Bee Biology      Section 001 (CRN 84864)  
Monday/Friday 10am -11:15am      Room SLC 2.304

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### Professor Contact Information

Dr. Scott Rippel      Office SLC 2.410      972-883-2510  
Lab SLC 2.207      972-883-2277  
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### Course Pre-requisites or their equivalents

BIOL 2281 – Introductory Biology Laboratory  
BIOL 2311 – Introduction to Modern Biology I  
BIOL 2312 – Introduction to Modern Biology II

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### Course Description

This survey course explores the biology of honey bees at the colony, organism, and molecular levels. Topics include honey bee anatomy, nest architecture, caste development and social organization, reproduction and genetic diversity, pheromones and communication, foraging behavior, colony reproduction, pest and disease management, and basic beekeeping.

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### Student Learning Objectives/Outcomes

**Objectives:** The goal of this course is to give students an overview of the biology of honey bees at the colony, organism, and molecular biology levels. Additionally, students will aware of the impacts that bees have on society and society has on bees while gaining a hands-on learning of current beekeeping techniques.

**Outcomes:** Students will therefore:

1. Become knowledgeable in life cycle of both individual honey bees and the honey bee colony to include hive organization, development, behavioral control, colony reproduction, queen mating, foraging, and honey bee diseases.
2. Become familiar with the role and impact honey bees have on human societies.
3. Receive a first-hand experience in hive inspection and honey harvesting.
4. Conduct and present (oral and written) independent literary research on a current topic concerning scientific honey bee research or the beekeeping industry.

## Required Textbooks and Materials

Caron, Dewey M. and Lawrence Connor. *Honey Bee Biology and Beekeeping, Revised Edition*. Michigan: Wicwas Press, 2013. Print

Additional lecture notes will be made available as handouts or down loads from the eLearning course website.

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## Academic Calendar and Major Assignments

Lecture	Day	Date	Topic	Assignment
-----	Mon	22 Aug	Introduction	-----
1	Fri	26 Aug	History and Evolutionary Relationships	Chapter 1-3
2	Mon	29 Aug	External Honey Bee Anatomy	Chapter 5
3	Fri	02 Sept	Internal Honey Bee Anatomy	Chapter 5
-----	Mon	05 Sept	Labor Day Holiday	-----
Proposal	Wed	07 Sept	Project Proposal Due	Term Project
4	Fri	09 Sept	Colony organization and Nest Architecture	Chapter 6
5	Mon	12 Sept	Nutrition and Development	Chapter 4
6	Fri	16 Sept	Nutrition and Development	Chapter 4
Exam 1	Mon	19 Sept	Exam 1 - Lecture 1-6	Exam 1
7	Fri	23 Sept	Behaviors	eLearning file
8	Mon	26 Sept	Behaviors	eLearning file
9	Fri	30 Sept	Colony Reproduction: Swarming	Chapter 9
10	Mon	03 Oct	Queen Mating	Chapter 9/17
11	Fri	07 Oct	Communication – Dance Language	Chapter 7
12	Mon	10 Oct	Communication – Pheromones	Chapter 8
Exam 2	Fri	14 Oct	Exam 2 - Lecture 7-12	Exam 2
13	Mon	17 Oct	Forging and Pollination	Chapter 10
14	Fri	21 Oct	Forging and Pollination	Chapter 10
15	Mon	24 Oct	Beekeeping equipment and Apiary Sites	Chapter 11
16	Fri	28 Oct	Honey Production and Processing	Chapter 15
17	Mon	31 Oct	The Products of Bees	Chapter 16
18	Fri	04 Nov	Pollination and Commercial Beekeeping	Chapter 18
Exam 3	Mon	07 Nov	Exam 3 - Lecture 13-18	Exam 3
19	Fri	11 Nov	Honey bee diseases	Chapter 19/20
20	Mon	14 Nov	Colony Collapse Disorder	Handout
Term Project	Wed	16 Nov	Electronic Presentations Due via email	Term Project
Term Project	Fri	18 Nov	Term Paper and Documentation Due	Term Project
21	Fri	18 Nov	Oral Student Presentations	Handout
-----	Mon	21 Nov	Thanksgiving Holiday	-----
-----	Fri	25 Nov	Thanksgiving Holiday	-----
22	Mon	28 Nov	Oral Student Presentations	Handout
23	Fri	02 Dec	Oral Student Presentations	Handout
24	Mon	05 Dec	Oral Student Presentations	Handout
Exam 4	TBA	TBA	Exam 4 - Lecture 19-24	Exam 4

## Grading Policy

Course Assignments			Course Grading Scale			
Assignment	Course %	Points	Final Letter Grade	Total Points Earned	Final Letter Grade	Total Points Earned
Exam 1*	15%	90	A+	582	C+	462
Exam 2*	15%	90	A	564	C	444
Exam 3*	15%	90	A-	540	C-	420
Exam 4*	15%	90	B+	522	D+	402
Quizzes	15%	90	B	504	D	384
Term project	15%	90	B-	480	D-	360
Apiary visit	10%	60				
	<b>100%</b>	<b>600</b>				

*\*The lowest exam grade will be replaced with the rounded average of all four exams. For example, assume you earned the following exam points – 65, 87, 83, and 82. The average of these scores is 79.25. The 65 will be replaced with a 79.*

To encourage pre-reading of course material, on-line quizzes will be conducted through the eLearning website prior to each lecture. Quizzes will cover material from the textbook and any additional reading assignments posted on the eLearning website. There may be unannounced reading check quizzes conducted at the beginning of lectures.

The term project will involve both a written essay, submission of research documentation, and an oral presentation. See the term project handout for specific instructions and grading criteria.

A hands-on tour of the UTD apiary (1hr) to perform basic hive maintenance and extraction facility (1hr) to harvest/extract honey is *highly encouraged*. An alternative assignment will be made available on a case-by-case basis.

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### Course & Instructor Policies

I will consider rescheduling Exams/Quizzes only with appropriate documentation for major issues (hospitalization, accidents, medical school interviews, etc...).

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### UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus: <http://go.utdallas.edu/syllabus-policies>

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***The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***