

# ENY 4161 & ENY 6166: Insect Classification Spring 2013

## Catalog Description

Classification of major families of adult insects with emphasis on their identification, habitat, and niche. A properly curated collection is required.

## Instructor

Dr. William H. Kern, Jr.  
Room 219 Davie West, Ft. Lauderdale REC  
(954) 577-6329  
email: whk@ufl.edu  
Office Hours: anytime by appointment

## Course Objectives

All students will be expected to:

1. Identify any adult insects to **Order**, by sight.
2. Identify to **Family** the largest and most common **Families** of insects, by sight.
3. Identify to **Family**, with the aid of keys, most common **Families**.
4. Correctly spell those **Family** names specifically discussed during lecture.
5. For each important Families discussed in lecture:
  - a. Describe the general life history for the Family.
  - b. Name or describe any unusual characteristics shared with other taxa.
  - c. Name taxa that share similar biological or morphological features.
  - d. given a taxon and a characteristic, state whether the characteristic is primitive or derived.
6. Define terms used in insect anatomy and taxonomy.
7. Properly collect, preserve, and curate insects in a collection.
8. Understand the principles of Taxonomic nomenclature and how a species is named.

## Topics to be Covered

- Review collecting and preserving insects - curating, collection techniques
- Zoological Classification - Need for, origin and history
- Rules of Zoological Nomenclature
- The species concept, inherent problems
  - Morphology of adult insects as used in classification schemes - problems and solutions
  - Sympatry, allopatry, allochrony, synchrony
- Insect Classification Schemes, recognizing Orders and families of Insects

- Creating and using identification keys
- Uses and abuse of insect identification keys
- Classification techniques other than traditional morphology
- Searching entomological literature, locating references
- Zoogeography and classification

### **Methods**

This course will meet once per week for four hours...approximately one – two hours will consist of lecture, and the remaining time will be devoted to laboratory work

Lectures will cover phylogenetic relationships, biology and ecology of selected families in each Order. We will concentrate on Florida / Eastern US taxa with reference to some important Families not occurring in the United States.

The laboratory is designed to facilitate Family identification both by sight recognition and with the aid of keys. Use of taxonomic keys is required. Learning anatomical features used in keys is essential and a course requirement.

Collecting field trips may be scheduled during the semester at times convenient to the majority of students. Attendance is not mandatory , but strongly encouraged.

### **“The Collection”**

Undergraduate students will collect a minimum of 100 different Families of **ADULT** insects representing 17 orders and identified at least to **Family**. Only one specimen per family will be counted. At least fifty of the insects will be identified during the lab periods using the text and supplemental keys. The families will be confirmed by the instructor in your species log as they are identified.

Graduate students will collect a minimum of 150 different Families of **ADULT** insects representing 17 orders and identify at least to **Family**. Only one specimen per family will be counted. Specimens belonging to different subfamilies will be counted if the specimens are identified at least to Subfamily. At least seventy-five of the insects will be identified during the lab periods using the text and supplemental keys. The families will be confirmed by the instructor in your species log as they are identified.

Insects must be properly labeled and preserved. Insects used in previous collections may be included. Trading of specimens between students is permitted as long as data is maintained. All specimens must have collection date, location, host or habitat, and collector. Cooperation between students working on their collections is encouraged. Purchase of specimens is prohibited and they will not be graded. We will supply

collecting and preservation equipment, but all materials except pins and vials must be returned in order to receive your final grade.

**Collection Log.** A collection log is required to accompany your collection.

Log #	Collection Date	State	County	Locality	Order	Family	Genus	species	ID Confirmation
WHK1	3 Sept. 2004	FL	Broward Co.	Davie Ft.Ld. REC	Diptera	Tabanidae	<u>Tabanus</u>	<u>sp.</u>	<i>WH Ken</i>
WHK2	4 Sept. 2004	FL	Dade Co.	Miami	Lepidoptera	Arctiidae			<i>WH Ken</i>

**Collecting venomous arthropods.**

Each student must access his or her personal safety when collecting arthropods, especially venomous ones. Do not collect any venomous arthropods unless you feel confident that you can do so safely. Student cooperation, sharing, and trading of specimens is encouraged. Just be sure to credit the proper collector. If you have health conditions such as allergies to venomous hymenoptera, do not take chances. Collecting social venomous hymenoptera is safest away from the nest, such as at nectar sources. If you choose to examine or handle vertebrate hosts to collect ectoparasitic insects like fleas and lice, you should always wear protective latex gloves. Veterinarians may provide assistance you in collecting parasites from domestic animals or wildlife.

**Suggested Text and Readings**

The required text for this course is:

Triplehorn, C.A and N.F. Johnson. 2004. **Borrer and Delong's Introduction to the Study of Insects, 7<sup>th</sup> edition.** Thomson-Brooks/Cole, Belmont, CA. 864 pp.

ISBN-10: 0030968356 ISBN-13: 978-0030968358

**Grading**

**Grading scale:**

- |              |                    |
|--------------|--------------------|
| A = 93-100 % | C = 73-76 %        |
| A- = 90-92 % | C- = 70-72 %       |
| B+ = 87-89 % | D+ = 67-69 %       |
| B = 83-86 %  | D = 63-66 %        |
| B- = 80-82 % | D- = 60-62 %       |
| C+ = 77-79 % | E = Less than 60 % |

**The Midterm and Final Examination** will cover lecture material (**not** comprehensive). **25 % of course grade.**

**Weekly Quizzes:** Each laboratory will include a quiz testing sight identification of specimens or identification with the aid of a key of taxa discussed during the pervious

class period. Quizzes may also include questions pertaining to morphology and terminology. **25 % of course grade.**

**50 % of course grade:** Insect collections and catalog.

### **Spring 2013: Course Outline (subject to change)**

January 9 No Class

January 16 Introduction, Course Objectives, Classification, Phylogeny, Nomenclature (pages 52-61), Behavior and Ecology (pages 62-98). **Lab:** Orientation, insect morphology, Collecting (pages 745- 778)

January 23 Introduction to the Hexapoda (Chapter 6; pages 152-168), Entognathous Hexapods (Chapter 7; pages 169 – 176). Apterygota (Chapter 8: pages 177 – 180)  
**Lab:** Quiz on proper collecting and curating, more morphology, view insects above

January 30 Ephemeroptera (Chapter 9: pages 181 – 192), Odonata (Chapter 10: pages 193- 208), Phasmatodea (Chapter 12; pages 227 – 229), and minor Orthopteroid orders (Chapters 13-14; 230-233)  
**Lab:** Quiz on morphology, view insects listed above

February 6 Orthoptera ( Chapter 11: pages 209 – 226), Mantodea (Chapter 20; pages 260- 262), Blattodea (Chapter 21; pages 268 – 267), Isoptera (Chapter 19; pages 252- 259)  
**Lab:** Quiz (previous week's material), view insects listed above

February 13 Dermaptera (Chapter 15; pages 234 – 238), Embiidina (Chapter 17; pages 247 – 249), Zoraptera (Chapter 18; pages 250-251), Plecoptera (Chapter 16; pages 239 – 246), Psocoptera (Chapter 24; pages 341-355), Phthiraptera (Chapter 25; pages 356-364)  
**Lab:** Quiz (previous week's material), view insects listed above

February 20 Hemiptera Suborder Heteroptera (Chapter 22; pages 268 - 332]  
**Lab:** Quiz (previous week's material), view insects listed above

February 27 Hemiptera Suborders Auchenorrhyncha and Sternorrhyncha ( the Old Homoptera )(Chapter 22) Thysanoptera (Chapter 23; pages 333 – 340)  
**Lab:** Quiz (previous week's material), view insects listed above

March 6 SPRING BREAK –No Classes

March 13 **Midterm,** Neuroptera (Chapter 27; pages 469 – 480)  
**Lab:** Quiz (previous week's material), view insects listed above

March 20 Coleoptera Chapter 26; pages 365 – 468)

**Lab:** Quiz (previous week's material), view insects listed above

March 27 Coleoptera continued, Chapter 26; pages 365 – 468)

**Lab:** Quiz (previous week's material), view insects listed above

April 3 Siphonaptera Chapter 31; pages 648 – 661), Mecoptera (Chapter 32; pages 662-668), Strepsiptera (Chapter 33; pages 669-671)

**Lab:** Quiz (previous week's material), view insects listed above

April 10 Diptera (Chapter 34; pages 672 – 744)

**Lab:** Quiz (previous week's material), view insects listed above

April 17 Trichoptera (Chapter 29; pages 558 – 570), Lepidoptera (Chapter 30; pages 571 – 647)

**Lab:** Quiz (previous week's material), view insects listed above, review

April 24 Hymenoptera (Chapter 28; pages 481 – 557)

**Lab:** Quiz (previous week's material), view insects listed above  
Review for Final Exam, Work on Finalizing Collection

April 26 FRIDAY – Collection and Catalog due

May 1 **FINAL EXAMS (Lecture and Laboratory)**

### **Academic Honesty**

As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

Examples of violations of the Academic Honesty Guidelines:

Cheating, Plagiarism, Bribery, Misrepresentation, Conspiracy, Fabrication

A detail policy on academic honesty can be found in the U.F. Undergraduate catalog.

### **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. Many faculty in our department check all written assignments using an anti-plagiarism software called Turnitin® (<http://www.at.ufl.edu/~turnitin/about.html>).

For further information and examples of plagiarism, I strongly suggest that you please read the George Smathers' Library Guide to Plagiarism at [http://www.uflib.ufl.edu/msl/services/tutorials/plagiarism/student\\_intro.html](http://www.uflib.ufl.edu/msl/services/tutorials/plagiarism/student_intro.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.**

**Copyrighted Materials and 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 damages and/or criminal penalties for the individual violator. Because such violations are against University policies and rules, disciplinary action will be taken, as appropriate.

**Accommodations for Students with Disabilities:** Students requesting classroom accommodation must first register with the Dean of Students' Office. The Dean of Students will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

**UF Counseling Services:** Resources are available on campus for students having personal problems or lacking clear career and academic goals that interfere with their academic performance. These resources include:

1. University Counseling Center, 302 Peabody Hall, (352) 392-1575, personal and career counseling
2. Student Mental Health, Student Health Care Center, (352) 392-1171, personal counseling.
3. Sexual Assault Recovery Services, Student Health Care Center, (352) 392-1161, sexual counseling.
4. Career Resource Center, Reitz Union, (352) 392-1601, career development assistance and counseling.