

Invertebrate Field Biology

ENY 3163/5164, Summer B 2012

3 Credit Hours

Monday/Wednesday 8:00-12:15 P.M.

ENY Room 3118

Instructor: Dr. Akito Kawahara

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Office Hours: By appointment

PH: 273-2018

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Course info: http://www.flmnh.ufl.edu/mcguire/kawahara/?page_id=513

Prerequisites: None, but BSC 2005+2006 or 2007+2008, or 2010+2011 or equivalent recommended.

Course Description: The group commonly referred to as “the invertebrates” are a diverse group of animals defined by the absence of one specific character, not possessing a backbone. This differs from most other groups that are defined by the presence of specific characters. This presents special challenges in comparing and studying them due to the fact that this grouping does not reflect common ancestry and the lines that separate some groups are sometimes not so clear (some members of the phylum Chordata have true vertebral columns and others do not). Researchers are continually contributing to our knowledge of the phylogeny and ecology of “invertebrates.” New species, and even occasionally new phyla have been discovered in recent years. This course is designed to expose students to the diversity and ecology of the most commonly encountered invertebrate taxa. Emphasis will be placed on collecting and identifying invertebrates present in Florida.

Required Text: None, though “*The Invertebrates, A Synthesis*” by R.S.K. Barnes, P. Calow, P.J.W. Olive, D.W. Golding and J.I. Spicer 2001; and “*An Introduction to the Invertebrates*” by J. Moore, 2006, are highly recommended. Students are also encouraged to obtain field and reference manuals.

Reference Materials: Invertebrate Zoology by Rupert and Barnes (Saunders Publishing Company 1994); Invertebrate Zoology by D. T. Anderson (Oxford University Press 2001); Ecology and Classification of North American Freshwater Invertebrates by Tharp and Covich (Academic Press 1991); the Invertebrates: a synthesis by Barnes, Calow, Olive, Golding, and Spicer (Blackwell Science 2001); the Audubon Society Field Guide to North American Seashore Creatures (Chaticleer Press, 1981); the Peterson Field Guide to Southeastern and Caribbean Seashores (Houghton Mifflin Company, 1988); How to Know the Spiders 3rd ed. By Kaston (Wm. C. Brown Company Publishing, 1978); An Introduction to the Aquatic Insects of North America 3rd ed. by Merrit and Cummins (Kendall/Hunt Publishing Company 1996); Introduction to the Study of Insect by C.A.

Triplehorn, and N.F. Johnson (Thomson, Brooks/Cole Publishing 2005); and the Tree of Life Web Project, D. R. Maddison (ed.). <http://tolweb.org/tree/>

Course Outline (Tentative):

July 2 (Mon): Lecture: Overview of Basal Invertebrates: Kingdom **Protozoa**, Kingdom **Animalia** – Phylum **Porifera**, Phylum **Cnidaria**, Phylum **Ctenophora**; Sample Collecting in Natural Area (NATL). Begin Field Notebook.

July 4 (Wed): No class, Independence Day.

July 9 (Mon): McGuire Collection; Field trip: Lake Alice or other. Dr. Andrei Sourakov. Class will begin a 9 am.

July 11 (Wed): Lecture: **Worms**, their evolution and collecting methods; observe live nematodes; Protostomes vs. Deuterostomes; Introduction to the Invertebrate Teaching Collection, sort through samples from NATL area.

July 16 (Mon): Field trip: Santa Fe River.

July 18 (Wed): Lecture: Phylum **Mollusca** and the **Lophophorates**.

July 23 (Mon): Lecture: **Deuterostomes**; Field trip: Lake Wauburg ***

July 25 (Wed): Guest Lecture: **Arthropods and Similar Groups** (invertebrates with legs). Dr. Andrea Lucky; sort through samples from Lake Wauburg.

July 30 (Mon): Lecture: **Arthropods and Similar Groups** (invertebrates with legs); *Graduate Student Presentations*.

August 1 (Wed): Field trip: Seahorse Key / Cedar Key.

August 6 (Mon): Lecture: Miscellaneous Invertebrate Phyla and Habitats; Overview of material for final exam; **Field Notebooks and collections are due**.

August 8 (Wed): **Final Exam w/ Lab Practical**; (given at regular class time, 8:00-12:15 pm)

The course schedule is tentative. Field collecting and lecture days may need to be changed in cases of inclement weather. Always come prepared to collect, especially on scheduled field days. Bring insect repellent, your field notebook, water, and wear older clothes. Also bring scrap paper and a pencil in order to provide samples you collect with habitat information. You will be notified as soon as possible if this course schedule changes.

Lecture: Each lecture will be focused on a specific group of organisms and directed toward teaching aspects of their taxonomy, phylogeny, morphology, as well as their various modes of feeding, locomotion and reproduction. Since this course has a heavy field component, methods of collection and preservation specific to each group will also be emphasized.

Field Trips: The purpose of student participation on field trips is to expose them to live organisms in a natural setting and the special methods used to capture them for scientific study. Please refer to the handout on the potential hazards of investigating/exploring wild areas in North/Central Florida. Being aware of the potential hazards, especially in reference to venomous organisms most often guards against them being a problem.

Final Exam and Practical: The final exam will be comprehensive and will be composed of short answer questions, fill in the blank, multiple choice and short essay. A brief lab practical will accompany the written exam. This practical will focus on the “spot ID” of approximately ten organisms from the Invertebrate Teaching Collection.

Individual Collections: Individual collections are to be composed of the following representative specimens:

- 10 insect families
- 10 non-insect invertebrates
- 5 non-insect invertebrates belonging to a specific Class or associated with a specific micro-habitat

Specimens turned in for the individual collections must be properly curated, identified and must have been collected by the student turning in the collection, or another student in this class. Specimens collected and turned in for the collection requirement of another course are not eligible to be turned in for this course. Evidence of submitting a previously turned in specimen will result in a zero for the collection grade. Organisms reared in colonies, on campus or off, are not eligible for inclusion in the Individual Collections.

Invertebrate Teaching Collection (ITC): The Teaching Collection a modest invertebrate collection that covers most of the taxa covered in the lecture part of the class. These specimens are labeled with the correct ID to Phylum and Class and will be available for students to study during class time. Each student will be given a list of the complete contents of the ITC as a study guide to their taxonomy. These taxa will be sub-sampled for inclusion on the lab practical portion of the final.

Graduate Student Project/Presentation: each graduate student is required to present a 10-15 minute PowerPoint presentation on the natural history, ecology and taxonomy of their invertebrate of choice. You should cite the resources you used to acquire the information presented. Discuss your idea for your presentation with the instructor as soon as possible so that you are sure to choose a group of a size that can be covered in a 10-15 min. presentation. Handouts for the class on your presentation would be appreciated.

These will be presented in class on July 30.

Field Notebook: You are expected to compile and turn in a notebook detailing the collecting trips you attend during lab as well as any experiences you have on your own while collecting invertebrates for the requirements of this course. You should include the date, location, habitat, and collection method used. The information you gather while sorting specimens should also be included. An example will be given to assist you with your first entry. In addition, your Field Notebook should include your “after the fact” reflections on each specific activity (each trip), your observations, what you found interesting and what you learned. *You will be given specific instructions at a later date as how you should organize your Field Notebook into the required sections.* Please feel free to add photographs, sketches, diagrams, GPS readings, etc. Missing a field trip will result in minus 10 points from your Field Notebook grade.

Grades:

Graduate Students:

Collection	30%
Field notebook	20%
Project/Presentation	10%
Attendance/Participation	10%
Final w/ practical	30%

Undergraduate Students:

Collection	35%
Field notebook	25%
Attendance/Participation	10%
Final w/ practical	30%

Grading Scale (%)

A	90-100
B ⁺	88-89
B	80-87
C ⁺	78-79
C	70-77
D	60-69
E	<60

Policy Items:

Extra Credit: You may earn extra credit by including additional specimens in your collection identified to Order, for any Order not included in your collection.

Make-up Exams: Contact the instructor as soon as you know that you will not be present for an exam. Only legitimate excuses will be accepted (Doctor's note, professional meeting, etc.). Oversleeping is not an acceptable excuse.

Field Trip Policy: You are expected to behave responsibly on field trips. Your behavior may affect the ability of future classes to use collecting sites. You will not harass snakes, alligators, or other wildlife during field trips. You will behave respectfully towards park biologists and other personnel associated with a particular field trip.

Open Lab Policy: Contact the instructor if you need additional time to sort and identify specimens outside of the class time.

Make-up Policy: No excuses will be accepted for missing class. Attendance is mandatory. This course involves a large amount of field collecting time. Field collection trips cannot be rescheduled for individuals. Missing a field trip affects your attendance grade as well as your field notebook grade. The optional night lab extra credit is designed to assist students who may have a legitimate excuse for missing a particular field trip or class. (With only 12 official class periods assigned to this course it is very important not to miss class (lecture or field trip). We need every class period to cover the needed amount of information.)

Statements Required by the University of Florida

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”.

We, the members of the University of Florida, pledge to hold ourselves and peers to the highest standards of honesty and integrity.

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, 392-1575 personal and career counseling
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling
3. Sexual Assault Recovery Services, Student Health Center, 392-1161, sexual counseling
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling

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.

Information for Students with Disabilities:

Students with disabilities are encouraged to register with the Office for Student Services to determine the appropriate classroom accommodations. Any student requesting classroom 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 classroom and/or examination accommodations. 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”.