

# Bugs and People

## ENY 1001



**Instructor: Dr. Rebecca Baldwin**

UF Entomology and Nematology Department  
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**Teaching Assistant:**

**Turlington Hall L007**

**Office Hours:** ENY 2208 Wednesday --  
2:00 -4:00

Other times by appointment.  
Please come by for a visit!

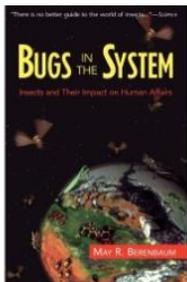
**Course Description and General Education Statement**

Bugs and People will credit you with three hours of Biology (B) General Education credits. General Education courses in the biological sciences introduce students to the basic concepts of science and the scientific method and enhance awareness of scientific developments and their impact on society and the environment. This area provides students with an understanding of scientific terms, concepts and theories, and the ability to formulate empirically testable hypotheses derived from the study of living things.

In this course, you will be educated to the myriad of creatures in the “bug” world and how they interact with you by eating your food, your animals, your homes, and sometimes even you. By the end of the semester, you will be able to communicate the different taxonomic classes of arthropods and how they impact both humans and the environment. During the course of the semester, you will learn to appreciate the role many bugs play in human history, culture, and disease on a global scale. This course does not have a lab component, but you will have the opportunity to explore the “bug” world and submit insects, insect damage, predation videos, and original songs using your class notes as extra credit projects. You will also be challenged to use both the critical and creative parts of your brain as you work in groups to prepare models and presentations for the “Bugge Faire” at the conclusion of the semester. You will also learn observation skills as you rear out insects then learn to recognize and formulate hypotheses about those insects by reading and reviewing a related scientific research paper.

**Student Learning Outcomes and Course Objectives**

1. To categorize a “bug” using taxonomic terms approved by the International Code of Zoological Nomenclature.
2. To understand the components in the process of science and be able to recognize and formulate a hypothesis.
3. To understand the impacts both pest and beneficial “bugs” play in human history and culture including examples from current news events, government policies, art, music, folklore, film and literature.
4. To appreciate how “bugs” impact society by competing with people for food, shelter, clothing, and health.
5. To comprehend the beneficial nature and how, due to their biology, “bugs” are important research models.
6. To recognize biological processes, especially the unique growth and reproduction strategies of arthropods.
7. To appreciate how humans use bugs for nutrition in various global cultures, and how insect protein is found in the US food supply.
8. To explain “bug” diversity in various ecosystems and be able to identify trophic interactions in those systems.
9. To communicate research effectively using observational, oral, and written skills.



### Required Text :

Berenbaum, May R. 1995. Bugs in the System: insects and their impact on human affairs. Helix Books. ISBN Number 0-201-40824-4 (paperback – cost ~\$16.00, ~\$10 on Kindle)

You will have required textbook readings each week, so please be sure you have access to the text. Ungraded study guides will be provided in Sakai to guide you through the chapter readings.

## Graded Projects and Exams

### Research Review Assignment:

Each student will receive a container of insect larvae to observe and rear throughout the semester. You will be required to read a research article relating to the organism and answer questions about the process of science from the article. Articles will be posted to the homepage in Sakai and will be listed as a reading assignment during the semester. In your discussion of the article, you must list an alternative experiment and list a workable hypothesis for your proposed experiment. You should make observations of the insects you are rearing that you can incorporate into the discussion of your review. You will see how researchers made detailed observations in the article you read, so follow their example and make notes about the behavior of your organisms. Grammar, syntax, flow and readability will be considered in each section. The answers to the questions should be uploaded to Sakai under the assignments tab and should be uploaded as a .doc or .docx file. Please see the class schedule for due dates. **You may not collaborate on this project.** Please visit <http://web.uflib.ufl.edu/msl/subjects/Physics/StudentPlagiarism.html> for how to avoid plagiarism. Papers will be submitted to Turn it In for evaluation, so be sure your work is original. Non-original work will receive a zero and will be reported to the Dean of Students.

### Exams:

- There will be **three exams** scheduled during class time.
- Each exam will consist of 50 multiple-choice questions (100 points). Scantrons will be provided by the instructor. Please bring a pencil and your ID to the exam.
- All exams are closed book and must be taken during the scheduled exam time.
- All personal items (backpacks, phones, etc.) must be deposited in the front or back of the classroom before you take your seat. You are to bring to your seat **ONLY** a pencil and your ID. Please be sure to silence your cell phone before leaving it in your backpack.
- When your exam is completed, take exam and answer sheet to front of the room, place them in the appropriate stack and exit quietly.
- **You will NOT be admitted to any exam if you arrive late.** This is a large class, so out of courtesy to your classmates and the class after ours, if you are not in your seat and prepared to take the exam when the class period begins, you will receive a grade of 0 on that exam. Exam Make-Up Policy: To make up a missed examination, you will be required to provide appropriate written documentation. You must contact Dr. Baldwin **prior to** the scheduled exam to receive permission to take the make-up examination. If you miss an exam without such proof or are late to the exam, your score for that exam will be computed as 0.

**Bugge Faire:** During the semester, you will learn about many organisms. You will work as a group to research a “bug” of your choice. Your group will design a model of that organism and create a poster of biological facts to present in Turlington Plaza during the Bugge Faire on the last day of the semester. The model, made of edible items, must closely resemble the organism, and your poster must contain a photo of the organism

you are modeling. Presentations will be made to a group of student and faculty judges. Each presentation should be ~5 minutes in length and should include the taxonomy of the “bug”, where it is found geographically and ecologically, unique characteristics, and other biological facts (pest or beneficial, predator or prey, etc.). You should view this as a commercial for your “bug.” You only have five minutes, so wow the judges with your knowledge. At the conclusion of the Bugge Faire, you will have the opportunity to dine on your model “bugs” with others in the class. This is a chance for you to show your creativity, your communication skills, your teamwork, as well as your scientific knowledge about “bugs” to the class. If you dress up like a “bug,” (either individually or as a team) you will be eligible for a competition for ten additional points for your project. Each group should bring plates and forks for themselves. All “Bugge Faire” materials must be removed by the conclusion of class. Groups leaving project materials behind will have 10 points deducted from their grade.

**Extra Credit Assignments:** There are various optional activities to enhance your experience with “bugs” offered each semester. These experiences will give you a chance to have some hands-on and up-close interactions with bugs and the damage they cause. Examples of some of the extra credit opportunities include collecting a strange or unusual bug, presenting damage caused by a bug, creating a predation video involving an arthropod, interpreting a pesticide label, or performing a song from information in the class notes. Several of the extra credit opportunities may be given additional credit if you are able to incorporate a SAA UF Tradition with the activity. Please see the F Book you received at Preview, or visit the UF Student Alumni Association website for more details, <http://www.ufalumni.ufl.edu/saa/uftk/>. This will count towards becoming a UF Tradition Keeper if you are interested. Extra credit opportunities are generally 5-10 points. Please visit Sakai for details on the extra credit opportunities for the semester and see the course outline for dates due. You may only present your extra credit on the date and time and location posted on this syllabus.

**Class Information:**

- Abbreviated notes from the lecture material will be posted to Sakai.
- You are expected to attend all class meetings. If you choose to miss class, it is your responsibility to discover missed information from classmates. If you miss a video, slide presentation or demonstration, you cannot borrow those resources to catch up, however, you may come during office hours to view a copy of the presentations.
- You will be responsible for assigned readings from Bugs in the System and any slide, video or materials presented during lecture. Your exams will be composed from all these sources; thus, you will need to read and comprehend text information as well as take notes during slides, videos and presentations.

**Grading:** There are a total of 400 possible points (excluding extra credit). Grades will be posted online using Sakai at <https://lss.at.ufl.edu>. Log in with Gatorlink. Please visit <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> for the UF policy on grading.

If you have a disability, please register it with the DRC <http://www.dso.ufl.edu/drc/> and schedule a meeting with me to discuss and sign paperwork within the first two weeks of class to ensure the appropriate accommodations.

Your grade in *Bugs and People* will be computed as follows:

Graded Assignment	Points
Exam 1	100
Exam 2	100
Exam 3	100
Research Review	50
Class Project* - Bugge Faire	50

*\* If you do not sign up for, do not participate, or miss the Bugge Faire, you will receive a 0 on the project. If you wear a costume to the Bugge Faire, you can compete in the costume contest. Winners receive 10 points.*

FINAL GRADING Scale: Percentage		Points
100-93	A	372-400
90-92	A-	360-371
87-89	B+	348-359
83-86	B	332-347
80-82	B-	320-331
77-79	C+	308-319
73-76	C	292-307
70-72	C-	280-291
67-69	D+	268-279
63-66	D	252-267
60-62	D-	240-251
0-59	E	<236

REMINDER: Check your e-mail and the course website on a regular basis for changes to the schedule and important announcements. In particular, check prior to examinations for changes to the material to be covered, and after examinations to check your recorded grades!

**E-mail Protocol:**

- Please check the syllabus for an answer to your question before sending an e-mail. This is much appreciated.
- **E-Mail Format:** (Gatorlink e-mail must be used.)  
This is a large class, so please follow this format for e-mails to Dr. Baldwin. If this format isn't followed, your message may not receive a reply.
- **Subject line:** Must be in the format "1001 - Last name, First name: Subject." Example: 1001 - Mantid, Ima: Grade not posted
- **Body of the Message:** Must contain the message in standard plain-text. Please minimize attachments, and avoid messages in all caps. Always include your name and your UF-ID. This helps to keep the messages organized so they can be answered in a timely manner.

# ENY 1001 Class Schedule



**Note: You are expected to attend class each week and complete the assigned textbook readings. Extra credit opportunities are listed below. \*You can make some of the 5 point bonus assignments 10 point assignments by incorporating a UF Tradition into the activity (marked with \*). See your F Book for details on UF Traditions. All bonus activities are listed, so be sure you participate.**

Week	Day	Lecture Topic and Activities	Textbook Reading
1	Monday	Course Introduction: How do “bugs” fit into human culture? (Syllabus Overview)	
	Wednesday	Bugs in human culture (continued)	
	Friday	<p><b>Topic 1: Arthropod Classification and Nomenclature</b></p> <p>What is a “Bug”?</p> <ul style="list-style-type: none"> <li>Learn fundamental classification (Taxonomy)</li> <li>Complete an introduction to “bugs” – Insects, Arachnids (mites, ticks, spiders, scorpions), centipedes, millipedes, nematodes, bacteria (rickettsia), and viruses</li> <li>Define the habitats and ecosystems of arthropods</li> <li>List general facts and life history</li> </ul> <p>Determine where these “bugs” can be found</p> <p><b>Live Arthropods – Can you handle it?</b> Cockroaches, Tarantulas, Millipedes, Scorpions</p>	Chapter 1
2	Monday	Class Dismissed to form project groups – Class Chat Room on Sakai (anytime Monday)	Read: Research Paper (on Sakai)
	Wednesday	<p>What is a “Bug”? (continued)</p> <p>The Cameraman’s Revenge - Early film using insects</p> <ul style="list-style-type: none"> <li><u>Class Project Planning and Team Formation</u></li> </ul> <p><b>Print Team Form from Sakai and bring to class. Do NOT miss this class!</b></p> <p><i>Insects in the News – Begin class with discussion of current insect events and discussion of the video.</i></p>	Bring Sakai team form to class.
	Friday	<b>Extra Credit</b> - Bring in a clearly identified, strange looking bug that you collected personally. It must be alive, and you must describe the collection technique. (*UF Tradition Accepted) During class 5 pts. Or 10 pts.	
3	Monday	HOLIDAY	
	Wednesday	Class dismissed – Read Appendix about Insect Orders and answer questions	Appendix
	Friday	<p>Overview of Taxonomy and Common Insect Orders</p> <p>Insect Orders</p> <ul style="list-style-type: none"> <li>Define common insect orders and their characteristics</li> <li>Explain mouth, leg, and wing adaptations</li> </ul>	
4	Monday	Insect Orders (continued)	
	Wednesday	<p><b>Topic 2: Insect Physiology and the Process of Science</b></p> <p>Review Research Review instructions</p> <ul style="list-style-type: none"> <li>Explore insects as scientific models</li> <li>Review the process of science</li> </ul> <p>Define hypothesis and experimental design</p>	Chapter 2
	Friday	<p>Bizarre Bugs – Insect Adaptations</p> <ul style="list-style-type: none"> <li>View examples of extreme adaptations found in insects</li> <li>Observe unique morphologies found among the insects.</li> <li>Discuss biological concepts relating to insects including: Adelphoparasitism, and Haplodiploidy</li> </ul>	
5	Monday	<p>Insect Growth and Reproduction (Highlight: Bed Bugs and You)</p> <ul style="list-style-type: none"> <li>Discuss the molting process, types of metamorphosis and life stages</li> <li>Determine how large insects and other arthropods can get</li> </ul>	Chapter 3
	Wednesday	Discuss biological processes including growth and development, movement, reproduction, mortality and consumption.	
	Friday	<p><b>Topic 3: Insect Behavior</b></p> <p><i>Review for Exam 1 (complete lectures)</i></p>	

<b>6</b>	Monday	<b>EXAM 1</b>	
	Wednesday	<b>Topic 4: Insect Sociality</b> Living Socially – Work in your: “Bugge Faire” group to complete a worksheet in class. <b>Be sure to bring your book.</b> <ul style="list-style-type: none"> <li>Define social structure in insects (solitary, aggregation, sub-social, social)</li> </ul>	Chapter 4
	Friday	Worksheet discussion Discuss three characteristics of eusociality Insect Communication Explore pheromones, trophallaxis, and trailing behavior.	
<b>7</b>	Monday	Insects and Economics Determine how insects impact economics - Insect Products Used by People Pollination, Honey, Silk, Beekeeping, Aesthetic Bugs, and Pleasurable Bugs	
	Wednesday	<b>Topic 5: Insect Habitats</b> Bugs that eat your food	Chapter 5
	Friday	Bugs that eat your food (continued) Identify insect pests of stored food. (beetles, moths, cockroaches, ants)	
<b>8</b>	Monday	<i>Insects in the News – Begin class with discussion of current insect events.</i> Bugs that eat your home and possessions <ul style="list-style-type: none"> <li>Identify insect pests of structures, furniture and clothing. (termites, moths, flies, bed bugs, lice)</li> </ul>	
	Wednesday	<b>Topic 6: Entomophagy and Public Health</b> Insects as Food and Medicine <ul style="list-style-type: none"> <li>Calculate the efficiency of conversion of ingested food (ECI) of insects</li> <li>Assess the potential of micro-livestock as a protein source for a growing population</li> <li>Discuss historical uses of insects as pharmaceuticals and medical devices.</li> </ul>	Chapter 6
	Friday	Entomophagy Demonstration <b>Extra Credit</b> - Submit bug damage and card including description of the damage. What is the damage and what caused the damage? (During class 5 pts) (*UF Tradition)	
<b>9</b>	Monday-Friday	<b>BREAK</b>	
<b>10</b>	Monday	<i>Insects in the News – Begin class with discussion of current insect events.</i> Worldwide Neglected Diseases (video in class – CDC/WHO) Bugs that Eat Blood and Spread Disease <ul style="list-style-type: none"> <li>View historical monuments dedicated to insects</li> <li>Detail the importance of insects in war</li> </ul>	
	Wednesday	Discuss how insects have impacted US history (Panama canal, Philadelphia, Modern sanitation, and the Louisiana Purchase) <ul style="list-style-type: none"> <li>Identify Lice, Mosquitoes, Ticks, Fleas, Mites, Kissing Bugs</li> <li>Discuss Malaria, Trypanosomiasis, RMSF, Encephalitis, WNV, Onchocerciasis</li> <li>Explain malaria <ul style="list-style-type: none"> <li>Explore the role of the willow tree family in malaria prevention</li> <li>Describe the malaria cycle</li> <li>Discuss the occurrence of malaria worldwide</li> <li>Explain what DDT has to do with malaria</li> </ul> </li> </ul>	
	Friday	<b>Topic 7: Parasites and Hosts</b> <ul style="list-style-type: none"> <li>The Winged Scourge – (movie in class)</li> <li>Discuss Onchocerciasis and Sleeping Sickness <ul style="list-style-type: none"> <li>Look at the disease progression</li> <li>Determine the vulnerable population and how they become infected</li> </ul> </li> </ul> List the symptoms and the insect that transmits the disease	Chapter 7
<b>11</b>	Monday	Bugs that Eat Blood and Spread Disease (continued) <ul style="list-style-type: none"> <li>Discuss AIDS and West Nile Virus <ul style="list-style-type: none"> <li>Discover if mosquitoes can transmit them both</li> <li>Explain the symptoms and precautions</li> <li>Clarify the treatments and which insects may transmit WNV</li> </ul> </li> </ul>	
	Wednesday	Bugs that Eat Blood and Spread Disease (continued)	

	Friday	<p><b>Topic 8: Ecological Roles of Insects</b> Biblical Bugs and Bugs in Mythology, Bugs in Songs and Literature</p> <p><b>Reference:</b> <a href="http://bible.christiansunite.com/Torreys_Topical_Textbook/ttt307.shtml">http://bible.christiansunite.com/Torreys_Topical_Textbook/ttt307.shtml</a></p> <ul style="list-style-type: none"> <li>• Discuss creation of insects by God (Genesis 1:24,25)</li> <li>• Argue kosher or not – divided into clean and fit for food (Leviticus 11:21-22) and unclean and abominable (Leviticus 11:23-24)</li> <li>• List and discuss insects mentioned in scripture <ul style="list-style-type: none"> <li>○ Read and discuss how insects have influenced literature and music</li> </ul> </li> </ul>	Chapter 8
<b>12</b>	Monday	<b>EXAM 2</b>	
	Wednesday	<p><b>Topic 9: Insects and People</b> Bug Phobias and Delusions</p> <ul style="list-style-type: none"> <li>• Argue why “bugs” have a “fear factor”</li> <li>• Discuss symptoms of entomophobia and true insect infestations: hives, rashes, pain, and “the willies”</li> <li>• Compare symptoms to those of chemical sensitivities</li> <li>• Contrast illusion and delusion</li> </ul> <p>Provide examples of dangerous arthropods: wheel bug, black widow, brown recluse, ticks, mosquitoes</p>	Chapter 9
	Friday	<p><i>Insects in the News – Begin class with discussion of current insect events.</i> Fighting Back against Bugs – Pesticides and Health</p> <ul style="list-style-type: none"> <li>• Discuss pesticides, IPM, Biological Controls, and agriculture</li> <li>• Examine pesticide resistance and types of pesticides.</li> </ul> <p>Visualize how we shop for food.</p>	
<b>13</b>	Monday	Pesticides and Health (continued)	
	Wednesday	<p><b>Topic 10: Appreciating Insects</b> Insects in Song</p>	Chapter 10
	Friday	<p><b>Extra Credit</b> - Group Songs, Story or Poem (from notes) - (During class 10 pts.)</p> <p><i>Feel free to make up a song using notes from the class. You may not perform the traditional versions of “Itsy Bitsy Spider”, “Bringing Home a Baby Bumble Bee”, “Ants go Marching.” Or “La Cucaracha.” You must be in a group and must have an instrument or accompaniment.</i></p>	
<b>14</b>	Monday	Pesticides Lecture Continued	
	Wednesday	<p><b>Topic 11: The Insect Perspective</b> Forensic Science and Entomology</p> <ul style="list-style-type: none"> <li>• Define forensic entomology and the types.</li> <li>• Discuss the history of the science</li> </ul> <p>List references and collection techniques for forensic investigators</p>	<p><b>Research Review due by 11:55 PM!</b></p> <p>Chapter 11</p>
	Friday	Forensic Science and Entomology (continued)	
<b>15</b>	Monday	<p>Insects and the Law</p> <ul style="list-style-type: none"> <li>• Discuss anti-poaching laws in the US and agricultural laws designed to protect our food supply.</li> </ul>	
	Wednesday	<p><i>Continue any unfinished lectures</i> <i>Review for exam</i> <b>Complete class evaluations online.</b> If 75% of the class completes the evaluation before exam 3, two extra credit awards will be given at the Bugge Faire. <a href="http://evaluations.ufl.edu">evaluations.ufl.edu</a>.</p>	
	Friday	<b>Review</b>	
<b>16</b>	Monday	<b>Exam 3</b>	
	Wednesday	<p>BUGGE FAIRE – Turlington Plaza - Set-up 15 minutes before class</p> <p>Poster/model/ presentation = 50 pts, Best costume +10</p> <p>Most like the “Bug” model dish +10 for the group</p>	

### Classroom Courtesy:

- Talking: Please be considerate of your classmates by not chatting during lecture. Please silence cell phones before entering the classroom.
- Coming to class late: Please enter quietly and take a seat in the back. A banging door is very distracting to the class. Please do not leave class early.
- UF prohibits food in the classroom and prohibits tobacco products on campus.

**UF POLICIES** - If you are having difficulties in class, please make an appointment to see me, or if appropriate, call one of the counseling services below. Please do not wait until the end of the semester!

**Grades and Grade Points** - For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**Absences and Make-Up Work** - Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

**Academic Honesty** - As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following 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."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will **complete all work independently** in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:

<http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>. Copying, screen printing, or photographing of exam materials is a violation of the UF Honor Code. Plagiarism in this class will not be tolerated. For more information about plagiarism, please see <http://web.uflib.ufl.edu/msl/subjects/Physics/StudentPlagiarism.html>. You may also wish to read [www.nursing.ufl.edu/Plagiarism%20Handout%208\\_17.doc](http://www.nursing.ufl.edu/Plagiarism%20Handout%208_17.doc). All work submitted must be in your own words and proper citations must be given for sources of ideas.

**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 also against university policies and rules, disciplinary action will be taken as appropriate.

**Campus Helping Resources** - 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/](http://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/](http://www.crc.ufl.edu/)**

**Services for Students with Disabilities** - The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)