College of Food, Agricultural, and Environmental Sciences
Department of Entomology

THE OHIO STATE UNIVERSITY

Syllabus

ENTMLGY 1101

Insect Biology
Spring 2023

Course Information

- **Course times and location:**
  - Lecture: T, TH 9:35-10:55AM Jennings Hall 40
  - Lab: T 12:40-2:30 PM; or T 3:00-4:50 PM Howlett Greenhouses G117
- **Credit hours:** 4
- **Mode of delivery:** In-person

Instructor

- **Name:** Dr. Ellen Klinger (she/her)
- **Email:** klinger.80@osu.edu
- **Phone Number:** 614-247-4763 (office)
- **Office location:** 255 Kottman Hall

- **Office hours:** By appointment (email instructor to set up)
- **Preferred means of communication:**
  - My preferred method of communication for questions is **email.**
  - My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your notification preferences (go.osu.edu/canvas-notifications) to be sure you receive these messages. For announcements that are time sensitive or critical, I may also use e-mail as an additional notification route.

Teaching Assistant

- **Name:** Liam Whiteman (he/his)
- **Email:** whiteman.70@buckeyemail.osu.edu

- **Office Hours:** By appointment

Course Prerequisites

None

Course Description

This course introduces students to the Class Insecta (true insects), the most diverse and successful group of animals on earth. Insects represent more than 75% of the world's named species and live in nearly every habitat. The total number of living insect species is conservatively estimated at 2 million, with estimates up to 30 million. We will study unique innovations that insects have evolved during their more than 400 million year history, and compare physiological adaptations found in insects with those present in humans. Topics include:

- Insects in food webs and ecosystems, including their roles as predators, parasites, parasitoids, decomposers and pollinators.
- Insects as models for research in genetics, neural and sensory physiology, population growth and development, evolutionary processes, hormonal action.
- Insects/insect products in medicine, human nutrition, forensics and production of silk, dye and shellac.
- Aquatic insects as bio-indicators of environmental pollution and water quality.
- Importance of insects in biodiversity, conservation biology and museum study.
- Insects as vectors of human and animal diseases and as pests of crops, clothing and houses.
- Historical impacts of insects on human affairs.

General Education Goals and Expected Learning Outcomes (ELO)

This course fulfills the General Education (GE) rationale for the GE Foundations: Natural Sciences category. This course also fulfills the Legacy GE requirements for Natural Sciences/Biological Sciences.

Goals and ELO for the GE Foundations: Natural Sciences category (For students enrolled Aug. 2022 and after):

ENTMLGY 1101 fulfills ALL Goals (i.e., Goals 1 and 2) and ALL Expected Learning Outcomes (i.e., ELOs 1.1, 1.2, 1.3, 2.1, 2.2, 2.3) for the Foundations, Natural Science GE category.

GE Goal 1: Successful students will engage in theoretical and empirical study within the natural sciences, gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry.

Expected Learning Outcome 1.2: Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.

Expected Learning Outcome 1.3: Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.

GE goal 2: Successful students will discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

Expected Learning Outcome 2.1: Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments

Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries

Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences

This course fulfills goals 1 and 2, and learning outcomes associated with the goals of the foundations of the Natural Science GE through a variety of activities such as:

- Lectures, readings and active learning activities to allow students to receive new information in a variety of modalities.
- Insect literacy projects to allow students to assess the accuracy and interdependence of scientific fact and popular media.
- Insect apocalypse project to allow student to evaluate the effects of modern technology and advancements on the populations of insects worldwide and to gain the skill of searching, evaluating and using primary scientific literature.
- Questions on exams and quizzes designed to assess student progress on learning objectives.
- Laboratory work to allow student to express data gathered from in person exploratory labs.
- Any optional bonus material will supplement student understanding, but is not designed to fulfill learning objectives.

Goals and ELOs for Legacy GE requirements for Natural Sciences/Biological Sciences (For students enrolled before August 2022). As part of the life sciences category of the General

Education curriculum, this course is designed to prepare students to be able to do the following:

1. Understand the basic facts, principles, theories and methods of modern science.
2. Understand key events in the development of science and recognize that science is an evolving body of knowledge.
3. Describe the inter-dependence of scientific and technological developments.
4. Recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

This course fulfills the above expected learning outcomes through the following course specific learning outcomes.

Course Specific Learning Outcomes

Specific outcomes for this class (with reference to expected learning outcomes above):

- Explain how insect success is related to key adaptations (physical size, exoskeleton, metamorphosis, mouthpart modifications, flight, physiological systems (ELO 1.1; Legacy ELO1,2).
- Compare insect vs. human physiological systems (ELO 1.1,1.2; Legacy ELO 1,2).
- Discuss the use and advantages of insects as research models, while recognizing that evolutionary theory underlies insights derived from such studies (ELO 1.2,2.1,2.2; Legacy ELO 2,3,4).
- Cite examples of insects/insect products used in medicine, nutrition (including pollination services), forensics, silk, fabric dyeing, and as indicators of biodiversity environmental pollution (ELO 2.1,2.2; Legacy ELO 3,4)
- Discuss roles played by insects in food webs and as biological control agents (ELO 1.1, 2.1,2.2; Legacy ELO 1,3,4)
- Discuss impacts of insects as pests of agriculture and as vectors of disease (ELO 1.2,2.1,2.2)
- Assess and synthesize materials from primary scientific literature on the topic of worldwide insect decline (ELO 1.1, 1.3, 2.3; Legacy ELO 1,3,4)
- Interpret insects in the natural world based on their appearance and behavior (ELO 1.1, 1.3; Legacy ELO1)

How This Course Works

Mode of delivery: This course is in-person. Both lecture and lab are in-person.

Organization of material: Supporting online material for this course will be organized into weekly modules. Students should check these modules for relevant documents, PowerPoint

files and some assignments. However, the online content will only be a supplement and a repository for the material we learn and discuss in class. Lectures will not be recoded and posted online as a standard practice.

Credit hours and work expectations: This is a [4] credit-hour course. According to Ohio State bylaws on instruction (go.osu.edu/credithours), students should expect, in addition to the direct instruction provided in the lab sessions, around [3] hours per week of time spent on direct instruction (instructor content, lab content, and other virtual activities) in addition to [6] hours of homework (reading and assignment preparation, studying for tests, discussions with classmates for example) to receive a grade of [C] average.

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's participation:

In person lectures: weekly

Students are expected to attend most lectures. Each lecture attendance will earn students 2 points towards their attendance grades, with a maximum of 46 points total, which allows for students to miss 3 lectures without penalty. If a student has an excused absence the attendance grade will be modified to reflect the excused class (see attendance policy for descriptions of excused absences).

Office hours: **optional**

My office hours are optional, but students are enthusiastically encouraged to set up in person or Zoom meetings if they require further explanation on a topic.

Participating in labs: **one time per week**

Participation in laboratory activities is essential for the understanding of material. Unless there is an excused absence, no chance for lab make up work is allowed.

Course Materials, Fees and Technologies

Required Materials and/or Technologies

Cranshaw, W. and R. Redak. 2013. Bugs Rule! Princeton University Press, Princeton, New Jersey, USA. 480 pp. ISBN-13: 978-0691124957 (print or electronic versions available).

All other reading assignments will be posted to the Carmen course website

Required Equipment

Computer: current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.

Webcam: built-in or external webcam, fully installed and tested

Microphone: built-in laptop or tablet mic or external microphone

Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for technology and internet access (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the installing Office 365 (go.osu.edu/office365help) help article for full instructions.

Top Hat: Students will need to register for an Ohio State University Top Hat account. This access is free and participation via Top Hat can be used for some attendance purposes. https://tophat.com/

CarmenCanvas Access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

1. Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device (go.osu.edu/add-device) help article for step-by-step instructions.

2. Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.

3. Install the Duo Mobile application (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- Navigating CarmenCanvas (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)
- Recording a slide presentation with audio narration and recording, editing and uploading video (go.osu.edu/video-assignment-guide)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat**: go.osu.edu/it
- **Phone:** 614-688-4357 (HELP)
- **Email:** servicedesk@osu.edu

Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Attendance and Contributions	46
Weekly Quizzes (12, drop lowest two, 10 points each)	100
Insect Apocalypse	150
Insect Literacy Projects (2)	60
Lab Work (20 points per lab)	260
Midterm	150
Final Exam	160
Total points	926

Descriptions of Major Course Assignments

Attendance and Contribution

Description:
Participation in synchronous lectures (46 points) Engaging with the material and other students in real-time is helpful for student understanding. There are 26 lectures scheduled throughout the semester. Students will earn 2 points per lecture attended for a maximum of 46 points. This allows for a student to miss up to 3 lectures without penalty. Attendance will be monitored through the use of the TopHat application. If a student needs to miss more than 3 lectures due to excused absences (see policy below) the instructor will provide alternate assignments to allow for these points to be earned at the request of the student.

Excused absences: Medical and school related activities are considered excused absences with documentation. Students may receive up to 2 excused lecture absences without documentation as long as they contact the instructor via email by 11:59PM on the day of absence. These absences can include not feeling well, as well as needs for isolation to protect fellow classmates. This, in combination with the 3 allowed unexcused absences allow for up to

5 lectures to be missed without documentation and without loss of points. There will only be one allowed non-documented excused absence from lab periods- unexcused lab absences can result in an inability to receive any lab points from the missed lab.

Academic integrity and collaboration: Students can collaborate with other students and may use books or other resources when posing questions or engaging in discussion.

Quizzes

Description: Students will take a short multiple choice and short answer quiz that will be available at the end of class most Thursdays (see schedule). These quizzes aid in student learning and retention of the material. The two lowest quiz scores will be dropped from the student's grade.

Academic integrity and collaboration: These quizzes are assigned through Carmen quiz- students may use their notes and books to take the quizzes, however, the quizzes will be timed so students will need to review their notes beforehand.

Insect Apocalypse:

Description: The insect apocalypse project is designed to introduce how scientists gather information in a thoughtful and structured manner. In this project, you will be investigating a topic of high publicity, the worldwide reduction of insect numbers termed the "insect apocalypse," or "insect armageddon." This project will be composed of three main parts: 1. Research and summarization of 6 references related to this topic, 2. A short paper detailing the facts behind the insect apocalypse and 3. An infographic teaching the class about a specific species of insect affected by population reductions. Detailed instructions will be given via Carmen.

Academic integrity and collaboration: Students can seek help from the instructor as well as other students in the completion of these tasks. Students should submit their own work, however. When summarizing references and composing the paper, students should not plagiarize their sources.

Insect Literacy Projects

Description: Insects are not only in the physical world we inhabit, but also the digital world. In these two brief projects you will be required to: 1.comment on the accuracy and the effect of an insect based movie clip and 2. Locate a unique movie, tv, book or other media based insect clip and assess the accuracy and impacts of this clip. You will be given an assignment via Carmen to complete regarding these two projects. Each assignment will be worth 30 points.

Academic integrity and collaboration: Students should not discuss the accuracy or impacts of these clips with each other. They may, however, seek assistance from the professor and may use any books or notes that they would like.

Lab Work

Description: Attendance and participation in lab is important for student understanding. Students can receive up to 20 points for each lab. These points will be distributed between attendance (5 points) and completion and accuracy of lab worksheets (15 points). Lab worksheets will be due the same day as lab (Tuesday) by 11:59PM.

Academic integrity and collaboration: Students are expected to collaborate and receive help with lab worksheets. Students may also use books and notes when completing these worksheets.

Exams

Description: Two exams are used in this class to allow students to show progress towards class learning objectives. These exams will be given in person. Each exam will be composed of two parts: one multiple choice/short answer/ matching section and a section that will entail the student to answer short essay questions about the subject material.

Academic integrity and collaboration: These exams are assigned in two parts, one through Carmen quiz and one through Carmen assignment- students may use their notes and books to take the exams, however, the quiz portion will be timed so students will need to review their notes beforehand.

Extra Credit

Students should not expect extra credit, however the instructor may provide select extra credit opportunities during the semester. These opportunities will be announced in class and via the class Carmen page.

Late Assignments

Please refer to Carmen and the syllabus for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments. Late assignments will always be accepted, but they may incur a point reduction up to 10% per 24 hours that the assignment is overdue. Makeup quizzes and exams will not be offered for unexcused absences, and the instructor will not accept quizzes or exams once they have posted the answers and results.

Instructor Feedback and Response Time

[Example: I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call 614-688-4357 (HELP) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address. I will reply to emails within **24 hours on days when class is in session at the university**. I will also check CarmenCanvas for messages, but the response to these messages may take slightly longer.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check your notification preferences (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.

Grading Scale

93–100: A
90–92.9: A-
87–89.9: B+
83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70–72.9: C-
67–69.9: D+
60–66.9: D
Below 60: E

Other Course Policies

Academic Integrity Policy

See Descriptions of Major Course Assignments for specific guidelines about collaboration and academic integrity in the context of this online class.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's Code of Student Conduct (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.
If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

1. Committee on Academic Misconduct (go.osu.edu/coam)
2. Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)
3. Eight Cardinal Rules of Academic Integrity (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member."

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at https://go.osu.edu/principlesofcommunity. For additional

information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (https://equityandinclusion.cfaes.ohio-state.edu/). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at https://studentlife.osu.edu/bias/report-a-bias-incident.aspx.

Safe and Healthy Buckeyes

Health and safety requirements: All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (https://safeandhealthy.osu.edu). Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses.

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at go.osu.edu/ccsondemand. You can reach an on-call counselor when CCS is closed at 614-292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at go.osu.edu/wellnessapp.

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Accessibility Accommodations for Students with Disabilities

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on

your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Disability Services Contact Information

- Phone: 614-292-3307
- Website: slds.osu.edu
- Email: slds@osu.edu
- In person: Baker Hall 098, 113 W. 12th Avenue

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- CarmenCanvas accessibility (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- CarmenZoom accessibility (go.osu.edu/zoom-accessibility)

Course Schedule

See Carmen for up to date readings and due dates

THE OHIO STATE UNIVERSITY

Course Schedule:

Week	Day	Date	Topic	Class material See carmen syllabus for most up to date	Graded assignments (points)
1	T	1/10	LEC1: Intro; Why study insects	Ch. 1 (pp.2-5)	
	T	1/10	LAB 1: Insects vs. Arthropods	Browse Ch. 1	Lab 1 (20)
	Th	1/12	LEC2: Arthropods	Ch. 1; Ch 2 (14-16; 22-23) Ch 5 (75-80; 83-96)	
2	T	1/17	LEC3: Insect success factors	Ch. 6 (119-135) Ch 2 (16-17) Ch. 4 (62-63)	
	T	1/17	LAB 2: Insect External Adaptations	Ch. 2; Ch. 4 (pp. 62-63)	Lab 2 (20)
	Th	1/19	LEC4: Insect Anatomy, part 1	Ch. 3 (pp.39-57)	**Quiz 1 (10)**
3	T	1/24	LEC5: Internal anatomy, part 2	Ch. 3 (pp.39-57)	
	T	1/24	LAB 3: Physiological Adaptations	Ch. 3 (all)	Lab 3 (20)
	Th	1/26	LEC6: Insect Literacy/Apocalypse Project		**Quiz 2 (10)**
4	T	1/31	LEC7: Growth and metamorphosis, part 1	Ch. 4 (pp. 58-74)	
	T	1/31	LAB 4: Grasshoppers, Crickets, Walkingsticks, Earwigs, Roaches, Termites	Ch. 9, 10 (177-179) & 11	Lab 4 (20)
	Th	2/2	LEC8: Growth and metamorphosis, part 2	Ch. 4 (pp. 58-74)	**Quiz 3 (10)**
5		2/7	LEC9: Insect Disease Vectors, part 1	Ch.18 (pp.391-401; 409-410); Ch. 5(pp.101-108)	
		2/7	LAB 5: Fluid Feeders, including blood feeders		Lab 5 (20)
	Th	2/9	LEC10: Insect Disease Vectors, part 2	Ch. 13(pp. 221-225);Ch.12	**Quiz 4 (10)**
6	T	2/14	LEC11: Silk Road	Ch. 16 (pp. 355-357;366-368)	Insect literacy #1 due (30)
	T	2/14	LAB 6: Silk Scarves	Ch. 13, and TBA	Lab 6 (20)
	Th	2/16	LEC12: Silk Road, other insect products	Ch.13 (pp. 243-247)	**Quiz 5 (10)**
7	T	2/21	LEC13: Insect apocalypse work	Reading at Carmen	
	T	2/21	LAB 7: Scientific experiments; reference summaries	Reading at Carmen	Lab 7 (20)
	Th	2/23	Midterm; Material though 2/16		**Exam 1 (150)**
8	T	2/28	LEC14: Beetles, part 1	Ch. 14 (pp. 252-295)	
	T	2/28	LAB 8: Coleoptera & Neuroptera: Beetles, Lacewings, Dobsonflies & relatives	Ch. 14	Lab 8 (20)
	Th	3/2	LEC15: Beetles, part 2	Ch. 14 (pp. 274-295)	**Quiz 6 (10)**

Week	Day	Date	Topic	Class material See carmen syllabus for most up to date	Graded assignments (points)
9	T	3/7	LEC16: Hymenoptera, part 1	Ch. 15 (pp. 296-338)	
	T	3/7	LAB 9: Hymenoptera: Ants, Bees, Wasps, Sawflies	Ch. 15	Lab 9 (20)
	Th	3/9	LEC17: Hymenoptera, part 2		**Quiz 7 (10)**
10	T	3/13	Spring Break- no class		
	T	3/13			
	Th	3/16			
11	T	3/21	LEC18: Lepidoptera	Ch.16 (pp.339-376)	
	T	3/21	LAB 10: Lepidoptera: Butterflies & Moths	Ch. 16	Lab 10 (20)
	Th	3/23	LEC 19: Insect toxins; Hymenoptera part 3		**Quiz 8(10)**
12	T	3/28	LEC 20: Forensic Entomology		
	T	3/28	LAB 11: Diptera (non-medically important)	Ch. 18	Lab 11 (20)
	Th	3/30	LEC21: Diptera—non-medically important; insects as recyclers	Ch. 18 (pp. 387-391, 405-415;415-422)	**Quiz 9(10)**
13	T	4/4	LEC22: Ephemeroptera, Plecoptera, Trichoptera,	Ch. 8; Ch. 10 (pp. 171-175); Ch.16(pp. 374-376)	Insect literacy #2 due (30)
	T	4/4	LAB 12: Aquatic Insects and EPT	Ch. 8, 10, 16	Lab 12 (20)
	Th	4/6	LEC23: Odonata and Misc. Orders	TBA	**Quiz 10(10)**
14	T	4/11	LEC24: Insects in Ecosystems; Insects in Agriculture	TBA	
	T	4/11	LAB 13: field trip; insect ecology	TBA	Lab 13 (20)
	Th	4/13	LEC25: Insects in society	Ch.17(pp. 380-384)	**Quiz 11 (10)**
15	T	4/18	LEC26: Entomologists in the workforce (recorded)	TBA	Insect Apocalypse due (150)
	T	4/18	No lab- comment on infographics	TBA	
	Th	4/20	Review for exam		**Quiz 12 (10)**
	M	5/1	FINAL EXAM (160) Due by 9:45AM		