

## Term Information

Effective Term Autumn 2022

## General Information

Course Bulletin Listing/Subject Area Entomology  
Fiscal Unit/Academic Org Entomology - D1130  
College/Academic Group Food, Agric & Environ Science  
Level/Career Undergraduate  
Course Number/Catalog 2102  
Course Title Insects and Human Affairs: Virtual Laboratory  
Transcript Abbreviation PestsPlaguesLab  
Course Description Insects are a daily fact of life, exerting major influence on human affairs over the course of history. The course gives students experience in observing, recording and analyzing data associated with insect-human interactions.  
Semester Credit Hours/Units Fixed: 1

## Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? Yes  
Is any section of the course offered 100% at a distance  
Grading Basis Letter Grade  
Repeatable No  
Course Components Laboratory  
Grade Roster Component Laboratory  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

## Prerequisites and Exclusions

Prerequisites/Corequisites 2101 or concurrent enrollment  
Exclusions  
Electronically Enforced Yes

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 26.0702  
Subsidy Level General Studies Course  
Intended Rank Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

Natural Sciences

## Course Details

### **Course goals or learning objectives/outcomes**

- Identify the scientific process and synthesize insect related experimental designs
- Observe insects and identify links to their impact their world
- Analyze insect related data with appropriated tool and summarize results for a lay audience

### **Content Topic List**

- Insect morphology and digital specimen observation
- Insect trapping methods and observation skills
- Interpretations of insects in popular media
- Evolution of insects and natural selection
- Plague and epidemiology
- Forensic entomology and insect development
- Scientific method and data analysis

### **Sought Concurrence**

No

## Attachments

- Pages from ge-foundations-submission.pdf: GE Nat Science Submission Form  
*(Other Supporting Documentation. Owner: Klinger, Ellen G)*
- Distance Approval Cover Sheet ENTMLGY 2102.docx: Distance Approval Sheet  
*(Other Supporting Documentation. Owner: Klinger, Ellen G)*
- ENTMLGY 2102 Syllabus AU22 v.5.docx: Revised Syllabus  
*(Syllabus. Owner: Klinger, Ellen G)*
- ENTMLGY 2102 Laboratory Descriptions.docx: Laboratory Descriptions  
*(Other Supporting Documentation. Owner: Klinger, Ellen G)*
- Response ASC ENTMLGY 2101 2102.docx: Response to ASCCAO  
*(Other Supporting Documentation. Owner: Osborne, Jeanne Marie)*

**Comments**

- Revised syllabus per ACE committee. Primarily How Course Works, Insect Safety and Course Schedule. Added accessible options in Laboratory descriptions. *(by Klinger, Ellen G on 03/25/2022 11:54 AM)*
- Returned at request of Department

This course, combined with ENTMLGY 2101, an existing Natural Sciences GE course with submitted course change request to the new GE, will be a 3+1 credit hour Natural Sciences GE. Both courses must be taken to satisfy the Natural Sciences GE requirement.

Revise as per COAA via email message 21 February 2022

Revise as per email message 15 February 2022 *(by Osborne, Jeanne Marie on 03/23/2022 01:17 PM)*

- See feedback email sent 3-23-22 *(by Steele, Rachel Lea on 03/23/2022 11:08 AM)*

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Klinger, Ellen G	02/13/2022 04:30 PM	Submitted for Approval
Approved	Strange, James P	02/14/2022 08:48 AM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	02/15/2022 11:39 AM	College Approval
Submitted	Klinger, Ellen G	02/16/2022 03:47 PM	Submitted for Approval
Approved	Strange, James P	02/16/2022 08:46 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	02/21/2022 03:03 PM	College Approval
Submitted	Klinger, Ellen G	02/22/2022 02:01 PM	Submitted for Approval
Approved	Strange, James P	02/24/2022 12:33 PM	Unit Approval
Approved	Osborne, Jeanne Marie	02/24/2022 12:46 PM	College Approval
Revision Requested	Steele, Rachel Lea	03/23/2022 11:08 AM	ASCCAO Approval
Submitted	Strange, James P	03/23/2022 01:06 PM	Submitted for Approval
Approved	Strange, James P	03/23/2022 01:07 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	03/23/2022 01:17 PM	College Approval
Submitted	Klinger, Ellen G	03/25/2022 11:54 AM	Submitted for Approval
Approved	Strange, James P	03/25/2022 12:06 PM	Unit Approval
Approved	Osborne, Jeanne Marie	03/25/2022 03:02 PM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	03/25/2022 03:02 PM	ASCCAO Approval



March 25, 2022

College of Arts and Sciences  
Natural and Mathematical Sciences Panel  
ASC Curriculum Committee  
Columbus, OH 43210

To the panel:

Thank you very much for your review and vote regarding changes to ENTMLGY 2101 and approval of ENTMLGY 2102 courses designed to fulfill the GE requirements for Natural Science starting in the 2022-23 Academic Year. I appreciate your recommendations and feedback. I have altered the course in response to your contingencies, recommendations, and comments. Here is a detailed list of changes:

Contingency regarding use of live insects in university housing: I agree and understand the concern with this issue and apologize for not considering it before submission. The instructor will offer recorded material for students to opt into for the following activities: pollinator observation, diapause observation, insect behavior experiment, fruit fly trap design and insect light trapping. While asynchronous recorded material will always be available each semester, the instructor will also attempt to host live sessions of the light trapping, diapause observation and insect behavior experiment as student interest and instructor time supports. In addition, if supported by resources and space availability, the instructor will provide a repository of insects for students to perform the insect behavior experiment in a department lab space that is open during business hours, if they wish to do so. The offering of recorded material is noted in the syllabus for ENTMLGY 2102 under the "How the Course Works section" as well as in the course schedule and the description of laboratory activities supporting document. In addition, for clarity, I have added a statement about prohibited activities for students in university housing and will make sure directions are clear in each Carmen assignment.

Recommendation regarding CFAES counselor: For the ENTMLGY 2101 and 2102 syllabi, I have added a precursor to the CFAES counselor availability to indicate that this resource is available only for those students in CFAES.

Recommendation regarding availability of insect purchase AND recommendation regarding seasonality for non-Ohio students: The abovementioned changes including asynchronous recorded resources to address the contingency above provide solutions for each of these recommendations.



Department of Entomology  
216 Kottman Hall  
2021 Coffey Road  
Columbus, OH 43210

614-292-8209 Phone  
614-292-7641 Fax  
[entomology.osu.edu](mailto:entomology.osu.edu)

Please let me know if there are questions or additional information or documentation is required to accompany this submission. We look forward to hearing from the committee regarding next steps in the approval process.

Sincerely,

Ellen G. Klinger  
Assistant Professor of Professional Practice, Entomology  
[Klinger.80@osu.edu](mailto:Klinger.80@osu.edu)

## ENTMLGY 2102 Laboratory Descriptions

**Up close and personal:** Students will study in greater detail the external morphological adaptations of insects via a highly zoomable repository of insect images. Students will search through multiple digital insect specimens to locate and identify various insect morphological features. Once located, students will capture their observations via screenshot and submit these observations as part of their lab worksheet. Students will be introduced to the concept of data management by virtually measuring wing lengths of honey bees via digital images, collecting 20 measurements, and completing basic statistics on the measurements. Students will then use a t-test to determine whether bees from two separate images have the same wing size. *Trial run in ENTMLGY 2101 in SP22.*

**Light Traps** (various placement depending on semester of offering): Students will learn a basic collection technique used by entomologists- the light trap. This is a simple trap that students can set up at any outdoor light during the nighttime involving a sheet of paper. Students will set the light trap up on two evenings during the week, collect data on ambient temperatures, and count insects they find at their light trap. Students will then determine whether insect presence is altered by temperature.

Accessibility accommodations: Instructor will provide two recordings of each night of data collection, including close ups of each insect found as well as the temperature. If possible, instructor will also host this session live for any students who wish to experience a real time experience and be able to ask question. The live session will be optional.

*Attempted online in ENTMLGY 1101 in SP20*

**Forensic Entomology Lab** (various placement depending on semester of offering): Students will utilize the concept of insect degree day accumulation to predict insect growth. They will utilize these measures of growth to date a virtual cadaver and decide as a lab group who in the line of suspects has deposited the cadaver. This lab utilizes averaging of temperature and applying it to insect growth models for blowflies. Students will also learn information about forensic entomology as a career. *Adapted from an in-person lab activity in ENTMLGY 1101.*

**Pollinator Observation** (various placement depending on semester of offering): What insects are pollinating our flowers? Students will observe pollinators in their backyards or common areas. Students will select three different types of flowers that differ based on shape and/or color. They will then spend 20 min at each flower type, counting insects that visit each plant and identifying them to insect order. The student will make a prediction as to which type of flower will receive the most visitors and use their data to test their hypothesis. *Adapted from in class activities from previous courses.*

Accessibility accommodations: Instructor will select at least 6 types of flower morphologies and perform 20 min recordings of each flower type. If needed, instructor will provide additional images of pollinator

species that are observed on the flowers (if the video resolution is not high enough). Students will select their flower types from the pool of 6 and collect data unique to their hypotheses.

**Diapause observation** (various placement depending on semester of offering): Where are insects in the winter? Students will utilize the concepts of diapause vs. hibernation to find insects both indoors and outdoors. They will learn insect collection technique of the Berlese funnel which they can complete at home. Students will identify found insects to order using a dichotomous key.

Accessibility accommodations: Instructor will use a mobile recording device (Padcaster) to hunt for outdoor insects in the cold months. If possible, instructor will host this video live to allow students to suggest where to look for insects (live session will be optional). This video will be recorded for asynchronous viewing. Instructor will also provide recorded tutorial video of Berlese funnel setup, along with images of collected insect from this technique for students to ID to order.

**Media project-** this is a four week-long project in which the students learn and practice the concept of the scientific method. The overall goal of this project is to investigate how insects are utilized in movies, tv, books and other social media. *Partially adapted from assignments performed in another ENTMLGY 1101 (Insect Literacy Projects).*

Week 1- Students will identify and collect data on insect use in popular media of their choosing. They will enter the data in a class spreadsheet that will be used in subsequent weeks. Embedded in this data collection activity are the concepts of categorical vs. continuous data as well as the concept of identifying meaningful data points for a study.

Week 2- Students will, using the class collected variables, select a hypothesis based on the data (prior to gaining access to the entire class data set). This lesson will include instruction and practice in what is and is not a valid hypothesis as well as identifying null and alternate hypotheses. Finally, the students will parse the dataset to create their workable data set and prepare for subsequent analysis.

Week 3- Students will utilize their knowledge gained already in this lab to analyze their data using simple statistics, including t-test, ANOVA and logistic regression, as supported by open-source statistical programs and pre-formatted excel sheets. Students will learn formatting and simple statistical programming to analyze their data and draw conclusions.

Week 4- Student will prepare a short infographic depicting their results and will interact asynchronously with their peers to comment and discuss their results. Embedded in this lab is proper scientific communication skills and appropriate networking.

**Plague Project/SIR:** Students will gather observations regarding their surroundings and potential plague infection from small animals in their homes and backyards. Using this metric, students will perform a simulation of travelling around plague ridden Europe. Using dice and proportions from their research and historical information, students will simulate travel throughout the continent, showing the spread of plague and determining how long it takes to contract the disease. This simulation will be followed by framing the outcome leading to an epidemiological SIR (susceptible/infected/recovered) model. SIR

modelling used in ENTMLGY 2400H; online game adapted from

<https://www.teacherspayteachers.com/Product/Black-Death-Bubonic-Plague-Dice-Game-3567375>

**Pepper Moth Evolution Project:** Student will explore how natural selection works in pepper moths, a species of moth whose color has changed based on background pollution levels. Students will be guided through some model simulations via netlogoweb.org and then allowed to choose variables to modify and explain how those variables have altered the selection of moth color. Based on activity published: <https://qubeshub.org/community/groups/coursesource/publications?id=2773&v=1>

**Design a fly trap:** Many diseases and issues with insects are improved with our ability to trap insects. Students will select various baits to trap fruit flies (either indoors or outdoors). They will hypothesize which bait will attract the most flies and carry out trials to determine which bait is superior. Based on: <https://qubeshub.org/community/groups/coursesource/publications?id=2716&v=1> and adapted from an online activity from ENTMLGY 4601 during AU20.

Accessibility accommodations: Instructor will create various traps and record data of catch. This data, along with short videos of trap construction will be set as a student depository. Students who wish to complete this activity online will choose between available trap types via Carmen assignment. After completing this assignment, the students will be able to access the data in order to complete the activity. This way, the student still chooses trap types to create a unique experiment.

**Insect Behavior Experiment:** Students will utilize the skills learned in the media project to understand the difference between observational and experimental research. They will perform simple choice tests with either found insects or purchased feeder crickets (appx.0.15 each) to complete an experimental study and analyze their results with a Chi-Square Test. *Adapted from an in-class activity in ENTMLGY 2400H.*

Accessibility accommodations: For students who are unable/unwilling to perform this activity on their own, two options will be available.

Option 1: As possible, containers of insects will be located in an appropriate departmental area (lab, insectary) that students can access during the day. Students will be given space to perform the tasks using the insects that are available in this area. Students can schedule time as needed to complete this task in the space provided. The instructor will select a few times to be available in person in this space if students want a guided experience.

Option 2: The instructor or TA will select several experimental treatments and record the trials from those treatments. Students will select their preferred variables from a short list of available variables, allowing for student customization of this task. Students can gather data from this recorded material to complete the activity.





# SYLLABUS

# ENTMLGY 2102

Insects and Human Affairs: Virtual Laboratory  
Autumn 2022

## Course Information

- **Course times and location:** Asynchronous and online
- **Credit hours:** 1
- **Mode of delivery:** Distance Learning

## Instructor

- **Name:** Dr. Ellen Klinger
- **Email:** [klinger.80@osu.edu](mailto:klinger.80@osu.edu)
- **Phone Number:** 614-247-4763 (office)
- **Office location:** 255 Kottman Hall
- **Office hours:** TBA; email instructor to set up Zoom meeting
- **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](https://go.osu.edu/canvas-notifications) (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.

## Course Prerequisites

ENTMLGY 2101 or concurrent enrollment



## Course Description

Insects are a daily fact of life, exerting major influence on human affairs over the course of history. The course gives students experience in observing, recording and analyzing data associated with insect-human interactions.

## General Education Goals and Expected Learning Outcomes (ELO)

This course, in combination with ENTMLGY 2101 is a General Education (GE) Foundations: Natural Sciences course. ENTMLGY 2102 fulfills Goal 1 in the GE Foundations: Natural Sciences and Expected Learning Outcome 1.3.

When this 1-credit ENTMLGY 2102 laboratory is taken in combination with the 3-credit ENTMLGY 2101 lecture, these 4-credits (i.e., 1-credit laboratory + 3-credit lecture) fulfill 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 GE Foundations: Natural Sciences 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 interdependence 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 goal 1 and learning outcome 1.3 of the foundations of the Natural Science GE through a variety of activities such as: Designing experiments involving fly trap design, and insect behavior, carrying out those experiments and reflecting on the process. Collecting and analyzing data in these experiments as well as through other data collection sources, manipulating and analyzing the data responsibly and creating appropriate results and data summaries. Experiencing and investigating the insect world around you with light trapping, pollinator observations and diapausing insect searching. Creating links between society and insects through investigation into insect uses in the media. All goals will be assessed through weekly lab assignments as well as through questions on the lab final exam.

## Course Specific Learning Outcomes

By the end of this course, students should successfully be able to (with reference to the related general education learning objectives above):

- Identify the scientific process and synthesize insect related experimental designs (ELO1.3)
- Observe insects and identify evidence of their impact to the world (ELO 1.3)
- Analyze insect related data with appropriate tool and summarize results for a lay audience (ELO 1.3).

## How this course works

**Mode of delivery:** This course is 100% online. There are no required sessions when you must be logged in to Carmen at a scheduled time, however there will be at home activities to complete during the week. There may be some optional in-person or online synchronous activities offered during the semester to facilitate completion of the labs (group insect trapping, access to live insects for experiments) but these activities are 100% optional and not required to get a good grade or complete this course.

**Pace of online activities:** This course is divided into **weekly labs** that are released one week ahead of their due date, via Carmen module. Laboratory modules will include a laboratory overview outlining expectations, video explanations by the instructor as well as relevant links and materials. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame. Keep in mind that some assignments cannot be completed at the last minute and students should review their expected workload at the beginning of the week. In some labs requiring data collection, students may need to distribute their effort over several days. While I encourage direct student interaction with insects, anytime a lab requires use of or observation of a live insect, recorded material will also be available for those students who do not wish to / have difficulty interacting with live insects.

**Credit hours and work expectations:** This is a [1] credit-hour course. According to [Ohio State bylaws on instruction](#) (go.osu.edu/credithours), students should expect around 2 hours



per week of time spent on direct lab work and instruction and an additional 1 hour per week studying and completing assignments 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:

**Participating in online activities for attendance: at least once per week**

You are expected to log in to the course in Carmen every week. During most weeks you will probably log in many times. If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.

**Zoom meetings and office hours: optional**

All live, scheduled events for the course, including my office hours, are optional.

**Participating in lab group forums: one to two times per week**

Each week you will interact with your lab group online. This discussion may take place via Carmen discussion or an alternate collaborative way as indicated by your instructor.

If you have an absence due to medical conditions, school activities or other documentable issues, please contact the instructor to alert them to this excused absence. Due dates will be adjusted accordingly.

## Course Materials, Fees and Technologies

### Required Materials and/or Technologies

There is no required text for this class.

As part of the animal behavior lab, students may opt to purchase a feeder cricket or mealworm beetle larvae from a pet store. The instructor will provide you information regarding sources for this purchase in Carmen- total student cost should be less than \$0.25.

Students may need to locate common household products to complete the light trap and fly trap labs; in certain circumstances students may need to purchase an inexpensive component of the lab setup. The instructor will provide you with a full list of equipment needed via Carmen in week one of the course.

### 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](https://go.osu.edu/student-tech-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](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

Students will access several additional internet-based systems. There will be no need to download these programs. They include

NetLogo:(<https://ccl.northwestern.edu/netlogo/index.shtml>)

CovidSim:( <https://askabiologist.asu.edu/covid-sim/index.html> )

## CarmenCanvas Access

You will need to use [BuckeyePass](https://buckeyepass.osu.edu) (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:

- 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
- 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.
- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (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 \(HELP\)](tel:614-688-4357) 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](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (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](https://go.osu.edu/it)



- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** [servicedesk@osu.edu](mailto:servicedesk@osu.edu)

# Grading and Faculty Response

## How Your Grade is Calculated

Assignment Category	Points
Class Intro Materials (Syllabus Quiz)	10
Weekly Lab Reports (30 points each)	390
Laboratory Final	30
<b>Total points</b>	<b>430</b>

See Carmen and course schedule for specific due dates, however **all lab reports will be due on Tuesdays at 11:59PM**

## Descriptions of Major Course Assignments

### Class Intro Materials

**Description:** Each student will be required to take a short quiz on the syllabus material for this lab. This quiz ensures students will understand the lab format and serves as a measure for initial engagement in his online course

**Academic integrity and collaboration:** These quizzes are open-book and untimed. Students must complete the syllabus quiz on their own, but they will have multiple untimed opportunities to take the quiz.

### Weekly Lab Reports:

**Description:** Students will submit a lab report via a Carmen assignment after completing each week's activity. This lab report will include any data and observations as well as answers to questions posed by the instructor via the assignment. The lab reports will also include student reflections with classmate interaction in discussion and other online forums regarding the previous week's lab. Each Carmen lab report assignment will include details about the required information for that week's assignment.

**Academic integrity and collaboration:** Each student must turn in a lab report that is their own work. While in some laboratory cases we will use shared data, all student question answers and reflections will be their own. Students may work with other students on specific areas that will be clearly designated by the instructor within the Carmen assignment.



## Laboratory Final

**Description:** The laboratory final will be administered using the Carmen quiz function during the last week of class. This laboratory final will be composed of multiple choice and short answer questions and will evaluate student understanding of the concepts learned during the semester.

**Academic integrity and collaboration:** Students may not work with others on the laboratory final, but students may use any notes and books during the online final. The laboratory final will not be timed and will be available for completion in lieu of a weekly lab assignment in Week 14.

## Late Assignments

Please refer to Carmen for specific due dates for each assignment. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments. Late assignments may be subject to a 10% reduction of points per 24-hour period. If you are unable to turn in an assignment due to an excused absence, alert the instructor via e-mail as soon as possible and the instructor will discuss a modified due date with you when you submit your excused absence reason.

## Instructor Feedback and Response Time

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 \(HELP\)](tel:614-688-4357) 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**.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages. I may also send important announcements directly to your email if needed.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **ten 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

## Insect safety

This class will have assignments that may ask you to observe live insects and arthropods. If an assignment asks you to observe insects, please understand that handling the insects may result in bites or stings. In cases in which you may be asked to handle insects (insect behavior lab) the instructor will provide clear guidelines for safe insect handling if needed. All activities that involve direct insect interaction will have recorded material available to use in lieu of the insect activities. At any time, if you have a question regarding safety with insects, or are uncomfortable handling insects, please contact your instructor via e-mail. Note: If you live in university sponsored housing, you are not permitted to house or attract insects within these facilities. Your instructor will clearly indicate those lab activities that will need to be completed through asynchronous recordings at the time of assignment.

## Other Course Policies

### Discussion and Communication Guidelines

Students will be placed into small lab groups. There may be need to communicate between members of this group. These are my general expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. Excessive spelling and grammar errors may result in a reduction in your discussion grades. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online. I will provide specific guidance for discussions on controversial or personal topics. Abide by your agreed upon group discussion rules.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

### Academic integrity policy

See descriptions of course assignments for integrity expectations for specific assignments. Consult your instructor if you have a question about expectations.





## 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](http://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:

- Committee on Academic Misconduct web page ([go.osu.edu/coam](http://go.osu.edu/coam))
- *Ten Suggestions for Preserving Academic Integrity* ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))
- *Eight Cardinal Rules of Academic Integrity* ([go.osu.edu/cardinal-rules](http://go.osu.edu/cardinal-rules))

## 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.

## 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.



## Commitment to a diverse and inclusive learning environment and 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](http://equity.osu.edu),
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email [equity@osu.edu](mailto: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.

## Diversity Statement

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <http://mcc.osu.edu/>

In addition, 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>.

## 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. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting [ccs.osu.edu](https://ccs.osu.edu) or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. 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 Suicide Prevention Hotline at 1-(800)-273-TALK or at [suicidepreventionlifeline.org](https://suicidepreventionlifeline.org)

For students in CFAES, David Wirt, [wirt.9@osu.edu](mailto: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](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 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 with your instructor.

- Canvas accessibility ([go.osu.edu/canvas-accessibility](http://go.osu.edu/canvas-accessibility))
- Streaming audio and video
- CarmenZoom accessibility ([go.osu.edu/zoom-accessibility](http://go.osu.edu/zoom-accessibility))
- Collaborative course tools

## Course schedule

Schedules of activities will be coordinated between student and instructor and will be based upon expected workloads.

<b>Week</b>	<b>Lab Activity (each weekly activity assessed via digital lab report)</b>
1	Virtual insect morphology identification; Digital insect measurements; t-test analysis
2	Light Traps* (AU); Forensic Entomology Lab (SP)
3	Pollinator observation* (AU)/diapause observation* (SP)
4	Media project: Collect data
5	Media project: Select hypothesis; parse dataset
6	Media project: Analyze data and make conclusions
7	Media project: Poster design and presenting; virtual presentations and reflection on networking
8	Pepper moth evolution project
9	Plague Project/SIR model
10	Building the Best Fly Trap*
11	Insect behavior experiment*; chi square analysis.
12	Light Traps* (AU); Forensic Entomology Lab (SP)
13	Pollinator observation* (SP)/diapause observation* (AU)
14	Lab final exam online.

AU – students taking this course in Autumn semesters should expect the activities designated as AU

SP- students taking this course in Spring semesters should expect the activities designated as SP

*\*These activities involve live insects, the instructor will give you the option to perform on your own, or use recorded material to complete these activities.*

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.2: Successful students are able to critically reflect on and share their own experience of observing or engaging in the visual, spatial, literary, or performing arts and design.**

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**GE Rationale: Foundations: Natural Science (4 credits)**

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Natural Sciences, please answer the following questions for each ELO.

**A. Foundations**

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Natural Science.

Course Subject & Number: \_\_\_\_\_

## **B. Specific Goals for Natural Sciences**

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.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**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.** Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**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.** Please explain the 1-credit hour equivalent experiential component included in the course: e.g., traditional lab, course-based research experiences, directed observations, or simulations. Please note that students are expected to analyze data and report on outcomes as part of this experiential component. *(50-1000 words)*



Course Subject & Number: \_\_\_\_\_

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.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: \_\_\_\_\_

**Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences.** Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

# Distance Approval Cover Sheet

## For Permanent DL/DH Approval

Course Number and Title: **ENTMGLY 2102**

Faculty Preparer Name and Email: **Ellen Klinger klinger.80@osu.edu**

### Carmen Use

For more on use of Carmen: <https://teaching.resources.osu.edu/teaching-topics/carmen-common-sense-best-practices>

A Carmen site will be created for the course, including a syllabus and gradebook at minimum. **Yes**

If no: **Enter additional details if you responded no...**

### Syllabus

Proposed syllabus uses the ODEE distance learning syllabus template (or own college distance learning syllabus template based on ODEE model), includes boilerplate language where required, as well as a clear description of the technical and academic support services offered, and how learners can obtain them. **Yes**

Syllabus is consistent and is easy to understand from the student perspective. **Yes**

Syllabus includes a schedule with dates and/or a description of what constitutes the beginning and end of a week or module. **Yes**

If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them. **N/A**

Additional comments (optional):

**Weekly lab modules with the lab report turn in as the conclusion of each week's activity.**

### Instructor Presence

For more on instructor presence: <https://teaching.resources.osu.edu/teaching-topics/online-instructor-presence>

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective:

- Regular instructor communications with the class via announcements or weekly check-ins
- Instructional content, such as video, audio, or interactive lessons, that is visibly created or mediated by the instructor
- Regular participation in class discussion, such as in Carmen discussions or synchronous sessions



Regular opportunities for students to receive personal instructor feedback on assignments

Please comment on this dimension of the proposed course (or select/explain methods above):  
 Instructor will create online videos and outlines of assignments, will participate as possible in discussions (although a TA will be assigned primarily to do this) and will utilize video feedback on lab reports, on either an individual or lab group basis.

## Delivery Well-Suited to DL/DH Environment

Technology questions adapted from the [Quality Matters](#) rubric. For information about Ohio State learning technologies: <https://teaching.resources.osu.edu/toolsets>

The tools used in the course support the learning outcomes and competencies. **Yes**

Course tools promote learner engagement and active learning. **Yes**

Technologies required in the course are current and readily obtainable. **Yes**

Links are provided to privacy policies for all external tools required in the course. **Yes**

Additional technology comments:

Students will use the Microsoft 365 suite primarily to complete most tasks. Occasionally they will use internet based programs (no downloads needed) and in this case I have linked directly to the application so students can access relevant information for these web based programs from the syllabus.

Which components of this course are planned for synchronous delivery and which for asynchronous delivery? (For DH, address what is planned for in-person meetings as well.)

There is no synchronous or in person component planned- all activities are asynchronous including student discussions.

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning:

Enter comments...

## Workload Estimation

For more information about calculating online instruction time: [ODEE Credit Hour Estimation](#)

Course credit hours align with estimated average weekly time to complete the course successfully. **Yes**

Course includes direct (equivalent of "in-class") and indirect (equivalent of "out-of-class") instruction at a ratio of about 1:2. **Yes**

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate:

Direct : Students will first access the carmen Module and view short overview videos (1-2 at 10 min max, depending upon week) (20 min)

Direct: They will then need to pass a brief online quiz to access the materials/data for the lab (10 min)

Direct/Indirect Each lab activity is meant to take students approximately 60-90 minutes to complete, whether over short interludes of time (twelve 5 min observations, etc.) or in one chunk. Supporting instruction and carmen pages will be available to assist students in completing these activities, which students can engage with at any time.

Indirect: Students will fill out and complete the lab report for turn in (20-30 min)

Direct: Students will interact about their experience via online discussion or other interactive program (10 min)

In the case of course delivery change requests, the course demonstrates comparable rigor in meeting course learning outcomes. **Yes**

## Accessibility

For more information or a further conversation, contact the [accessibility coordinator](#) for the College of Arts and Sciences. For tools and training on accessibility: [Digital Accessibility Services](#)

Instructor(s) teaching the course will have taken Digital Accessibility training (starting in 2022) and will ensure all course materials and activities meet requirements for diverse learners, including alternate means of accessing course materials when appropriate. **Yes**

Information is provided about the accessibility of all technologies required in the course. All third-party tools (tools without campus-wide license agreements) have their accessibility statements included. **Yes**

Description of any anticipated accommodation requests and how they have been/will be addressed. Some students may have issues interacting or accessing live insects for some of the activities. This can include students with limitations to the outdoor environment or mobility. In all activities in which a student may not be able to complete, there will be the option of accessing live recorded video of the activity as performed by the instructor or TA and students can gain data via this route if requested.

Additional comments:  
Enter any additional comments about accessibility...

## Academic Integrity

For more information: <https://go.osu.edu/teaching-resources-academic-integrity>

The course syllabus includes online-specific policies about academic integrity, including specific parameters for each major assignment: **Yes**

Assignments are designed to deter cheating and plagiarism and/or course technologies such as online proctoring or plagiarism check or other strategies are in place to deter cheating: **Yes**

Additional comments:

Students will be turning in original laboratory work that will include unique images/drawings/descriptions. This uniqueness will alert the instructor in the event students are turning in the same work. In addition, random Google image searches may be utilized to ensure students are not plagiarizing images from the internet, and a specific video will address they types of activities that would be considered cheating.

## Frequent, Varied Assignments/Assessments

For more information: <https://teaching.resources.osu.edu/teaching-topics/designing-assessments-student>

Student success in online courses is maximized when there are frequent, varied learning activities. Possible approaches:

- Opportunities for students to receive course information through a variety of different sources, including indirect sources, such as textbooks and lectures, and direct sources, such as scholarly resources and field observation
- Variety of assignment formats to provide students with multiple means of demonstrating learning
- Opportunities for students to apply course knowledge and skills to authentic, real-world tasks in assignments

Comment briefly on the frequency and variety of assignment types and assessment approaches used in this course (or select methods above):

This lab will encompass three types of activities- student observations of digital or real life insects which will allow students to observe their natural world (or in the case of the media project, their social world) and reflect upon this; data driven assignments where students can utilize and manipulate data and research and synthesis assignments in which students will investigate topics and communicate their findings to their peers. We will utilize direct primary literatur in some cases and full written experimental procedures will be provided in addition to instructional videos.

## Community Building

For more information: <https://teaching.resources.osu.edu/teaching-topics/student-interaction-online>

Students engage more fully in courses when they have an opportunity to interact with their peers and feel they are part of a community of learners. Possible approaches:

- Opportunities for students to interact academically with classmates through regular class discussion or group assignments
- Opportunities for students to interact socially with classmates, such as through video conference sessions or a course Q&A forum
- Attention is paid to other ways to minimize transactional distance (psychological and communicative gaps between students and their peers, instructor, course content, and institution)

Please comment on this dimension of the proposed course (or select methods above):

Students will interact with their virtual lab groups on a weekly basis. The smaller lab groups will generate camaraderie and the students will share their results with each other each week. Students will be required to reflect upon this interaction.

## Transparency and Metacognitive Explanations

For more information: <https://teaching.resources.osu.edu/teaching-topics/supporting-student-learning-your>

Students have successful, meaningful experiences when they understand how the components of a course connect together, when they have guidance on how to study, and when they are encouraged to take ownership of their learning. Possible approaches:

- Instructor explanations about the learning goals and overall design or organization of the course
- Context or rationale to explain the purpose and relevance of major tasks and assignments
- Guidance or resources for ancillary skills necessary to complete assignments, such as conducting library research or using technology tools
- Opportunities for students to take ownership or leadership in their learning, such as by choosing topics of interest for an assignment or leading a group discussion or meeting
- Opportunities for students to reflect on their learning process, including their goals, study strategies, and progress
- Opportunities for students to provide feedback on the course

Please comment on this dimension of the proposed course (or select methods above):

Module content will include learning objectives specific to the lab and clear links to course objectives. In cases in which student may need additional assistance in some skills such as searching primary scientific literature, data manipulation and analysis standalone videos or additional module sections will be available to allow them to access information easily.

Several of the experiments in this lab (media experiment, insect behavior, fly trap) will allow the students guided individuality in selecting variable and designs of their own interest. In addition, insect observations can reflect each student's unique location.

Students will have access to quarterly anonymous Carmen feedback quizzes to allow for input into the course. In addition, the instructor and the TA will be available weekly for students to synchronously communicate with if needed.

## Additional Considerations

Comment on any other aspects of the online delivery not addressed above:

Enter any additional considerations...