

Term Information

Effective Term Spring 2027

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 3600
Course Title Insect Life in a Changing World
Transcript Abbreviation InsectChangeWorld
Course Description This course explores the intricate relationships between insects, humans and the environment they share. Our world is rapidly changing; our climate is warming, storms are becoming more intense and frequent, and cities are expanding to meet our needs. Students will examine how environmental change affects insect diversity, distribution, and behavior, and how these, influence ecosystems and humans
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
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
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.0702
Subsidy Level Baccalaureate Course
Intended Rank Sophomore, Junior, Senior

Requirement/Elective Designation

Lived Environments

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Explain the environmental drivers of insect responses (e.g. molecular, physiological, population, genetic) to biotic and abiotic forces
- Recognize the functional roles of insects in populations, communities and ecosystems
- Integrate basic ecological concepts related to insects for their management.
- Explain linkages between insects and human health and wellbeing
- Evaluate and synthesize ecological research to inform management approaches.
- Appreciate how changes to insect communities could impact human populations.
- Translate ecological literature into lay-public accessible communications and recommend actions to manage insects.

Content Topic List

- Introduction to Insect Ecology
- Our connections with the insect world
- Drivers of Insect Declines (Anthropogenic Threats & Ecological Pressures)
- Climate Change and Disruptions to Insect Interactions:
 1. Plant/Herbivore interactions (including in natural ecosystems and agriculture)
 2. Types of Mutualism
- Human Caused Land-Use Change: Urbanization, Habitat Loss & Deforestation:
 1. Insect survivorship and impacts on natural selection under changing environments
 2. Components of niche space required by insects
- Anthropogenic Driven Invasive Species And Their Impact On Insect Ecosystems:
 1. Insect predator/ prey Interactions
 2. Insect competition (e.g. native vs. invasive species)
- Agricultural intensification and pesticide use (balancing human needs and insect health):
 1. Insect parasite/ parasitoids/pathogens
 2. Multitrophic interaction/trophic cascades
- Pollution (anthropogenic contaminants and insect declines):
 1. Insect behavior mating systems and sexual selection
 2. Insect population dynamics

Sought Concurrence

Yes

Attachments

- FW_ Concurrence Requests_ ENTMLGY 3600, Insect Life in a Changing World _EEOB.docx: Concurrence EEOB
(Concurrence. Owner: Klinger, Ellen G)
- Re_ Concurrence Request_ ENTMLGY 3600 Insect Life in a Changing World_ SENR.docx: Concurrence SENR
(Concurrence. Owner: Klinger, Ellen G)
- RE_ Concurrence Requests_ ENTMLGY 3600, Insect Life in a Changing World ASC.docx: Concurrence ASC
(Concurrence. Owner: Klinger, Ellen G)
- ENTMLGY 3600 cover letter Jan 14.docx: Cover letter
(Cover Letter. Owner: Klinger, Ellen G)
- ENT 3600- Comments from Subcommittee and responses- 11-4-25.docx: Instructor response to comments
(Other Supporting Documentation. Owner: Klinger, Ellen G)
- ENT 3600- submission-lived-environments-V2.pdf: Lived Environments submission form
(Other Supporting Documentation. Owner: Klinger, Ellen G)
- ENTMLGY Insect Ecology Global Change Syllabus- V7-Clean.docx: Revised Syllabus
(Syllabus. Owner: Klinger, Ellen G)
- ENTMLGY Insect Ecology Global Change Syllabus- V7- Track Changes.docx: Revised Syllabus with track changes
(Other Supporting Documentation. Owner: Klinger, Ellen G)

Comments

- Revised per email 10/27/25 (by Klinger, Ellen G on 01/14/2026 02:51 PM)
- Please see feedback email sent to department 10-27-2025. (by Steele, Rachel Lea on 10/27/2025 06:36 PM)
- Revise as per COAA via email message 5 September 2025

Revise as per email message 18 June 2025 (by Osborne, Jeanne Marie on 09/05/2025 12:29 PM)

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Klinger, Ellen G	06/10/2025 04:45 PM	Submitted for Approval
Approved	Strange, James P	06/10/2025 04:57 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	06/20/2025 07:08 AM	College Approval
Submitted	Klinger, Ellen G	08/05/2025 03:04 PM	Submitted for Approval
Approved	Klinger, Ellen G	08/05/2025 03:08 PM	Unit Approval
Revision Requested	Osborne, Jeanne Marie	09/05/2025 12:29 PM	College Approval
Submitted	Klinger, Ellen G	09/08/2025 12:45 PM	Submitted for Approval
Approved	Klinger, Ellen G	09/08/2025 12:45 PM	Unit Approval
Approved	Osborne, Jeanne Marie	09/09/2025 12:51 PM	College Approval
Revision Requested	Steele, Rachel Lea	10/27/2025 06:36 PM	ASCCAO Approval
Submitted	Klinger, Ellen G	01/14/2026 02:51 PM	Submitted for Approval
Approved	Klinger, Ellen G	01/14/2026 02:52 PM	Unit Approval
Approved	Osborne, Jeanne Marie	01/15/2026 12:03 PM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Neff, Jennifer Vankeerbergen, Bernadette Chantal Wade, Macy Joy Steele, Rachel Lea	01/15/2026 12:03 PM	ASCCAO Approval



January 14, 2026

ASC GE Themes subcommittee

Committee for Lived Environments

- Ila Nagar, NESA (Chair)
- Rebecca Andridge, Public Health
- Jennifer Higginbotham, English
- Samantha Herrmann, EEOB and CLSE
- Brian Lower, FAES
- Jennifer Ottesen, Chemistry and Biochemistry
- Nikole Patson, Psychology
- John Rehbeck, Economics

To the Themes Subcommittee 1:

Thank you for your pre-review of our course ENTMLGY 3600, Insect Life in a Changing World, in October 2025. At that time, your committee brought some points to address before this course is suitable for review and voting by the subcommittee. The instructor has prepared some changes to address these concerns, and these are addressed directly by the instructor in a following document.

In addition to the instructor's comments, I will briefly address a few curricular components that are not mentioned explicitly in their review.

Regarding the point (point f) regarding credit hour distribution, I consulted our academic dean in our college, as this is a required part of our college's syllabi and mirrors Ohio State bylaws on instruction. After consultation with the dean and other academic deans in the university, we feel that the inclusion of this component in our syllabi is appropriate and we have opted to leave it. If we are misinterpreting this concern from the committee, please advise us.

We note the discrepancy of GE goals between these two websites which led to our wording errors (<https://asccas.osu.edu/new-general-education-gen-goals-and-elos> vs <https://ugeducation.osu.edu/academics/general-education-ge/ge-structure>) and wanted to make the committee aware of the issue. We alerted ASC academic personnel about this in Oct 2025, but it currently remains unchanged, and we suspect it may be an issue in the future that the themes committee will deal with.

We also appreciate the committee's notes on the types of assessments needed to fulfill both the rigor of the exams for a theme class and the level of reflection in the course. Multiple choice questions are used in many circumstances in education and there is a surplus of research on their ability to measure higher order thinking as well as advanced levels of Bloom's taxonomy. We feel that a combination of the use of these types of multiple-choice questions combined with the advantage of rapid feedback that is possible in learning management systems specifically with these types of questions is the best combination to assess student learning and application of the concepts in this class. The instructor has opted to add



some open response answers to assuage the concerns of the committee that multiple choice questions are insufficient to assess the levels of Bloom's taxonomy desired in themes courses.

We considered carefully how students can provide reflection in a more direct and assessable manner. The instructors have added to our course more ongoing and iterative direct reflection activities that can be reviewed by the instructor and have an assessable metric attached to them. We feel that this level of reflection is similar to the participation and directly named reflections in other recently approved GE Lived Committee Theme courses, including Philosophy 2751 and Spanish 3798.30, but we request the committee, if they disagree, to help clearly direct our future revisions by making specific comparison between these courses' assignments if this is appropriate.

Again, thank you for considering our course as a valuable contribution to Ohio State's University's general education program. We appreciate the time and effort it takes for each committee involved with the ASC General Education Program to ensure that education at Ohio State is of premium quality.

Sincerely,

Ellen G. Klinger
Associate Professor of Entomology
Curriculum Chair, Department of Entomology
The Ohio State University
Klinger.80@osu.edu (preferred contact)
614-247-4763



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Comments from the Subcommittee and responses by course instructor.

1. The Subcommittee notes and appreciates the focus on human and insect interaction in the course description (curriculum.osu.edu under “General Information” and syllabus, pp. 1-2). However, they believe that the course schedule (syllabus p. 15) does not explicitly reflect this focus, instead centering on insect biology, environments, and ecosystems. The Subcommittee asks that the department augment the course schedule to better demonstrate the focus on human and insect interaction and more effectively engage with ELOs 3.1-4.3.

The table below details specific revisions for clarity, along with brief rationales:

Original Topic Title (Week)	Revised Topic Title (Proposed)	Rationale / Added Emphasis
Drivers of Insect Loss (Summary of Ecological Ideas and Threats) (Week 2)	Drivers of Insect Declines (Anthropogenic Threats & Ecological Pressures)	Highlights that many insect loss drivers are human-induced (habitat destruction, climate change, etc.), making the human role explicit.
Plant/Herbivore interactions (Week 3)	Plant–Herbivore Interactions (including in natural ecosystems and agriculture)	Indicates this topic will connect herbivory to human agriculture (e.g. crop pests and food security), making the human stake in plant–insect dynamics clear.
Urbanization/ Habitat Loss/ Deforestation (Week 5)	Human Caused Land-Use Change: Urbanization, Habitat Loss & Deforestation	Makes the human cause explicit (“Human Caused Land-Use Change”) to stress that these environmental changes are driven by people, aligning with the theme of human–environment interaction.
Insect survivorship and impacts on natural selection (Week 6)	Insect survivorship and impacts on natural selection under changing environments	Mentions “changing environments” to hint at external (often human-caused) pressures – e.g. climate shifts or pollutants – affecting survival and evolution of insects.
Invasive Species and the Impact on Insect Ecosystems (Week 7)	Anthropogenic driven invasive species and their impact on insect ecosystems	Adds mention of the human role in invasive spread (through global trade, transport, etc.)

Insect competition (e.g. invasive species) (Week 8)	Insect competition (e.g. native vs. invasive species)	Makes the competitive dynamic clearer by specifying natives vs. invasives. This subtly reinforces that invasives (often introduced by humans) can outcompete native insects, affecting ecosystems that humans rely on.
Agricultural intensification and pesticide use (Week 9)	Agricultural Intensification & Pesticide Use (balancing human needs and insect health)	Emphasizes the <i>human-insect tradeoff</i> : increased food production vs. negative impacts on insect populations (pollinators, beneficial insects). Aligns with ELO 3.2 by noting human impact on environment.
Pollution (Week 11)	Pollution (anthropogenic contaminants and insect declines)	Adds context that pollution is human-caused (“anthropogenic”) and links it to insect declines – encompassing topics like pesticide pollution, light pollution, etc.

The syllabus more transparently shows that students examine insects not in isolation, **but as part of a changing world shaped by and impactful to humans.**

2. The Subcommittee asks that the department augment the course’s assessments (and the references to these assessments on the GEN Submission Form) to better reflect ELOs 3.1-4.3. They note that many of the explanations about how the course meets these ELOs on the GEN Submission Form are focused on the course content and in-class activities, rather than how students will demonstrate mastery of the ELOs in an assessable manner. On a related note, they ask that the assessments reflect a more “advanced, in-depth, and scholarly exploration”; the Subcommittee believes that multiple choice and short answer questions are often unable to effectively assess the ELOs in an advanced course.

Several existing elements already align with advanced ELOs – for example, students read primary literature and complete discussion worksheets on it (exposing them to research-level content), and the **infographic project** requires researching a real-world insect issue and communicating solutions to the public. These inherently foster higher-order thinking and application.

The table below outlines specific tweaks, each aimed at ensuring students **demonstrate** ELO 3.1–4.3 competencies (complexity of interactions, human impacts, perceptions, and discourse analysis) in their coursework.

Original Assessment	Revised/Enhanced Assessment	Rationale (ELO Alignment)
<p>Module Quizzes (3) – Open-book, timed Carmen quizzes checking understanding of lectures, readings, and provided sources. Primarily objective-format (multiple-choice).</p>	<p>Module Quizzes with a Short Response We will retain core content questions, and include a short-answer question on quizzes. For example, Quiz #1 (after Module 1’s foundations on human–insect connections) could ask: “In 2–3 sentences, give an example of how human activities contribute to insect decline, and one consequence for humans.”</p>	<p>Including a brief written response pushes students beyond recall, requiring them to articulate concept such as a human–environment linkage in their own words. This would directly gauge ELO 3.2 (describing human impacts on environmental change) and lay groundwork for ELO 4.1 (connecting human actions to outcomes/values). It leverages the existing quiz content but makes the mastery observable in an answer, addressing the panel’s concern about merely passive assessment.</p>
<p>Discussion Worksheets (5) – Before each themed discussion, students read a <i>primary literature</i> article or other material not covered in lecture, and submit a worksheet of notes/answers to guided questions. Graded on completeness/effort (to ensure they extract key points from the reading).</p>	<p>Discussion Worksheets with Synthesis Prompt We will continue using worksheets for note-taking on readings, but will add a final prompt on each worksheet requiring students to connect the article’s findings to human–environment interactions. For example, if a paper is on insect population decline, the worksheet could end with: “Reflection: Based on this study, what is one potential impact on human society or action we should consider?” (2-3 sentences).</p>	<p>This addition transforms the worksheets from a purely preparatory exercise into an <i>assessable demonstration</i> of higher-order thinking. Students must synthesize the scientific content and explicitly relate it to human contexts, showing they grasp complexity and real-world implications (ELO 3.1 & 3.2). It remains a short, low-stakes task, but now reviewers can see that, for each discussion, students aren’t just reading research – they’re drawing connections to how humans are affected or might respond. This aligns with the course’s own learning outcome to “identify how changes to insect communities could impact human populations”,</p>

		reinforcing that outcome with a direct measure.
<p>Discussion Participation Self-Assessments (5)</p> <p>– After each in-class discussion, students complete a self-evaluation of their participation (using a provided rubric on respect, listening, using evidence, etc.). This helps formulate their discussion participation grade.</p>	<p>Self-Assessments Including Content Reflection</p> <p>We will preserve the peer-discussion skills rubric (students will still rate their contributions) but will also ask students to reflect on the <i>discussion content</i>. For instance: “<i>Name one insight you gained in today’s discussion</i>”</p>	<p>By prompting students to reflect on what they learned (not just how they behaved), these self-assessments begin to capture ELO 4.1 and 4.2 in action. For example, students might consider how the discussion of an environmental topic affected their own attitudes or understanding of human–environment relationships. This is a direct, assessable way for them to “demonstrate a developing sense of self as a learner” through reflection (related to GE Goal 2 and by extension supporting ELO 4.1’s focus on attitudes/values).</p>
<p>Infographic Project (20% of grade)</p> <p>– Group project where students research an environmental problem affecting insects (e.g. habitat loss, pesticide impacts) and design an infographic proposing a <i>localized, achievable solution</i>. They also present their infographic to the class. Emphasis is on communicating science to a lay audience and suggesting actions to improve the environment.</p>		<p>The existing project is a strong advanced assessment: it demands research, synthesis, and creative communication, which inherently touches on community awareness. This directly targets ELO 4.2 (how humans perceive and represent environments) and ELO 4.3 (critiquing discourses/ideologies) because students must think about messaging and beliefs surrounding their topic. For instance, a successful group making an infographic on pollinator conservation would note the challenge of pesticide-use mindsets or lack of public awareness, and how their infographic tries to shift</p>

		that narrative. Articulating this shows scholarly engagement with environmental discourse , not just factual regurgitation. It elevates the project to meet “advanced, in-depth exploration” by bridging scientific solutions with human behavior and communication.
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3. The Subcommittee asks that the department incorporate into the course schedule opportunities for students to demonstrate their “developing sense of self as a learner” (ELO 2.2) in an assessable manner. While the Subcommittee notes and appreciates the presence of in-class self-assessment for class participation, this ELO is focused on students’ awareness of their own learning and reflection on/analysis of the ways that their thinking has changed over the duration of the course. While the Subcommittee acknowledges that there are many methods for assessing this ELO, they offer the friendly suggestion that asking students to complete a graded reflection on course topics at the beginning, mid-point, and end of the semester can be a simple and effective way to meet this ELO.

The committee suggested adding separate graded reflection assignments at the start, middle, and end of the semester, but we prefer **not to introduce additional tasks** that might overburden students. Instead, here we **highlight and slightly tweak existing assignments** to ensure students engage in meaningful reflection **within** the current course structure.

The table below outlines some assignments, how they currently support ELO 2.2, and what minimal adjustments can be made to strengthen that support and make it more visible to both students and the committee:

Current Assignment	How It Supports ELO 2.2 Now	Changes to Strengthen Alignment
Discussion Participation Self-Assessments (5 total, after	After every class discussion, students complete a self-assessment evaluating their own engagement (using a provided rubric on conduct, reasoning, listening, etc.). This activity already	We will add a brief reflective prompt to each self-assessment , asking students to note one thing they learned or how their perspective shifted during that discussion. For instance, append:

each discussion session)	fosters <i>reflection</i> on their learning behaviors (e.g. preparedness, communication skills) and encourages self-awareness . Because it's repeated across the term, students have multiple chances to monitor their improvement – implicitly developing a sense of growth as participants and learners.	<i>“What’s one insight you gained from today’s discussion, or one way your thinking changed?”</i> This small addition (1-2 sentences) doesn’t require a new assignment – it’s part of the existing self-assessment form. It ensures students not only assess their discussion skills but also <i>reflect on content learning</i> . Over the semester, these notes will help them (and instructors) see how their understanding of human–environment themes evolves, directly evidencing a “developing sense of self as a learner.”
Infographic Project & Individual Self-Assessment (Group project with personal contribution review)	This is a creative work where students “ <i>design an infographic</i> ” on an insect-related environmental problem and propose solutions. To succeed, they must integrate course knowledge and prior experiences (e.g. skills from other courses, personal interests) to tackle a <i>new challenge</i> – aligning with the “building on prior experiences to respond to new contexts” aspect of ELO 2.2. Furthermore, each student completes an individual self-assessment of their contributions to the group project, which is a direct self-reflection on their learning process in a collaborative, problem-solving context.	We will broaden the scope of the individual project self-assessment to include personal learning reflection. Currently, students likely report what they contributed; we can tweak the prompt to also ask: “ <i>Name one skill or insight you developed while working on this project. How has this project changed the way you think about insect–environment issues or about communicating science?</i> ” This doesn’t add workload – it’s a slight refocus of a form they already fill out – but it makes the exercise double as a capstone reflection. Students will consciously articulate how they grew through this creative project (for example, gaining confidence in interpreting scientific data for a public audience, or realizing how prior coursework in ecology helped them solve a real-world problem). Such reflections demonstrate the scholarly and personal growth

		intended by ELO 2.2, and provide assessable evidence of it.
Ongoing Discussions & Readings (via Discussion Worksheets) <i>(Indirect, already in place)</i>	<p>Throughout the course, students engage with primary literature independently (the discussion prep worksheets) and then discuss those studies in class. This approach requires them to <i>step beyond their comfort zone</i> of textbook material – grappling with new and challenging academic content on their own. In doing so, they practice integrative learning: connecting prior knowledge to understand complex case studies. Repeated exposure builds their capacity to learn in unfamiliar contexts (though this process is not explicitly labeled as reflection, it inherently cultivates self-directed learning skills).</p>	<p>While this is not a separate “reflection assignment,” we can make its impact on self-learning more explicit by occasionally prompting students to consider their progress. For example, on the final discussion worksheet (or in the last discussion session), include a quick question like: <i>“Compared to the first article we read, how have your strategies for understanding research papers improved?”</i> This invites students to recognize their own learning development in dealing with scholarly content. It’s a minor addition to an existing task (a one-sentence reflection within Worksheet #5 or a closing discussion question) that highlights the meta-cognitive aspect of these assignments. It shows students coming to see themselves as more capable learners – exactly the growth ELO 2.2 expects – without introducing any new coursework.</p>

These reinforce the course’s alignment with the spirit of the GE Lived Environment theme: not only do students learn about insects and humans in a changing world, they also learn about themselves *as learners* and communicators in that world.

4. The Subcommittee asks that the department include in the syllabus (pp. 2-3) a complete listing of all goals and ELOS for the GEN Theme: Lived Environments category. (While the goals and ELOs are on the syllabus, they appear in a somewhat altered format.) A complete and accurate listing of the Goals and ELOs for all GEN and GEL categories is available on the ASC Curriculum and Assessment Services website.

The Goals and ELOs were changed to mirror <https://ascas.osu.edu/new-general-education-gen-goals-and-elos>

5. The Subcommittee suggests that the unit re-phrase or eliminate the statement on “Credit hours and work expectations” (syllabus, p. 4), as its language (“direct instruction”, etc.) is not conducive to describing an in-person course. Similarly, the suggest reviewing the “Course Materials, Fees and Technologies” section of the syllabus (pp. 4-5) to make certain that all technologies are necessary for an in-person course.

The webcam was removed from course materials.

6. The Subcommittee suggests removing the final paragraph of the “Accessibility Accommodations for Students with Disabilities” statement (syllabus, p. 14), as this appears to refer to the COVID-19 pandemic.

The wording about uncertain times was removed

SYLLABUS

ENTMLGY 3600

Insect Life in a Changing World

SP 2027

3 credit hours

In-Person T & TH 9:35-10:55AM

Course Overview

Instructors

Name: Dr. Mary Gardiner, PhD

Email: gardiner.29@osu.edu

Office location: 251 Kottman Hall, (614) 688-0218

Office hours: held by appointment

Name: Dr. Benjamin Philip, PhD

Email: philip.12@osu.edu

Office location: 257A Howlett Hall, (614) 688-0218

Office hours: held by appointment

Preferred means of communication:

Our preferred method of communication for questions is **email**.

Class-wide communications will be sent through the Announcements tool in Carmen Canvas. 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, e-mail may be used as an additional notification route.

Course Prerequisites

None

Course Description

This course explores the intricate relationships between insects, humans and the environment they share. Our world is rapidly changing; our climate is warming, storms are becoming more

intense and frequent, and cities are expanding to meet our needs. Students will examine how environmental change affects insect diversity, distribution, and behavior, and how these, in turn, influence ecosystems and human activities. Key topics include the role of insects in ecosystems, the effects of temperature and precipitation changes on insect populations, and the implications of insect population changes on agriculture, disease transmission, and biodiversity.

General Education Goals and Expected Learning Outcomes (ELO)

This course fulfills the General Education (GE) rationale for the GE Theme: Lived Environment category.

GE Goal 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than in the Foundations component.

Expected Learning Outcome 1.1: Engage in critical and logical thinking about the topic or idea of the theme.

Expected Learning Outcome 1.2: Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme.

GE goal 2: Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.

Expected Learning Outcome 2.1: Identify, describe, and synthesize approaches or experiences as they apply to the theme.

Expected Learning Outcome 2.2: Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.

GE goal 3: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g., agricultural, built, cultural, economic, intellectual, natural) in which humans live.

Expected Learning Outcome 3.1: Engage with the complexity and uncertainty of human-environment interactions.

Expected Learning Outcome 3.2: Describe examples of human interaction with and impact on environmental change and transformation over time and across space.

GE goal 4: Successful students will analyze a variety of perceptions, representations, and/or discourses about environments and humans within them.



Expected Learning Outcome 4.1: Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values, and behaviors.

Expected Learning Outcome 4.2: Describe how humans perceive and represent the environments with which they interact.

Expected Learning Outcome 4.3: Analyze and critique conventions, theories, and ideologies that influence discourses around environments.

This course fulfills these General Education Goals and Expected Learning Outcomes through:

- Lectures, readings and outside source material, which to allow students to receive new information in a variety of modalities.
- Student discussions, their self-assessment of discussion participation and discussion worksheets. Discussions will be based on topics related to readings and module topics.
- Questions on quizzes and exams are designed to assess student progress on learning objectives. Exam 1 and 2 will each be based on two modules and the cumulative final will be focused on big picture ideas from the semester.
- Student infographic project will include producing an infographic on an achievable strategy to mitigate insect decline, habitat degradation or some other ecological issue negatively facing insects.

Course Specific Learning Outcomes

By the end of this course, students should successfully be able to (with reference to the related General Education Learning Outcomes above):

1. Explain the environmental drivers of insect responses (e.g. molecular, physiological, population, genetic) to biotic and abiotic forces. ELO 1.1, 1.2, 2.1
2. Recognize the functional roles of insects in populations, communities and ecosystems. ELO 1.1, 1.2
3. Apply basic ecological concepts related to insects for their management. ELO 1.2, 2.1
4. Explain linkages between insects and human health and wellbeing. ELO 3.1, 3.2, 4.1, 4.2
5. Evaluate and synthesize ecological research to inform management approaches. ELO 4.3
6. Identify how changes to insect communities could impact human populations. ELO 3.1, 3.2
7. Translate ecological literature into lay-public accessible communications and recommend actions to manage insects. ELO 2.2



HOW THIS COURSE WORKS

Mode of delivery: This course is 100% in-person. Supporting information will be posted on our Carmen page, however, students are expected to attend class.

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

Attendance and participation requirements: Your attendance is required for your participation in class discussions.

- **Excused absences:** Legitimate excused absences include: participation in an activity of an official University organization, verifiable illness, verifiable family emergency, subpoena, jury duty, military service, and professional reasons (e.g., attendance at professional society meeting, job interview). Other serious personal problems will be considered on an individual basis. Instructor may require proof of documentation. Contact the instructor as soon as you know you will be absent due to an excused reason or as soon as possible in the case of illness or emergency. Arrangements will be made between the instructor and student individually on how missed assignments or exams will be handled in the case of excused absences.
- **Office hours:** **OPTIONAL**

COURSE MATERIALS, FEES AND TECHNOLOGIES

Required Materials and/or Technologies

- Insect Ecology: Behavior, Populations and Communities by Price, Peter W., Denno, Robert F., Eubanks, Micky D., Finke, Deborah L., Kaplan, Ian /ISBN: 9780521542609

Required Equipment

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

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 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.

Carmen 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 take the following steps:

- Register multiple devices in case something happens to your primary device. Information can be found at [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu).
- Users will only receive one SMS passcode at a time. Using the “Trust Browser” feature on a user’s first authentication log in of the day will allow the user to bypass the need for another passcode for 24 hours.
- [Install the Duo Mobile application](https://it.osu.edu/learner-technology-handbook/ch3/duo) (https://it.osu.edu/learner-technology-handbook/ch3/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)

Technology Support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743



Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points	Percent of grade
Module Quizzes (3)	100	10%
Discussion Worksheets (5)	100	10%
Discussion participation self-assessment (5)	100	10%
Infographic Project	200	20%
Midterm 1	150	15%
Midterm 2	150	15%
Final Exam	200	20%
Total points	1000	100%

See Carmen and course schedule for specific due dates.

Descriptions of Major Course Assignments

Module Quizzes:

Description: Students will be assigned quizzes via Carmen. These quizzes will evaluate student understanding of the lecture material, the reading assignments, and the outside sources provided in class/on Carmen. These quizzes will include portions of multiple choice and short answer questions, designed to illustrate the students understanding of the concepts.

Academic integrity and collaboration: These quizzes are open book/note/internet. However, they will be timed, and this time limit will require that students prepare in advance to take the quiz. Students must not work with other students when taking the quiz.



Discussion Worksheets

Description: As part of modules and in preparation for the class discussions, students will be expected to complete a reading assignment from primary literature or other materials. **The material in this reading assignment will not be delivered in an alternate way (in lectures, etc.) BUT will be tested in module quizzes and class exams.** To emphasize the importance of good note taking for this material, students will be given a sheet of questions to consider for the reading assignments. Students will submit a copy of their notes and answers following each discussion. The worksheets will be graded on completeness and effort.

Academic integrity and collaboration: Students may work together in filling out and devising notes. However, the worksheet must be each student's own.

Discussion Participation Self-Assessment:

Description: During the semester, students will be expected to come prepared for the discussions and are expected to interact meaningfully with other students in the class. For evaluation purposes, students will complete a self-assessment (see below, following course schedule) after each class discussion and these will be used to by the instructor to formulate grades for participation. Guidelines for meaningful interaction will be given.

Academic integrity and collaboration: When participating in a discussion, students should abide by the parameters established. Students should base the content of their discussion on resources provided by the instructors (e.g. book chapter, scientific articles, online video, etc.), or by using other sources they find during their research.

Infographic Project

Description: Students will work in assigned pairs/small groups to research an environmental problem that can be addressed through localized actions. This project will consist of designing an infographic that is easily understood by the lay-public. The infographic will demonstrate how these actions would enable the public to improve their environment. Additionally, the group will present this information to the class as part of their grade.

Academic integrity and collaboration: This group project and its components are to be original work and not duplicated from other sources. Groups will one assignment but students will also complete an individual self-assessment of their contributions to the group submission that will factor into their grade. See Carmen for further instructions.

Exams (Midterms and Final)

Description: Students will be evaluated on their learning using two midterms and a cumulative final exam. These exams will be given on Carmen to be taken outside of lecture and will include portions of multiple choice and short answer questions, as well as long answer questions designed to illustrate the students understanding of the concepts.

Academic integrity and collaboration: These exams are closed book/note/internet and students must not work with others.



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. Without an excused absence, late assignments will be subject to a 10% grade deduction during the first two hours, with additional 25% deductions accruing for every day (including weekends) it is late. Late submissions must be turned in within 4 days of the due date. Students with excused or unexcused absences that make them unable to participate in the group infographic project will be required to complete the assignment individually. In the case of illness or emergency that impacts submission of a course assignment, contact the instructors as soon as possible to discuss possible accommodations at the discretion of the instructors and with appropriate documentation.

Instructor Feedback and Response Time

We are providing the following list to give you an idea of our 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 us first through our Ohio State email address. We will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** We 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. We may also send important announcements directly to your email if needed.
- **Grading and feedback:** For assignments submitted before the due date, we 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 Misconduct/Academic Integrity

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](http://studentconduct.osu.edu) (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 we suspect that a student has committed academic misconduct in this course, we are 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 us.

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

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



(GenAI) Statement

In this course, students are welcome to explore innovative tools and technologies, including generative artificial intelligence (GenAI). GenAI can be a helpful resource for drafting creative content, brainstorming ideas, creating a “reverse outline” from a rough draft, and enhancing productivity. Yet it is essential to approach its use thoughtfully and ethically. Your written assignments must be your own original work. Submission of GenAI-generated content as your own work is considered a violation of Ohio State’s Academic Integrity policy and Code of Student Conduct because the work is not your own. The use of unauthorized GenAI tools will result in referral to the Committee on Academic Misconduct. If I suspect that you have used GenAI inappropriately on an assignment for this course, I will ask you to communicate with me to explain your process for completing the assignment in question.



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 Civil Rights Compliance Office:

Online reporting form at <https://civilrights.osu.edu/>

Call 614-247-5838 or TTY 614-688-8605,

Or Email civilrights@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.

In addition, this course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles can be found at <https://cfaes.osu.edu/about/cfaes-principles-community>. If you have been a victim of or a witness to harassment or discrimination or a bias incident, you can report it online and anonymously (if you choose) at <https://civilrights.osu.edu/>.



Copyright

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.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.



A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Civil Rights Compliance Office.

Policy: [Religious Holidays, Holy Days and Observances](#)

Weather or other short-term closing

Although Ohio State strives to remain open to ensure continuity of services to students and the public, extreme conditions can warrant the usage of the university's **Weather or Other Short-Term Closing Policy**. Please **visit this webpage** to learn more about preparing for potential closings and planning ahead for winter weather.

Counseling and Consultation Services/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's Counseling and Consultation Service (CCS) by visiting 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 by dialing 988 to reach the Suicide and Crisis Lifeline.

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.



ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. 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.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

In addition, please feel free to discuss class performance or your ability to complete a class task with your instructor. My priority is to facilitate a positive learning environment. Do not hesitate to e-mail us (gardiner.29@osu.edu or philip.12@osu.edu) if you have questions or concerns.



Course Schedule

Week	Day	Module	Topic	Assignments Due
1	T		Class Introduction	
	Th	1	Introduction to Insect Ecology	
2	T	1	Our connections with the insect world	
	Th	1	Drivers of Insect Declines (Anthropogenic Threats & Ecological Pressures)	
3	T	2	Climate Change and Disruptions to Insect Interactions	Quiz #1
	Th	2	1. Plant/Herbivore interactions (including in natural ecosystems and agriculture)	
4	T	2	2. Types of Mutualism	
	Th	2	Discussion #1	Worksheet #1
5	T	2	Infographic Project Idea Brainstorming	
	Th	3	Human Caused Land-Use Change: Urbanization, Habitat Loss & Deforestation	Midterm #1
6	T	3	1. Insect survivorship and impacts on natural selection under changing environments	
	Th	3	2. Components of niche space required by insects	
7	T	3	Discussion #2	Worksheet #2
	Th	4	Anthropogenic Driven Invasive Species And Their Impact On Insect Ecosystems	Quiz #2
8	T	4	1. Insect predator/ prey Interactions	
	Th	4	2. Insect competition (e.g. native vs. invasive species)	
9	T	4	Discussion #3	Worksheet #3
	Th	5	Agricultural intensification and pesticide use (balancing human needs and insect health)	Midterm #2
10	T	5	1. Insect parasite/ parasitoids/pathogens	
	Th	5	2. Multitrophic interaction/trophic cascades	
11	T	5	Discussion #4	Worksheet #4
	Th	6	Pollution (anthropogenic contaminants and insect declines)	Quiz #3
12	T	6	1. Insect behavior mating systems and sexual selection	
	Th	6	2. Insect population dynamics	

13	T	6	Discussion #5	Worksheet #5
	Th		Infographic Project Presentation	Infographic Project
14	T		Infographic Project Presentation	
	Th		TBD	

Rubric to for Self-assessment of Discussion Participation and Performance

Component	Advanced	Competent	Inadequate	Unacceptable
<i>Conduct</i>	Student shows respect for members of the class, both in speech and manner, and for the method of shared inquiry and peer discussion. Does not dominate discussion. Student challenges ideas respectfully, encourages and supports others to do the same.	Student shows respect for members of the class and for the method of shared inquiry and peer discussion. Participates regularly in the discussion but occasionally dominates the conversation or has difficulty accepting challenges to his/her ideas.	Student struggles showing respect for the class or the process as evidenced by speech and manner. Sometimes resorts to personal attacks when in disagreement with others.	Student shows a lack of respect for members of the group and the discussion process. Often dominates the discussion or disengages from the process. When contributing, can be argumentative or dismissive of others' ideas, or resorts to personal attacks.
<i>Ownership/Leadership</i>	Takes responsibility for maintaining the flow and quality of the discussion whenever needed. Helps to redirect or refocus discussion when it becomes sidetracked or unproductive. Makes efforts to engage reluctant participants. Provides constructive feedback and support to others.	Will take on responsibility for maintaining flow and quality of discussion, and encouraging others to participate but either is not always effective or is effective but does not regularly take on the responsibility.	Rarely takes an active role in maintaining the flow or direction of the discussion. When put in a leadership role, often acts as a guard rather than a facilitator: constrains or biases the content and flow of the discussion.	Does not play an active role in maintaining the flow of discussion or undermines the efforts of others who are trying to facilitate discussion.

<i>Reasoning</i>	Arguments or positions are reasonable and supported with evidence from the readings. Often deepens the conversation by going beyond the text, recognizing implications and extensions of the text. Provides analysis of complex ideas that help deepen the inquiry and further the conversation.	Arguments or positions are reasonable and mostly supported by evidence from the readings. In general, the comments and ideas contribute to the group's understanding of the material and concepts.	Contributions to the discussion are more often based on opinion or unclear views than on reasoned arguments or positions based on the readings. Comments or questions suggest a difficulty in following complex lines of argument or student's arguments are convoluted and difficult to follow.	Comments are frequently so illogical or without substantiation that others are unable to critique or even follow them. Rather than critique the text the student may resort to ad hominem attacks on the author instead.
<i>Listening</i>	Always actively attends to what others say as evidenced by regularly building on, clarifying, or responding to their comments. Often reminds group of comments made by someone earlier that are pertinent.	Usually listens well and takes steps to check comprehension by asking clarifying and probing questions, and making connections to earlier comments. Responds to ideas and questions offered by other participants.	Does not regularly listen well as indicated by the repetition of comments or questions presented earlier.	Behavior frequently reflects a failure to listen or attend to the discussion as indicated by repetition of comments and questions, off-task activities.
<i>Reading</i>	Student has carefully read and understood the readings as evidenced by oral contributions; familiarity with main ideas, supporting evidence and secondary points. Comes to class prepared with questions and critiques of the readings.	Student has read and understood the readings as evidenced by oral contributions. The work demonstrates a grasp of the main ideas and evidence but sometimes interpretations are questionable. Comes prepared with questions.	Student has read the material, but comments often indicate that he/she didn't read or think carefully about it, or misunderstood or forgot many points. Class conduct suggests inconsistent commitment to preparation.	Student either is unable to adequately understand and interpret the material or has come to class unprepared, as indicated by serious errors or an inability to answer basic questions or contribute to discussion.
Name one insight you gained in today's discussion or one way your thinking has changed:				

Adapted from Relearning by Design, Inc., 2000

Reading List:

Required:

- Insect Ecology: Behavior, Populations and Communities by Price, Peter W., Denno, Robert F., Eubanks, Micky D., Finke, Deborah L., Kaplan, Ian ISBN: 9780521542609

Additional readings are posted on the course's Carmen Modules, including:

- Hallmann, C. A., Sorg, M., Jongejans, E., Siepel, H., Hofland, N., et al. (2017). More than 75 percent decline over 27 years in total flying insect biomass in protected areas. PLOS ONE, 12(10), e0185809. <https://doi.org/10.1371/journal.pone.0185809>
- Halsch, C. A., Elphick, C. S., Bahlai, C. A., Forister, M. L., Wagner, D. L., Ware, J. L., & Grames, E. M. (2025). Meta-synthesis reveals interconnections among apparent drivers of insect biodiversity loss. BioScience. Advance online publication. <https://doi.org/10.1093/biosci/biaf034>
- Sánchez-Bayo, F., & Wyckhuys, K. A. G. (2019). Worldwide decline of the entomofauna: A review of its drivers. Biological Conservation, 232, 8. <https://rave.ohiolink.edu/ejournals/article/358197805>
- Skendžić, S., Zovko, M., Živković, I. P., Lešić, V., & Lemić, D. (2021). The impact of climate change on agricultural insect pests. Insects, 12(5), 440. <https://doi.org/10.3390/insects12050440>
- Tudi, M., Ruan, H. D., Wang, L., Lyu, J., Sadler, R., Connell, D., Chu, C., & Phung, D. T. (2021). Agriculture development, pesticide application and its impact on the environment. International Journal of Environmental Research and Public Health, 18(3), 1112. <https://doi.org/10.3390/ijerph18031112>

SYLLABUS

ENTMLGY 3600

Insect Life in a Changing World

SP 2027

3 credit hours

In-Person T & TH 9:35-10:55AM

Course Overview

Instructors

Name: Dr. Mary Gardiner, PhD

Email: gardiner.29@osu.edu

Office location: 251 Kottman Hall, (614) 688-0218

Office hours: held by appointment

Name: Dr. Benjamin Philip, PhD

Email: philip.12@osu.edu

Office location: 257A Howlett Hall, (614) 688-0218

Office hours: held by appointment

Preferred means of communication:

Our preferred method of communication for questions is **email**.

Class-wide communications will be sent through the Announcements tool in Carmen Canvas. 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, e-mail may be used as an additional notification route.

Course Prerequisites

None

Course Description

This course explores the intricate relationships between insects, humans and the environment they share. Our world is rapidly changing; our climate is warming, storms are becoming more

intense and frequent, and cities are expanding to meet our needs. Students will examine how environmental change affects insect diversity, distribution, and behavior, and how these, in turn, influence ecosystems and human activities. Key topics include the role of insects in ecosystems, the effects of temperature and precipitation changes on insect populations, and the implications of insect population changes on agriculture, disease transmission, and biodiversity.

General Education Goals and Expected Learning Outcomes (ELO)

This course fulfills the General Education (GE) rationale for the GE Theme: Lived Environment category.

GE Goal 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than in the Foundations component.

Expected Learning Outcome 1.1: Engage in critical and logical thinking about the topic or idea of the theme.

Expected Learning Outcome 1.2: Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme.

GE goal 2: Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.

Expected Learning Outcome 2.1: Identify, describe, and synthesize approaches or experiences as they apply to the theme.

Expected Learning Outcome 2.2: Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.

GE goal 3: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g., agricultural, built, cultural, economic, intellectual, natural) in which humans live.

Expected Learning Outcome 3.1: Engage with the complexity and uncertainty of human-environment interactions.

Expected Learning Outcome 3.2: Describe examples of human interaction with and impact on environmental change and transformation over time and across space.

GE goal 4: Successful students will analyze a variety of perceptions, representations, and/or discourses about environments and humans within them.



Expected Learning Outcome 4.1: Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values, and behaviors.

Expected Learning Outcome 4.2: Describe how humans perceive and represent the environments with which they interact.

Expected Learning Outcome 4.3: Analyze and critique conventions, theories, and ideologies that influence discourses around environments.

This course fulfills these General Education Goals and Expected Learning Outcomes through:

- Lectures, readings and outside source material, which to allow students to receive new information in a variety of modalities.
- Student discussions, their self-assessment of discussion participation and discussion worksheets. Discussions will be based on topics related to readings and module topics.
- Questions on quizzes and exams are designed to assess student progress on learning objectives. Exam 1 and 2 will each be based on two modules and the cumulative final will be focused on big picture ideas from the semester.
- Student infographic project will include producing an infographic on an achievable strategy to mitigate insect decline, habitat degradation or some other ecological issue negatively facing insects.

Course Specific Learning Outcomes

By the end of this course, students should successfully be able to (with reference to the related General Education Learning Outcomes above):

1. Explain the environmental drivers of insect responses (e.g. molecular, physiological, population, genetic) to biotic and abiotic forces. ELO 1.1, 1.2, 2.1
2. Recognize the functional roles of insects in populations, communities and ecosystems. ELO 1.1, 1.2
3. Apply basic ecological concepts related to insects for their management. ELO 1.2, 2.1
4. Explain linkages between insects and human health and wellbeing. ELO 3.1, 3.2, 4.1, 4.2
5. Evaluate and synthesize ecological research to inform management approaches. ELO 4.3
6. Identify how changes to insect communities could impact human populations. ELO 3.1, 3.2
7. Translate ecological literature into lay-public accessible communications and recommend actions to manage insects. ELO 2.2



HOW THIS COURSE WORKS

Mode of delivery: This course is 100% in-person. Supporting information will be posted on our Carmen page, however, students are expected to attend class.

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

Attendance and participation requirements: Your attendance is required for your participation in class discussions.

- **Excused absences:** Legitimate excused absences include: participation in an activity of an official University organization, verifiable illness, verifiable family emergency, subpoena, jury duty, military service, and professional reasons (e.g., attendance at professional society meeting, job interview). Other serious personal problems will be considered on an individual basis. Instructor may require proof of documentation. Contact the instructor as soon as you know you will be absent due to an excused reason or as soon as possible in the case of illness or emergency. Arrangements will be made between the instructor and student individually on how missed assignments or exams will be handled in the case of excused absences.
- **Office hours:** **OPTIONAL**

COURSE MATERIALS, FEES AND TECHNOLOGIES

Required Materials and/or Technologies

- Insect Ecology: Behavior, Populations and Communities by Price, Peter W., Denno, Robert F., Eubanks, Micky D., Finke, Deborah L., Kaplan, Ian /ISBN: 9780521542609

Required Equipment

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

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 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.

Carmen 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 take the following steps:

- Register multiple devices in case something happens to your primary device. Information can be found at [BuckeyePass](https://buckeyepass.osu.edu) (buckeyepass.osu.edu).
- Users will only receive one SMS passcode at a time. Using the “Trust Browser” feature on a user’s first authentication log in of the day will allow the user to bypass the need for another passcode for 24 hours.
- [Install the Duo Mobile application](https://it.osu.edu/learner-technology-handbook/ch3/duo) (https://it.osu.edu/learner-technology-handbook/ch3/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)

Technology Support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743



Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points	Percent of grade
Module Quizzes (3)	100	10%
Discussion Worksheets (5)	100	10%
Discussion participation self-assessment (5)	100	10%
Infographic Project	200	20%
Midterm 1	150	15%
Midterm 2	150	15%
Final Exam	200	20%
Total points	1000	100%

See Carmen and course schedule for specific due dates.

Descriptions of Major Course Assignments

Module Quizzes:

Description: Students will be assigned quizzes via Carmen. These quizzes will evaluate student understanding of the lecture material, the reading assignments, and the outside sources provided in class/on Carmen. These quizzes will include portions of multiple choice and short answer questions, designed to illustrate the students understanding of the concepts.

Academic integrity and collaboration: These quizzes are open book/note/internet. However, they will be timed, and this time limit will require that students prepare in advance to take the quiz. Students must not work with other students when taking the quiz.



Discussion Worksheets

Description: As part of modules and in preparation for the class discussions, students will be expected to complete a reading assignment from primary literature or other materials. **The material in this reading assignment will not be delivered in an alternate way (in lectures, etc.) BUT will be tested in module quizzes and class exams.** To emphasize the importance of good note taking for this material, students will be given a sheet of questions to consider for the reading assignments. Students will submit a copy of their notes and answers following each discussion. The worksheets will be graded on completeness and effort.

Academic integrity and collaboration: Students may work together in filling out and devising notes. However, the worksheet must be each student's own.

Discussion Participation Self-Assessment:

Description: During the semester, students will be expected to come prepared for the discussions and are expected to interact meaningfully with other students in the class. For evaluation purposes, students will complete a self-assessment (see below, following course schedule) after each class discussion and these will be used to by the instructor to formulate grades for participation. Guidelines for meaningful interaction will be given.

Academic integrity and collaboration: When participating in a discussion, students should abide by the parameters established. Students should base the content of their discussion on resources provided by the instructors (e.g. book chapter, scientific articles, online video, etc.), or by using other sources they find during their research.

Infographic Project

Description: Students will work in assigned pairs/small groups to research an environmental problem that can be addressed through localized actions. This project will consist of designing an infographic that is easily understood by the lay-public. The infographic will demonstrate how these actions would enable the public to improve their environment. Additionally, the group will present this information to the class as part of their grade.

Academic integrity and collaboration: This group project and its components are to be original work and not duplicated from other sources. Groups will one assignment but students will also complete an individual self-assessment of their contributions to the group submission that will factor into their grade. See Carmen for further instructions.

Exams (Midterms and Final)

Description: Students will be evaluated on their learning using two midterms and a cumulative final exam. These exams will be given on Carmen to be taken outside of lecture and will include portions of multiple choice and short answer questions, as well as long answer questions designed to illustrate the students understanding of the concepts.

Academic integrity and collaboration: These exams are closed book/note/internet and students must not work with others.





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. Without an excused absence, late assignments will be subject to a 10% grade deduction during the first two hours, with additional 25% deductions accruing for every day (including weekends) it is late. Late submissions must be turned in within 4 days of the due date. Students with excused or unexcused absences that make them unable to participate in the group infographic project will be required to complete the assignment individually. In the case of illness or emergency that impacts submission of a course assignment, contact the instructors as soon as possible to discuss possible accommodations at the discretion of the instructors and with appropriate documentation.

Instructor Feedback and Response Time

We are providing the following list to give you an idea of our 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 us first through our Ohio State email address. We will reply to emails within **24 hours on days when class is in session at the university**.
- **Class announcements:** We 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. We may also send important announcements directly to your email if needed.
- **Grading and feedback:** For assignments submitted before the due date, we 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 Misconduct/Academic Integrity

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](http://studentconduct.osu.edu) (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 we suspect that a student has committed academic misconduct in this course, we are 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 us.

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

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

Generative Artificial Intelligence (GenAI) Statement

In this course, students are welcome to explore innovative tools and technologies, including



generative artificial intelligence (GenAI). GenAI can be a helpful resource for drafting creative content, brainstorming ideas, creating a “reverse outline” from a rough draft, and enhancing productivity. Yet it is essential to approach its use thoughtfully and ethically. Your written assignments must be your own original work. Submission of GenAI-generated content as your own work is considered a violation of Ohio State’s Academic Integrity policy and Code of Student Conduct because the work is not your own. The use of unauthorized GenAI tools will result in referral to the Committee on Academic Misconduct. If I suspect that you have used GenAI inappropriately on an assignment for this course, I will ask you to communicate with me to explain your process for completing the assignment in question.



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 Civil Rights Compliance Office:

Online reporting form at <https://civilrights.osu.edu/>

Call 614-247-5838 or TTY 614-688-8605,

Or Email civilrights@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.

In addition, this course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles can be found at <https://cfaes.osu.edu/about/cfaes-principles-community>. If you have been a victim of or a witness to harassment or discrimination or a bias incident, you can report it online and anonymously (if you choose) at <https://civilrights.osu.edu/>.



Copyright

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.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.



A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Civil Rights Compliance Office.

Policy: [Religious Holidays, Holy Days and Observances](#)

Weather or other short-term closing

Although Ohio State strives to remain open to ensure continuity of services to students and the public, extreme conditions can warrant the usage of the university's **Weather or Other Short-Term Closing Policy**. Please **visit this webpage** to learn more about preparing for potential closings and planning ahead for winter weather.

Counseling and Consultation Services/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's Counseling and Consultation Service (CCS) by visiting 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 by dialing 988 to reach the Suicide and Crisis Lifeline.

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.



ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. 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.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

In addition, please feel free to discuss class performance or your ability to complete a class task with your instructor. My priority is to facilitate a positive learning environment. Do not hesitate to e-mail us (gardiner.29@osu.edu or philip.12@osu.edu) if you have questions or concerns.



Course Schedule

Week	Day	Module	Topic	Assignments Due
1	T		Class Introduction	
	Th	1	Introduction to Insect Ecology	
2	T	1	Our connections with the insect world	
	Th	1	Drivers of Insect Declines (Anthropogenic Threats & Ecological Pressures)	
3	T	2	Climate Change and Disruptions to Insect Interactions	Quiz #1
	Th	2	1. Plant/Herbivore interactions (including in natural ecosystems and agriculture)	
4	T	2	2. Types of Mutualism	
	Th	2	Discussion #1	Worksheet #1
5	T	2	Infographic Project Idea Brainstorming	
	Th	3	Human Caused Land-Use Change: Urbanization, Habitat Loss & Deforestation	Midterm #1
6	T	3	1. Insect survivorship and impacts on natural selection under changing environments	
	Th	3	2. Components of niche space required by insects	
7	T	3	Discussion #2	Worksheet #2
	Th	4	Anthropogenic Driven Invasive Species And Their Impact On Insect Ecosystems	Quiz #2
8	T	4	1. Insect predator/ prey Interactions	
	Th	4	2. Insect competition (e.g. native vs. invasive species)	
9	T	4	Discussion #3	Worksheet #3
	Th	5	Agricultural intensification and pesticide use (balancing human needs and insect health)	Midterm #2
10	T	5	1. Insect parasite/ parasitoids/pathogens	
	Th	5	2. Multitrophic interaction/trophic cascades	
11	T	5	Discussion #4	Worksheet #4
	Th	6	Pollution (anthropogenic contaminants and insect declines)	Quiz #3
12	T	6	1. Insect behavior mating systems and sexual selection	
	Th	6	2. Insect population dynamics	

13	T	6	Discussion #5	Worksheet #5
	Th		Infographic Project Presentation	Infographic Project
14	T		Infographic Project Presentation	
	Th		TBD	

Rubric to for Self-assessment of Discussion Participation and Performance

Component	Advanced	Competent	Inadequate	Unacceptable
<i>Conduct</i>	Student shows respect for members of the class, both in speech and manner, and for the method of shared inquiry and peer discussion. Does not dominate discussion. Student challenges ideas respectfully, encourages and supports others to do the same.	Student shows respect for members of the class and for the method of shared inquiry and peer discussion. Participates regularly in the discussion but occasionally dominates the conversation or has difficulty accepting challenges to his/her ideas.	Student struggles showing respect for the class or the process as evidenced by speech and manner. Sometimes resorts to personal attacks when in disagreement with others.	Student shows a lack of respect for members of the group and the discussion process. Often dominates the discussion or disengages from the process. When contributing, can be argumentative or dismissive of others' ideas, or resorts to personal attacks.
<i>Ownership/Leadership</i>	Takes responsibility for maintaining the flow and quality of the discussion whenever needed. Helps to redirect or refocus discussion when it becomes sidetracked or unproductive. Makes efforts to engage reluctant participants. Provides constructive feedback and support to others.	Will take on responsibility for maintaining flow and quality of discussion, and encouraging others to participate but either is not always effective or is effective but does not regularly take on the responsibility.	Rarely takes an active role in maintaining the flow or direction of the discussion. When put in a leadership role, often acts as a guard rather than a facilitator: constrains or biases the content and flow of the discussion.	Does not play an active role in maintaining the flow of discussion or undermines the efforts of others who are trying to facilitate discussion.

<i>Reasoning</i>	Arguments or positions are reasonable and supported with evidence from the readings. Often deepens the conversation by going beyond the text, recognizing implications and extensions of the text. Provides analysis of complex ideas that help deepen the inquiry and further the conversation.	Arguments or positions are reasonable and mostly supported by evidence from the readings. In general, the comments and ideas contribute to the group's understanding of the material and concepts.	Contributions to the discussion are more often based on opinion or unclear views than on reasoned arguments or positions based on the readings. Comments or questions suggest a difficulty in following complex lines of argument or student's arguments are convoluted and difficult to follow.	Comments are frequently so illogical or without substantiation that others are unable to critique or even follow them. Rather than critique the text the student may resort to ad hominem attacks on the author instead.
<i>Listening</i>	Always actively attends to what others say as evidenced by regularly building on, clarifying, or responding to their comments. Often reminds group of comments made by someone earlier that are pertinent.	Usually listens well and takes steps to check comprehension by asking clarifying and probing questions, and making connections to earlier comments. Responds to ideas and questions offered by other participants.	Does not regularly listen well as indicated by the repetition of comments or questions presented earlier.	Behavior frequently reflects a failure to listen or attend to the discussion as indicated by repetition of comments and questions, off-task activities.
<i>Reading</i>	Student has carefully read and understood the readings as evidenced by oral contributions; familiarity with main ideas, supporting evidence and secondary points. Comes to class prepared with questions and critiques of the readings.	Student has read and understood the readings as evidenced by oral contributions. The work demonstrates a grasp of the main ideas and evidence but sometimes interpretations are questionable. Comes prepared with questions.	Student has read the material, but comments often indicate that he/she didn't read or think carefully about it, or misunderstood or forgot many points. Class conduct suggests inconsistent commitment to preparation.	Student either is unable to adequately understand and interpret the material or has come to class unprepared, as indicated by serious errors or an inability to answer basic questions or contribute to discussion.
Name one insight you gained in today's discussion or one way your thinking has changed:				

Adapted from Relearning by Design, Inc., 2000

Reading List:

Required:

- Insect Ecology: Behavior, Populations and Communities by Price, Peter W., Denno, Robert F., Eubanks, Micky D., Finke, Deborah L., Kaplan, Ian ISBN: 9780521542609

Additional readings are posted on the course's Carmen Modules, including:

- Hallmann, C. A., Sorg, M., Jongejans, E., Siepel, H., Hofland, N., et al. (2017). More than 75 percent decline over 27 years in total flying insect biomass in protected areas. PLOS ONE, 12(10), e0185809. <https://doi.org/10.1371/journal.pone.0185809>
- Halsch, C. A., Elphick, C. S., Bahlai, C. A., Forister, M. L., Wagner, D. L., Ware, J. L., & Grames, E. M. (2025). Meta-synthesis reveals interconnections among apparent drivers of insect biodiversity loss. BioScience. Advance online publication. <https://doi.org/10.1093/biosci/biaf034>
- Sánchez-Bayo, F., & Wyckhuys, K. A. G. (2019). Worldwide decline of the entomofauna: A review of its drivers. Biological Conservation, 232, 8. <https://rave.ohiolink.edu/ejournals/article/358197805>
- Skendžić, S., Zovko, M., Živković, I. P., Lešić, V., & Lemić, D. (2021). The impact of climate change on agricultural insect pests. Insects, 12(5), 440. <https://doi.org/10.3390/insects12050440>
- Tudi, M., Ruan, H. D., Wang, L., Lyu, J., Sadler, R., Connell, D., Chu, C., & Phung, D. T. (2021). Agriculture development, pesticide application and its impact on the environment. International Journal of Environmental Research and Public Health, 18(3), 1112. <https://doi.org/10.3390/ijerph18031112>

GE Theme course submission worksheet: Lived Environments

Overview

Courses in the GE Themes aim to provide students with opportunities to explore big picture ideas and problems within the specific practice and expertise of a discipline or department. Although many Theme courses serve within disciplinary majors or minors, by requesting inclusion in the General Education, programs are committing to the incorporation of the goals of the focal theme and the success and participation of students from outside of their program.

Each category of the GE has specific learning goals and Expected Learning Outcomes (ELOs) that connect to the big picture goals of the program. ELOs describe the knowledge or skills students should have by the end of the course. Courses in the GE Themes must meet the ELOs common for **all** GE Themes and those specific to the Theme, in addition to any ELOs the instructor has developed specific to that course. All courses in the GE must indicate that they are part of the GE and include the Goals and ELOs of their GE category on their syllabus.

The prompts in this form elicit information about how this course meets the expectations of the GE Themes. The form will be reviewed by a group of content experts (the Theme Advisory) and by a group of curriculum experts (the Theme Panel), with the latter having responsibility for the ELOs and Goals common to all themes (those things that make a course appropriate for the GE Themes) and the former having responsibility for the ELOs and Goals specific to the topic of **this** Theme.

Briefly describe how this course connects to or exemplifies the concept of this Theme (Lived Environments)

In a sentence or two, explain how this class “fits” within the focal Theme. This will help reviewers understand the intended frame of reference for the course-specific activities described below.

(enter text here)

Connect this course to the Goals and ELOs shared by *all* Themes

Below are the Goals and ELOs common to all Themes. In the accompanying table, for each ELO, describe the activities (discussions, readings, lectures, assignments) that provide opportunities for students to achieve those outcomes. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The specifics of the activities matter—listing “readings” without a reference to the topic of those readings will not allow the reviewers to understand how the ELO will be met. However, the panel evaluating the fit of the course to the Theme will review this form in conjunction with the syllabus, so if readings, lecture/discussion topics, or other specifics are provided on the syllabus, it is not necessary to reiterate them within this form. The ELOs are expected to vary in their “coverage” in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

Goal 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations. In this context, “advanced” refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities.

Goal 2: Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.

	Course activities and assignments to meet these ELOs
ELO 1.1 Engage in critical and logical thinking.	
ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.	
ELO 2.1 Identify, describe, and synthesize approaches or experiences.	
ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.	

Example responses for proposals within “Citizenship” (from Sociology 3200, Comm 2850, French 2803):

ELO 1.1 Engage in critical and logical thinking.	<i>This course will build skills needed to engage in critical and logical thinking about immigration and immigration related policy through: Weekly reading response papers which require the students to synthesize and critically evaluate cutting-edge scholarship on immigration; Engagement in class-based discussion and debates on immigration-related topics using evidence-based logical reasoning to evaluate policy positions; Completion of an assignment which build skills in analyzing empirical data on immigration (Assignment #1)</i>
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	<p>Completion 3 assignments which build skills in connecting individual experiences with broader population-based patterns (Assignments #1, #2, #3)</p> <p>Completion of 3 quizzes in which students demonstrate comprehension of the course readings and materials.</p>
<p>ELO 2.1 Identify, describe, and synthesize approaches or experiences.</p>	<p>Students engage in advanced exploration of each module topic through a combination of lectures, readings, and discussions.</p> <p><u>Lecture</u> Course materials come from a variety of sources to help students engage in the relationship between media and citizenship at an advanced level. Each of the 12 modules has 3-4 lectures that contain information from both peer-reviewed and popular sources. Additionally, each module has at least one guest lecture from an expert in that topic to increase students' access to people with expertise in a variety of areas.</p> <p><u>Reading</u> The textbook for this course provides background information on each topic and corresponds to the lectures. Students also take some control over their own learning by choosing at least one peer-reviewed article and at least one newspaper article from outside the class materials to read and include in their weekly discussion posts.</p> <p><u>Discussions</u> Students do weekly discussions and are given flexibility in their topic choices in order to allow them to take some control over their education. They are also asked to provide information from sources they've found outside the lecture materials. In this way, they are able to explore areas of particular interest to them and practice the skills they will need to gather information about current events, analyze this information, and communicate it with others.</p> <p>Activity Example: Civility impacts citizenship behaviors in many ways. Students are asked to choose a TED talk from a provided list (or choose another speech of their interest) and summarize and evaluate what it says about the relationship between civility and citizenship. Examples of Ted Talks on the list include Steven Petrow on the difference between being polite and being civil, Chimamanda Ngozi Adichie's talk on how a single story can perpetuate stereotypes, and Claire Wardle's talk on how diversity can enhance citizenship.</p>
<p>ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.</p>	<p>Students will conduct research on a specific event or site in Paris not already discussed in depth in class. Students will submit a 300-word abstract of their topic and a bibliography of at least five reputable academic and mainstream sources. At the end of the semester they will submit a 5-page research paper and present their findings in a 10-minute oral and visual presentation in a small-group setting in Zoom.</p> <p>Some examples of events and sites: The Paris Commune, an 1871 socialist uprising violently squelched by conservative forces</p>

	<i>Jazz-Age Montmartre, where a small community of African-Americans—including actress and singer Josephine Baker, who was just inducted into the French Pantheon—settled and worked after World War I.</i> <i>The Vélodrome d’hiver Roundup, 16-17 July 1942, when 13,000 Jews were rounded up by Paris police before being sent to concentration camps</i> <i>The Marais, a vibrant Paris neighborhood inhabited over the centuries by aristocrats, then Jews, then the LGBTQ+ community, among other groups.</i>
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Goals and ELOs unique to Lived Environments

Below are the Goals and ELOs specific to this Theme. As above, in the accompanying Table, for each ELO, describe the activities (discussions, readings, lectures, assignments) that provide opportunities for students to achieve those outcomes. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The ELOs are expected to vary in their “coverage” in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

GOAL 3: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g. agricultural, built, cultural, economic, intellectual, natural) in which humans live.

GOAL 4: Successful students will analyze a variety of perceptions, representations and/or discourses about environments and humans within them.

	Course activities and assignments to meet these ELOs
ELO 3.1 Engage with the complexity and uncertainty of human-environment interactions.	
ELO 3.2 Describe examples of human interaction with and impact on environmental change and transformation over time and across space.	
ELO 4.1 Analyze how humans’ interactions with their environments shape or have shaped attitudes, beliefs, values and behaviors.	
ELO 4.2 Describe how humans perceive and represent the environments with which they interact.	
ELO 4.3 Analyze and critique conventions, theories, and ideologies that influence discourses around environments.	

From: [Osborne, Jeanne](#)
To: [Klinger, Ellen](#)
Subject: FW: Concurrence Requests: ENTMLGY 3600, Insect Life in a Changing World
Date: Tuesday, July 15, 2025 4:39:28 PM
Attachments: [image002.png](#)

First concurrence response out of EEOB.

Take care,

Jeanne

From: Freudenstein, John <freudenstein.1@osu.edu>
Sent: Tuesday, July 15, 2025 4:36 PM
To: Osborne, Jeanne <osborne.2@osu.edu>
Cc: Vankeerbergen, Bernadette <vankeerbergen.1@osu.edu>
Subject: RE: Concurrence Requests: ENTMLGY 3600, Insect Life in a Changing World

Dear Jeanne:

I have reviewed the course information for your proposed course Entomology 3600 "Insect Life in a Changing World.". I see no conflicts with anything being taught in EEOB and can imagine our students benefiting from this offering, so you have the concurrence of EEOB.

With best wishes,

John Freudenstein



John V. Freudenstein, PhD
Professor
Vice Chair for Undergraduate Studies
Director of the Herbarium (OS)
Dept. of Evolution, Ecology and Organismal Biology
1315 Kinnear Road
Columbus, OH 43212
614-688-0363
freudenstein.1@osu.edu eeob.osu.edu

From: [Vankeerbergen, Bernadette](#)
To: [Osborne, Jeanne](#); [Martin, Andrew](#)
Cc: [Klinger, Ellen](#)
Subject: RE: Concurrence Requests: ENTMLGY 3600, Insect Life in a Changing World
Date: Friday, August 1, 2025 9:17:30 AM
Attachments: [image002.png](#)
[image003.png](#)

Dear Jeanne,

Yes, please go ahead and assume concurrence from ASC, including Geography. We did not hear back from them before the deadline.

All the best,
Bernadette



Bernadette Vankeerbergen, Ph.D.

Assistant Dean, Curriculum

College of Arts and Sciences

114F University Hall, 230 North Oval Mall.

Columbus, OH 43210

Phone: 614-688-5679

<http://ascas.osu.edu>

From: Osborne, Jeanne <osborne.2@osu.edu>
Sent: Friday, August 1, 2025 9:15 AM
To: Martin, Andrew <martin.1026@osu.edu>; Vankeerbergen, Bernadette <vankeerbergen.1@osu.edu>
Cc: Klinger, Ellen <klinger.80@osu.edu>
Subject: RE: Concurrence Requests: ENTMLGY 3600, Insect Life in a Changing World

Dear Dr. Martin and Dr. Vankeerbergen,

I apologize for not sending a reminder prior to the requested deadline – we have been occupied with the State Fair activities, and I am just now resurfacing my outstanding requests.

We heard back from Dr. Freudenstein in EEOB with concurrence for this course, but I am not finding any other responses. At this point, we are assuming that there is concurrence from the College of Arts and Sciences, including Geography (which was specifically messaged for feedback), unless I have missed a response.

I look forward to hearing back, and thank you!

Jeanne



THE OHIO STATE UNIVERSITY

Jeanne M. Osborne

Assistant Dean for Academic Affairs
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Tel: 614-292-1734
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e-mail: Osborne.2@osu.edu

'Unexpected kindness is the most powerful, least costly, and most underrated agent of human change' (Bob Kerrey)

From: Osborne, Jeanne
Sent: Monday, July 7, 2025 1:53 PM
To: Martin, Andrew <martin.1026@osu.edu>; Vankeerbergen, Bernadette <vankeerbergen.1@osu.edu>
Cc: Klinger, Ellen <klinger.80@osu.edu>
Subject: Concurrence Requests: ENTMLGY 3600, Insect Life in a Changing World

Dear Dr. Martin and Dr. Vankeerbergen,

I hope that your summer is going well so far – Autumn semester is just on the horizon!

The Department of Entomology in the College of Food, Agricultural, and Environmental Sciences is proposing a new course for the GE Theme Lived Environments, ENTMLGY 3600, Insect Life in a Changing World. This course focuses on the insect/human/environment interface and provides students the opportunity to consider how changes in our world impact these interactions. I would appreciate it if you would forward the attached course syllabi to the appropriate units within your college. We would appreciate feedback by Friday, July 25, 2025.

Please let me know if you have any questions or need additional information.

Take care,

Jeanne



THE OHIO STATE UNIVERSITY

Jeanne M. Osborne | *Pronouns: She, Her, Hers*

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'Unexpected kindness is the most powerful, least costly, and most underrated agent of human change' (Bob Kerrey)

From: [Pintor, Lauren](#)
To: [Klinger, Ellen](#); [Haab, Timothy](#)
Cc: [Osborne, Jeanne](#)
Subject: Re: Concurrence Request: ENTMLGY 3600 Insect Life in a Changing World
Date: Monday, July 7, 2025 2:59:09 PM
Attachments: [image001.png](#)
[image002.png](#)

Hi Ellen,

Got some quick replies & SENR is happy to offer concurrence for the course! Good luck!

Best,
Lauren

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Lauren M. Pintor (she, her)
Associate Professor of Aquatic Ecology
Associate Director of Undergraduate Education
School of Environment & Natural Resources
210 Kottman Hall, Columbus, OH 43210
Email: pintor.6@osu.edu

From: Klinger, Ellen <klinger.80@osu.edu>
Date: Monday, July 7, 2025 at 2:04 PM
To: Pintor, Lauren <pintor.6@osu.edu>, Haab, Timothy <haab.1@osu.edu>
Cc: Osborne, Jeanne <osborne.2@osu.edu>
Subject: Concurrence Request: ENTMLGY 3600 Insect Life in a Changing World

Tim and Lauren,

ENTMLGY is hoping to get a new course approved, ENTMLGY 3600, Insect Life in a Changing World. This course will also hopefully be approved as a new course for the GE Theme Lived Environments as well. This course focuses on insect ecology, and especially how humans impact insects in our current world.

I am looking to seek concurrence from SENR to move forward with this course. If you can pass along to relevant faculty for their feedback, I would be appreciative.

We are looking for the feedback by **Friday July 25th**.

Let me know if there are further questions or if you need more information or more time to evaluate the course for concurrence (given Tim's current remote location!).

Thanks!

Ellen



Ellen Klinger, PhD

Professional Practice Associate Professor of Entomology

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

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614-247-4763 Office

klinger.80@osu.edu / osu.edu

Pronouns: she/her/hers



[Book time to meet with me](#)