

Global Change and Insect Declines

(ENY 4932/6934 & ZOO 4926/6927)

Spring 2025

Course Personnel

Dr. Akito Kawahara (Co-instructor)

Curator of Entomology

Florida Museum of Natural History

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Dr. Lawrence Reeves (Co-instructor)

Assistant Professor

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Office hours: Fridays 1:00 PM – 3:00 PM. Zoom only.

Dr. David Plotkin (Co-instructor)

Kawahara Lab Project Manager

Florida Museum of Natural History

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Office hours: Mondays 1:00 PM – 3:00 PM. Office: 130 McGuire Hall.

Brynn Johnson (Teaching assistant)

PhD Candidate

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Office hours: By appointment. Zoom only.

General Class Information:

Course Description

Introduces students to the global impacts of anthropogenic change on insect diversity and abundance. Each week students will read pertinent papers on important topics such

as pollution, pesticides, and climate change, followed by group discussions on how these factors are impacting insects in Florida and globally.

Course Learning Objectives

After completing this course, students will be able to:

Evaluate which factors are the most significant contributors to declines of a particular insect population in a particular habitat, using their knowledge of the different biotic and abiotic factors that contribute to insect declines on a global scale.

Critically assess new developments in science policy (in the context of how these policies address the problem of insect declines) using their experiences participating in class discussions of the factors contributing to insect declines.

Formulate hypotheses about potential new contributors to insect declines, using the information conveyed by instructors and student presenters about the commonalities and patterns of currently-known contributors.

Design research projects that further investigate the impacts of insect declines, using their knowledge of the methodologies of insect-related scientific studies discussed by instructors and student presenters.

Create opportunities for outreach (at the academic and/or the community science levels) that can impact the development of ecologically beneficial policies, using their experience communicating the importance and implications of insect declines as part of the grad-student class project.

Prerequisites

There are no prerequisites.

Credits:

2-credits

Course Meetings

Monday and Wednesday, Period 5 (11:45 am – 12:35 pm).

The course will meet twice each week, Mondays and Wednesdays over Zoom. Monday classes will be a lecture format followed by Wednesday student presentation and discussion. Each student will be expected to lead one discussion, which means most Wednesday classes will begin with a student-led presentation on the assigned reading.

The remaining classes will begin with a short lecture on the topic by one or more instructors, followed by a group paper discussion.

Textbooks

There are no required or recommended textbooks associated with this course. A list of citations of the assigned readings is in the Course Schedule section of the syllabus; instructors will provide students with free access to all assigned readings at the beginning of the semester via Canvas.

Grading:

Graduate students will be graded based on their presentation (25% of final grade), their weekly participation (25% of final grade), weekly discussion questions (15% of final grade), a class project (15% of final grade), and a final exam (20% of final grade).

Undergraduate students will be graded based on their presentation (30% of final grade), their weekly participation (30% of final grade), weekly discussion questions (20% of final grade), and a final exam (20% of final grade).

The final exam will take place at the date and time scheduled by the university (Tuesday April 29, 3:00–5:00 p.m.; <https://registrar.ufl.edu/courses/final-exam>). Undergraduate and graduate students will be given different final exams. Some questions may be present in both exams, but graduate students will be required to answer additional questions in the same amount of time.

The student-led presentations should include a short (~10 minute) summary of the paper assigned for that week's discussion, using Powerpoint. The student leading the presentation should also prepare to initiate further discussion by asking a few open-ended questions about the paper, or questions about topics closely related to the paper. A list of papers will be provided at the start of the semester, and students will sign up to present one of those papers in a specific class. If a student wants to present a different paper on a similar topic related to insect declines, they may be permitted to do so at the discretion of the instructors. Any student interested in presenting a different paper must send a copy of this alternate paper to the instructors, by e-mail or Canvas, for approval a minimum of *two weeks* before they are scheduled to present.

Class participation implies attendance and active participation in all classes. Students will be expected to read assigned course materials before each class, and are expected to engage in discussion on Wednesdays by asking relevant questions or providing relevant comments that demonstrate some familiarity with the assigned reading

materials. Students will be awarded one point for each class attended (both Mondays and Wednesdays) and will be awarded two points for participation during each Wednesday class. These point totals will be compared to the maximum possible point total across all weeks of class (55 points) in order to calculate overall participation scores for final grades.

Each week, students will be expected to submit three substantive questions or comments about the assigned paper for Wednesday discussion. These three questions/comments should be sent to the instructors over Canvas, by 5:00 PM Eastern every Tuesday, the day before the class discussion. Students are not required to submit questions/comments the same week they have signed up to lead the presentation.

The design of the class project for graduate students is open-ended, but the project's overarching goal should be some form of research or outreach, at the academic or community science level, that increases awareness of declining insect populations. As examples, the project can involve collection and communication/distribution of novel insect observations in a field setting over the course of the semester, reviewing and summarizing relevant literature (with possible intent to submit as a peer-reviewed publication under mentorship of the instructors), or conducting science-communication activities via social media and other online platforms. Students can propose alternate project ideas, subject to instructor approval. The skills acquired and developed during completion of this project will help students complete the above-mentioned course learning objectives.

Graduate students are expected to submit a written proposal of their project idea (approximately one page, double-spaced) before Wednesday's class in Week 4, and are expected to submit a short progress report (approximately one page, double-spaced) before Wednesday's class in Week 9. Each of these assignments is worth 10% of the total project grade (i.e., 1.5% of the overall class grade). Results of the final project must be submitted on the last day of class of the semester. The form these results will take depends on the nature of the project. Students that choose to collect and communicate/distribute novel insect observations are expected to spend an average of 2 hours per week collecting data for at least 8 weeks, and to then write a report (5+ pages, double-spaced) summarizing their findings and developing preliminary hypotheses about the insect populations they observed. Students that choose to review and summarize relevant literature are expected to submit a fully formatted literature review (12+ pages, double-spaced) that follows the formatting and submission guidelines of a peer-reviewed scientific journal of their choice. Students that conduct science-communication activities via social media are expected to spend an average of 3 hours per week creating and distributing these communications for at least 8 weeks, and to then write a short summary (2+ pages, double-spaced) outlining the breadth of

these science-communication activities and their impact. A full list of relevant URLs should be appended to the 2-page summary so that instructors can view the science-communication activities directly. If a student writes a proposal for an approved alternate project idea, instructors will assess the written proposal and then make it clear what expectations are for the proposed project, ensuring that such expectations are equal for all students with regards to commitments of time and effort.

Attendance Policy:

Students are expected to attend all classes, unless an acceptable reason for absence is provided, in accordance with university-wide attendance policies.

(<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>).

Students that provide acceptable reasons for absences will receive attendance and participation points for the days they are absent, as outlined in the Grading section of the syllabus.

Course Schedule

Week	Date	Topics and Assignments	Lecturer / Discussion Leader	Assigned reading
1	Mon. January 13	Intro – Importance of insects	Kawahara	
	Wed. January 15	Submit discussion questions	Kawahara	Wagner et al. (2021)
2	Mon. January 20	<i>No class (MLK day)</i>		
	Wed. January 22	Submit discussion questions	Student-led presentation	Henen (2016)
3	Mon. January 27	Evaluating and addressing declines	Kawahara	
	Wed. January 29	Submit discussion questions	Student-led presentation	Wilson (1987)
4	Mon. February 3	Habitat destruction	Guest Lecture (Sarah Steele Cabrera)	
	Wed. February 5	Submit discussion questions Grad project proposal due date	Student-led presentation	Polus et al. (2007)
5	Mon. February 10	Pesticides – vector control	Reeves	
	Wed. February 12	Submit discussion questions	Student-led presentation	Salvato (2001)
6	Mon. February 17	Pesticides 2 - bees	Guest Lecture (Chase Kimmel)	
	Wed. February 19	Submit discussion questions	Student-led presentation	Tallamy et al. (2020)
7	Mon. February 24	Light pollution	Guest Lecture (Yash Sondhi)	
	Wed. February 26	Submit discussion questions	Student-led presentation	Owens et al. (2020)
8	Mon. March 3	Water pollution, droughts and rainfall	Plotkin	
	Wed. March 5	Submit discussion questions	Student-led presentation	Martins et al. (2017)
9	Mon. March 10	Noise pollution	Kawahara	
	Wed. March 12	Submit discussion questions Grad project progress report due date	Student-led presentation	Dominoni et al. (2009)
10	Mon. March 24	Global warming	Reeves	
	Wed. March 26	Submit discussion questions	Student-led presentation	Harvey et al. (2022)
11	Mon. March 31	Global warming 2	Plotkin	
	Wed. April 2	Submit discussion questions	Student-led presentation	Deutsch et al. (2018)
12	Mon. April 7	Invasive species	Plotkin	
	Wed. April 9	Submit discussion questions	Student-led presentation	Ward & Masters (2007)
13	Mon. April 14	Environmental change and FL impacts	Reeves	
	Wed. April 16	Submit discussion questions	Student-led presentation	Reece et al. (2013)
14	Mon. April 21	Solutions	Kawahara	
	Wed. April 23	Submit discussion questions Grad student project due date	Student-led presentation	Kawahara et al. (2021)
15	Tue. April 29 3:00–5:00 p.m.	Final exam		

University of Florida Policy Statements

Grades and Grade Points

Numerical grades will be converted into letter grades in accordance with the standard grading scale adopted by the Department of Entomology and Nematology.

A: 93 - 100%
A-: 90 - 92.9%
B+: 87 - 89.9%
B: 83 - 86.9%
B- 80 - 82.9%
C+: 77 - 79.9%
C: 73 - 76.9%
C- 70 - 72.9%
D+: 67 - 69.9%
D: 63 - 66.9%
D- 60 - 62.9%
E: below 60%

For information on current UF policies for assigning grade points, see:
<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Absences and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

In-Class Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Honesty

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

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

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,
www.counseling.ufl.edu/cwc/

Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Training Programs

- U Matter We Care, www.umatter.ufl.edu/
- Career Connections Center, First Floor JWRU, 392-1601, <https://career.ufl.edu/>
- Student Success Initiative, <http://studentsuccess.ufl.edu>.
- Student Complaints, Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>
- Student Complaints, Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint>

Additional Health and Wellness Resources

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

University Police Department: [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

Additional Academic Resources

E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information.](#)

On-Line Student Complaints: [View the Distance Learning Student Complaint Process.](#)