

ENY 2890 Insect Research

Scientific Engagement Through Honey Bee Health Research

Fall

Course Overview

1881 Natural Area Dr., Gainesville, FL, 32611 <http://campusmap.ufl.edu/#/index/0970>

INSTRUCTORS:

All instructors are available to meet with students by appointment.

Dr. Cameron Jack (cjack@ufl.edu), Assistant Professor, Honey Bee Research Facility Rm 114

Dr. Jamie Ellis (jdellis@ufl.edu), Professor, Honey Bee Research Facility Rm 116

Julia St. Amant (jstamant1@ufl.edu), Graduate TA

Vernaeyah Lane (v.lane@ufl.edu), TA

COURSE PREREQUISITES: None

COURSE DESCRIPTION AND LEARNING OBJECTIVES:

This is a Classroom Undergraduate Research Experience (CURE) course. During this course, students will be introduced to important topics in science and provided with an opportunity to conduct publishable research in the field of honey bee health. We want students to go forth prepared to join other research teams at UF and feel confident in their abilities to contribute productively to their scientific fields of interest. To achieve this goal, this class is organized as a flipped classroom, offering both online and in-classroom learning experiences.

Motivated students will be able to:

- 1. Describe how scientists conduct research,*
- 2. Identify the challenges associated with conveying scientific findings to general audiences,*
- 3. Explain the benefits of international research collaborations,*
- 4. Demonstrate proper data collection techniques,*
- 5. Summarize the importance of accurate data entry and analysis,*
- 6. Interpret the importance and relevance of scientific findings,*
- 7. Communicate research findings effectively through oral presentation, and*
- 8. Design a simple experiment.*

Students' successful achievement of these learning objectives will be evaluated via online quizzes, individual and group writings, participation in all classroom activities and a video presentation.

REQUIRED MATERIALS: Access to a laptop or desktop computer for online quizzes and assignments. A computer in a computer lab on campus should be fine for this purpose. There are no required texts for this course as all reading materials and media will be available on Canvas or freely available on the internet.

COURSE COMMUNICATION: Please ensure that your Canvas profile is set to receive notifications (i.e. please check the appropriate box to receive all notifications). To do this, click on your name in the upper right corner of the Canvas homepage after logging into Canvas. Next, click “notifications” on the left. This will take you to the Notification Preferences page. Then, click the check symbol for at least the following notifications: Due Date, Course Content, Announcement, and Grading.

SPECIAL NOTE ON CONTACT VIA EMAIL: Due to UF privacy laws, you must use your GatorLink account or the Canvas mail system when emailing the Instructors or TA. Emails sent from other accounts (gmail, hotmail, etc.) will not be answered by the Instructors or TA.

Grading:

| Assignment | Break-down | Points |
|-------------------------------|---|------------|
| Online quizzes | 10 quizzes, 10 pts/each | 100 |
| Critical Thinking Exercises | 5 assignments, 25 pts/each | 125 |
| Research Poster | Presented at end-of-semester symposium | 200 |
| Lab Notebook | 3 notebook checks, 25 pts/each | 75 |
| Group Agreement & Evaluations | Written agreement and 2 peer assessments, 25 pts/each | 75 |
| Science Across Borders | Interview transcript and Reflective essay | 75 |
| | Total Points | 650 |

ONLINE QUIZZES:

*There will be 10 online quizzes throughout the course (see weekly schedule) to help students prepare for in-class discussions. Each quiz is worth 10 points and will include five questions based on the reading(s). Quizzes are open note. Students are required to watch the lecture(s) and complete the quiz prior to the beginning of each class. **Quizzes are due by 3:00 pm the day of the corresponding class.***

CRITICAL THINKING EXERCISES:

*At various points in the semester, students will be required to complete five critical thinking exercises designed to help them reflect on and/or synthesize subjects covered in this course. Each assignment will be structured differently so students should read the directions carefully before beginning the assignments. Proper terminology, spelling, and grammar are expected in all assignments. A rubric for grading the reflective writing assignments will be provided at the time the assignment is given. **The critical thinking exercises will be due by 3:00 pm the day of the corresponding class.***

RESEARCH POSTER:

As a capstone project, each research group will design a **scientific poster** that highlights their experimental design and preliminary findings. Specific poster guidelines will be discussed in class. Students will present their posters in a symposium at the end of the semester.

LAB NOTEBOOK:

You will be required to maintain a **digital lab notebook** throughout the semester, in which you will record your data/analyses and other notes related to our experiments. Proper lab notebook protocol will be discussed in class. The lab notebook will be checked for completeness and accuracy three times during the semester (two preliminary checks and one final evaluation).

GROUP AGREEMENT AND EVALUATIONS:

At the beginning of the semester, each research group will submit a written agreement that outlines their shared expectations for group work. Then, twice during the semester, you will evaluate your group members (**including yourself**) based on how well they are following the agreement. This will allow the instructors to assess how well each group is functioning and help ensure that each group member contributes fairly to the project.

SCIENCE ACROSS BORDERS ASSIGNMENT:

One of the major themes in this course is the value of global collaborations in science. To explore this topic in more depth, you will conduct an **interview with an international researcher** and use that interview to write a **reflective essay** on the benefits and challenges of conducting research across borders. Detailed information about this assignment will be discussed in class, and the instructor will help connect you with a scientist for the interview.

GRADING SCALE:

| FINAL GRADING | | |
|---------------|--------------|---------------------------------------|
| % grade | Letter grade | Points needed to achieve letter grade |
| 100-93 | A | ≥ 604 |
| 90-92 | A- | 585 – 603 |
| 87-89 | B+ | 565 – 584 |
| 83-86 | B | 540 – 564 |
| 80-82 | B- | 520 – 539 |
| 77-79 | C+ | 500 – 519 |
| 73-76 | C | 475 – 499 |
| 70-72 | C- | 455 – 474 |
| 67-69 | D+ | 436 – 454 |

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|-------|----|-----------|
| 63-66 | D | 410 – 435 |
| 60-62 | D- | 390 – 409 |
| 0-59 | E | 0 – 389 |

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

MAKE-UP ASSIGNMENTS:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Course Schedule:

| Class # | Module | Topic | Assignments Due |
|----------------|---------------------------------|---|------------------------|
| 1 | #1: Recognizing good science | Class introductions; syllabus review; How do we recognize good science? | |
| 2 | #2: Using the scientific method | The scientific method; structure of a scientific journal article | Quiz 1 |
| 3 | #2: Using the scientific method | What is your question? Why does it matter? | |
| 4 | #3: Honey bees and probiotics | Honey bee biology – Work honey bee colonies | Quiz 2 |
| 5 | #3: Honey bees and probiotics | Honey bee health and probiotics | CTE 1 |
| 6 | #4: Experimental design | Core elements of good experimental design | Quiz 3 |

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| 7 | #4: Experimental design | What question will we investigate?; Design our experiments | |
| 8 | #5: Safety and science | Safety and Science | Quiz 4 |
| 9 | #5: Safety and science | Begin our experiments | Group Agreement; CTE 2 |
| 10 | #6: Data collection and entry | Data collection methods; proper data entry | Quiz 5 |
| 11 | #6: Data collection and entry | Data collection: Field/lab work | |
| 12 | #7: Importance of international research | Why conduct international research? | |
| 13 | #7: Importance of international research | Data collection: Field/lab work | Interview Questions |
| 14 | #8: Statistics: the language of science | Statistics: the language of science; Review statistical terminology | Quiz 6 |
| 15 | #8: Statistics: the language of science | Data collection: Field/lab work | Poster Abstract; Group Evaluation 1 |
| 16 | #9: Plotting your data | Graphing and figures; | Quiz 7 |
| 17 | #9: Plotting your data | End Experiments: Data collection: Field/lab work | CTE 3 |
| 18 | #10: Interpretation of results | Interpretation of results: Data analysis | Quiz 8 |
| 19 | #10: Interpretation of results | Analyzing our class data: what have we got so far? | Final Lab Notebook |
| 20 | #11: Communicating your research | Importance of oral communication: how to present to a scientific audience | Quiz 9 |

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| 21 | #11: Communicating your research | How to present to a non-scientific audience; | CTE 4 |
| 22 | #12: Science ethics | Science ethics; Importance of ethics | Poster 1 st Draft |
| 23 | #12: Science ethics | Public trust and distrust of science, case studies | Quiz 10 |
| 24 | #13: Research opportunities at UF | Research opportunities at UF | Science across borders reflective essay |
| 25 | #13: Research opportunities at UF | Guest speakers | |
| 26 | #14: International researchers at UF | Panel discussion with visiting researchers | Poster Final Draft; CTE 5 |
| Thanksgiving Holiday | | | |
| 27 | #15: Poster presentations | Final analyses and presentation practice | |
| 28 | #15: Poster presentations | Research Symposium: Poster Presentations | Group Evaluation 2 |
| 29 | #16: What have we learned? | Course evaluations; Our research and class wrap up | |

SCHEDULE DISCALIMER: This schedule represents current plans and objectives. These plans may need to change throughout the semester due to unforeseeable circumstances. Such changes will be communicated though announcements on Canvas.

UF Policies:

ONLINE COURSE EVALUATION PROCESS:

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 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 ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/.

ACADEMIC HONESTY:

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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.” The Honor Code (sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Getting Help:

SERVICES FOR STUDENTS WITH DISABILITIES:

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

E-LEARNING AND TECHNICAL SUPPORT:

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP
- <https://lss.at.ufl.edu/help.shtml>

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

HEALTH AND WELLNESS RESOURCES:

U Matter, We Care: If you or someone you know is in distress, please contact <mailto:umatter@ufl.edu>, 352-392-1575, or visit umatter.ufl.edu to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit counseling.ufl.edu/ or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu/.

University Police Department: Visit police.ufl.edu/ 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; ufhealth.org/emergency-room-trauma-center.

ACADEMIC RESOURCES:

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at <mailto:helpdesk@ufl.edu>.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services career.ufl.edu/.

Library Support: cms.uflib.ufl.edu/ask 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. teachingcenter.ufl.edu/

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

Student Complaints On-Campus: sccr.dso.ufl.edu/policies/student-honor-codestudent-conduct-code/

On-Line Students Complaints: distance.ufl.edu/student-complaint-process/