

# Cover Sheet: Request 10991

## ENY 2XXX - Insect Research and Scientific Engagement

### Info

Process	Course New Ugrad/Pro
Status	Pending
Submitter	Miller,Christine Whitney cwmiller@ufl.edu
Created	5/3/2016 7:29:08 PM
Updated	11/7/2016 1:59:05 PM
Description of request	This is a Classroom Undergraduate Research Experience (CURE) course. Students become part of a research team, collecting publishable data on evolution, ecology, and systematic research using insects. This course bridges the divide between the classroom and the science laboratory. This course will prepare students for advanced opportunities in science.

### Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Mcauslane, Heather J		5/4/2016
Deleted 2016 Draft Syllabus for CURE II.pdf					5/3/2016
Deleted ENY 2XXX Miller 2016.pdf					5/3/2016
College	Approved	CALS - College of Agricultural and Life Sciences	Brendemuhl, Joel H	Approved by CALS CC 9/16/16 with a minor edit. Minor edit has been completed.	10/3/2016
Added ENY 2XXX Miller 2016v2.pdf					6/4/2016
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the November agenda.	10/25/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			10/25/2016
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					

<b>Step</b>	<b>Status</b>	<b>Group</b>	<b>User</b>	<b>Comment</b>	<b>Updated</b>
College Notified					
No document changes					

# Course|New for request 10991

## Info

**Request:** ENY 2XXX - Insect Research and Scientific Engagement

**Description of request:** This is a Classroom Undergraduate Research Experience (CURE) course. Students become part of a research team, collecting publishable data on evolution, ecology, and systematic research using insects. This course bridges the divide between the classroom and the science laboratory. This course will prepare students for advanced opportunities in science.

**Submitter:** Miller,Christine Whitney cwmiller@ufl.edu

**Created:** 6/4/2016 10:59:25 PM

**Form version:** 2

## Responses

**Recommended Prefix**ENY

**Course Level** 2

**Number** XXX

**Lab Code** None

**Course Title**Using insect research to understand the nature of scientific engagement

**Transcript Title**Insect Research

**Effective Term** Earliest Available

**Effective Year**Earliest Available

**Rotating Topic?**No

**Amount of Credit**3

**Repeatable Credit?**No

**S/U Only?**No

**Contact Type** Regularly Scheduled

**Degree Type**Baccalaureate

**Weekly Contact Hours** 3

**Category of Instruction** Introductory

**Delivery Method(s)**On-Campus

**Course Description** This is a Classroom Undergraduate Research Experience (CURE) course. Students become part of an entomology research team, collecting publishable data on insect evolution, ecology, and systematics. This course bridges the divide between the classroom and the science laboratory. This course will prepare students for advanced opportunities in entomological science.

**Prerequisites** none

**Co-requisites** none

**Rationale and Placement in Curriculum** Our entomology program is currently lacking courses that prepare students for entomology research.

Our goal is to target first-year students so that they will be ready to join research labs early in their undergraduate years and make the most of their time at UF.

This course will also provide excellent preparation for graduate school and professional programs in the sciences.

**Course Objectives** • Be able to explain in depth the many ways that entomologists and other scientists engage in research

- Identify how their work as part of this course will contribute to the scientific body of knowledge in the field of entomology.
- Develop enhanced critical thinking skills to assess the relevance and importance of scientific findings in entomology.

- Design a simple experiment using insects
- Recognize of the major challenges for conveying entomological findings to the general public and be able to explain how to overcome these challenges.
- Demonstrate competency in at least one method of data collection using insects
- Explain three major concerns in the field of science ethics and how they relate to entomology
- Be able to identify several other research opportunities in entomology at UF

**Course Textbook(s) and/or Other Assigned Reading** Representative list

Olson, R., Janata, J., Carlisle, T., & Miller, S. (2006). Flock of Dodos: The Evolution-Intelligent Design Circus. Documentary Educational Resources.

Harrison et al. (2007) A handbook of biological investigation, 7th Edition. Hunter Textbooks.

Recommended: Whitfield and Purcell (2012). Daly and Doyen's Introduction to Insect Biology and Diversity, 3rd Edition. Oxford University Press.

**Weekly Schedule of Topics** Week 1 Monday Welcome to the course, introductions and a discussion on the nature of science  
Wednesday Asking a question when science does not know the answer  
Each student receives an insect for observation

Week 2 Monday Research this semester: background and interpretation  
Wednesday Introduction to our research (insect evolution, ecology, and systematics)  
Begin data collection (each week until Week 10)

Week 3 Monday Interpretation and analysis of scientific manuscripts in entomology  
Wednesday An introduction to field work (insect sampling and monitoring); Field Trip #1

Week 4 Monday Causation versus correlation in insect science  
Wednesday Whom will this study inform? Extension, outreach, and publishing

Week 5 Monday Objectivity and evaluation in insect science  
Wednesday Oral presentations of articles from the primary scientific literature: Day I

Week 6 Monday Science ethics and relevance to entomology  
Wednesday Oral presentations of articles from the primary scientific literature: Day II

Week 7 Monday Science and the media in entomology  
Wednesday Communicating science to the public through short research videos: practice I

Week 8 Monday Public trust versus distrust of science, what are the issues in entomology?  
Wednesday Communicating science to the public through short research videos: completion

Week 9 Monday Evolution and intelligent design: what is the discussion?  
Wednesday Guest speakers: undergraduate researchers from across campus

Week 10 Monday Communication of insect science to broad and diverse audiences  
Wednesday Guest speakers: faculty from across campus

Week 11 Monday Research this semester: what have we found? Let's look at

your data.

Wednesday Exploring data: Graphing and Data analysis in entomology

Week 12 Monday Research this semester: what is next? Experimental design and planning.

Wednesday Plan a research project with insects I

Week 13 Monday Research this semester: what is next? Experimental design and planning II

Wednesday Plan a research project with insects II

Week 14 Monday Publishing in peer-reviewed insect journals

Wednesday Visits to entomology laboratories

Week 15 Monday Your future research: discussion of opportunities, concerns, and applications

Wednesday Celebrate! Video viewing, discussion, future directions

### **Grading Scheme**

"What is Science?" essay 20

Canvas weekly quizzes (11 quizzes, 10pts/each) 110

Participation (29 meetings at 5pts/meeting) 145

Presentation of primary literature (including mandatory meeting with instructor prior to presentation) 50

Research video (2-3 minutes) 50

Data collection accuracy 50

Total 425

**Additional Links and Policies** none

**Instructor(s)** Christine W. Miller

# Insect research and scientific engagement

Course number ENY 2XXX

3 credits, no prerequisites

**Location:** Entomology and Nematology Department, Steinmetz Hall 1031

**Meeting time:** *Discussions*- Monday 9:35 to 10:25am (Period 3)

*Research*- Wednesday 9:35am to 11:30am (Periods 3 & 4) or 3:00pm to 4:55pm (Periods 8 & 9). Students will be divided into two sections for the research portion of the class.

**Primary Instructor:**

**Dr. Christine Miller**, Principle Investigator, [cwmiller@ufl.edu](mailto:cwmiller@ufl.edu),  
Office location: 2101 Steinmetz Hall, (352) 273-3917  
Office hours: 10:30 – 11am Tuesdays and Thursdays

## Course description

This is a Classroom Undergraduate Research Experience (CURE) course. Students become part of an entomology research team, collecting publishable data on insect evolution, insect ecology, and insect systematics. This course bridges the divide between the classroom and the science laboratory. This course will prepare students for advanced opportunities in entomological science.

For further explanation of CURE courses, see:

<https://www.grinnell.edu/academics/areas/psychology/assessments/cure-survey>,

This course mimics a laboratory research experience in several ways: 1) students gather data that will be used in scientific studies and published in the primary scientific literature, 2) Our class meetings resemble lab meetings where researchers come together to discuss important topics in science, 3) your instructors (including graduate students and a postdoctoral researcher) will also serve as your research mentors, with the mentoring structure resembling that of a research laboratory.

While this course has elements that resemble laboratory research experiences, it finds its home in the classroom. As such, we will incorporate some of the more positive



elements of classroom learning. For example, the learning experience will have greater structure than is commonly provided in laboratories, and students will collect data almost immediately (in many laboratories, beginning assistants do not collect data for a semester or longer!) Additionally, this course will include a larger community of beginning researchers than is typically found in a laboratory. You will have many opportunities to exchange ideas with your cohort and become part of a learning community. Hard-working students leave this course prepared to join research teams at UF and beyond.

### **Course learning objectives:**

By the end of the course, dedicated students will:

- Be able to explain in depth the many ways that entomologists and other scientists engage in research
- Identify how their work as part of this course will contribute to the scientific body of knowledge in the field of entomology.
- Develop enhanced critical thinking skills to assess the relevance and importance of scientific findings in entomology.
- Design a simple experiment using insects
- Recognize of the major challenges for conveying entomological findings to the general public and be able to explain how to overcome these challenges.
- Demonstrate competency in at least one method of data collection using insects
- Explain three major concerns in the field of science ethics and how they relate to entomology
- Be able to identify several other research opportunities in entomology at UF

### **Materials:**

- Required: Access to a laptop or desktop computer for data entry. A computer in a computer lab on campus should be fine for this purpose.
- Required to rent or buy online: Olson, R., Janata, J., Carlisle, T., & Miller, S. (2006). *Flock of Dodos: The Evolution-Intelligent Design Circus*. Documentary Educational Resources.
- Required: Harrison et al. (2007) *A handbook of biological investigation*, 7<sup>th</sup> Edition. Hunter Textbooks.
- Recommended: Whitfield and Purcell (2012). *Daly and Doyen's Introduction to Insect Biology and Diversity*, 3rd Edition. Oxford University Press.
- All other reading materials and media will be available on Canvas or freely available on the internet.

### Evaluation of learning/research accomplishment:

Source of points	Points possible	Due dates
“What is Science?” essay	20	Week 2
Canvas weekly quizzes (11 quizzes, 10pts/each)	110	Weekly
Participation (29 meetings at 5pts/meeting)	145	Weekly
Presentation of primary literature (including mandatory meeting with instructor prior to presentation)	50	Weeks 5 & 6
Research video (2-3 minutes)	50	Week 8
Data collection accuracy	50	Throughout
Total	<b>425</b>	

### Grade cut-offs:

A	90.00%	B-	76.66%	D+	63.33%
A-	86.66%	C+	73.33%	D	60.00%
B+	83.33%	C	70.00%	D-	56.66%
B	80.00%	C-	66.66%	E <	56.65%

### Explanation of course activities and grading:

Evaluation of performance is based on fifteen assessments and participation in the course. This course does not have exams. UF grades and grading policies can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

**Participation** is important, and this is reflected in your course grade! Excused absences are consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation. Participation points are earned by your presence at each class meeting (discussions/presentations and the laboratory portion of the class). Please note that we will expect all students to participate in discussions and will design activities to facilitate this process. This is a “flipped classroom” course

Preparation for in-class discussions. **Online quizzes** must be completed every night prior to weekly discussions. These will involve answering a set of questions based on the reading(s) and providing thoughtful discussion points or questions that you plan to bring up in the next class. These assignments are designed to help students focus on the material that will be addressed during the class discussions and prepare students to participate fully in the discussions. These assignments will be posted by Friday evening and must be completed the night before class (or you will lose 5 points/day).



**Presentations** are an opportunity for students to deeply analyze a peer-reviewed scientific paper and present the material to the class, gaining public speaking skills and critical thinking skills. Students will work in pairs, and each pair must choose a topic from the provided list by early in the semester. An instructor will work with the students to prepare presentations.

The **Research video** will give you an opportunity to show off your science communication skills and explain one or more projects going on at UF. You will be expected to bring your video script to class, receive critical feedback, make improvements, and then record it using your phone or our camcorders.

**Data collection accuracy** is graded to ensure that we actually can use these data to make scientific conclusions. It is easy to get sloppy in data collection if there is no accountability. You will receive a lot of guidance in how to collect data accurately. You are expected to make an appointment with the designated instructor if you are having any problems. Each week you will be assigned work to do. We will check a subset of your work for accuracy. If your recorded data is considered accurate or very close, you will receive accuracy points. As an additional means of ensuring data accuracy, many insects will be measured by multiple students in the course. Each weekly set of measurements is due on Sunday night.

**Due dates are firm**, unless you have a valid excuse (again, see UF policy, <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>). If you know you have a conflict with something, inform us right away! We follow a **5pt/day** deduction late work policy.

**Class/Research Schedule. Monday meetings are guided classroom discussions on a topic, Wednesdays are for research and presentations.** Students will be divided into two or more research sections with 7-15 students per section.

Week	Day	Topic
<b>Week 1</b>	Monday	Welcome to the course, introductions and a discussion on the nature of science
	Wednesday	Asking a question when science does not know the answer Each student receives an insect for observation
<b>Week 2</b>	Monday	Research this semester: background and interpretation
	Wednesday	Introduction to our research (insect evolution, ecology, and systematics) Begin data collection (each week until Week 10)
<b>Week 3</b>	Monday	Interpretation and analysis of scientific manuscripts in entomology
	Wednesday	An introduction to field work (insect sampling and monitoring); Field Trip #1
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<b>Week 5</b>	Monday	Objectivity and evaluation in insect science
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	Wednesday	Communicating science to the public through short research videos: completion
<b>Week 9</b>	Monday	Evolution and intelligent design: what is the discussion?
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	Wednesday	Plan a research project with insects I
<b>Week 13</b>	Monday	Research this semester: what is next? Experimental design and planning II
	Wednesday	Plan a research project with insects II
<b>Week 14</b>	Monday	Publishing in peer-reviewed insect journals
	Wednesday	Visits to entomology laboratories
<b>Week 15</b>	Monday	Your future research: discussion of opportunities, concerns, and applications
	Wednesday	Celebrate! Video viewing, discussion, future directions

### Grades and Grade Points

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

### Attendance 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/ugrad/current/regulations/info/attendance.aspx>.

### 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. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/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, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### **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/](http://www.counseling.ufl.edu/cwc/) Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

**Student Complaints:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

**Miller, Christine W.**

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**From:** . CLAS-Biology Chair  
**Sent:** Wednesday, May 04, 2016 12:49 PM  
**To:** Miller, Christine W.  
**Cc:** Oppenheimer,David G; St Mary,Colette Marie  
**Subject:** consult on course  
**Attachments:** 2016 Draft Syllabus for CURE II.docx; ATT00001.htm

Dear Christine,

Thanks so much for sharing the syllabus of your proposed class, Using insect research to understand the nature of scientific engagement. I think the syllabus looks great and I love the idea of CURE courses. I do not see any conflicts with Biology offerings; I'm cc'ing our Associate Chairs just to keep them in the loop. I hope to see more of them! We're lucky to have you on campus.

Yours,  
Marta