BIO449 Insect Ecology Fall 2019 Syllabus

Instructor: Dr. Idelle Cooper Email: cooperia@jmu.edu

Phone: 540-568-6008 Location: Bioscience Bldg 1027

Class Times: T/TH 9:30am-12:15pm

Office Hours: T 12:30-2:30pm, W 3:30-4:30pm, and by appointment (Biosci 1028C)

**Course Description**

Insect Ecology, Section #: 0001, Class #: BIO 449, 4 credits

Overview of insect ecology from an evolutionary perspective, focusing on the processes that affect the diversity, distribution, and abundance of insects in natural and managed ecosystems. We include the role of insects as model systems in understanding ecological and evolutionary principles and highlight current literature in this field. This course emphasizes field surveys and experiments and also includes general insect collecting and identification. Prerequisite: BIO 124, 250, or equivalent.

No required text, but primary literature readings will posted on Canvas.

**Course Objectives**

1. an understanding of fundamental principles of evolution and ecology
2. familiarity with major questions in evolution and ecology, with an emphasis on hypotheses and insights related to insects
3. an introduction to the remarkable diversity of insects
4. an understanding of what processes determine species interactions and distributions
5. conducting independent, open-ended research
6. evaluating primary literature and research posters and communicating scientific ideas effectively

# Course Content and Policies

**Attendance:** You are expected to attend class and participate actively in discussion. You are responsible for all material, assignments, and announcements presented in class, regardless of absences. One class and lab may be missed without question, but no in-class assignments or quizzes can be made up.

**Academic Honesty:** Students are expected to comply with the JMU Honor Code with regard to all coursework, found here: http://www.jmu.edu/honor/II-code.shtml

**Other policies:** Standard JMU policies, which can be found at <http://www.jmu.edu/syllabus/>, apply for the following: Adding/Dropping Classes; Disability Accommodations; Inclement Weather Policies; Religious Observation Accommodations

**Grading:** The grade in this course will be based on two quizzes (50 pts each), research proposal draft and final paper (200 pts total), project presentation (50 pts), and insect collection (100 pts). In addition, participation, blog postings, and discussion questions (see below) will contribute (100 pts).

**Class Schedule and Reading Assignments:** general topics and related chapters are listed below, and specific reading assignments will be given in class the previous week. Primary literature will be posted the previous week on Canvas. ***Before each discussion, submit two questions based on the primary literature readings (or textbook reading, if there was no primary literature assignment) are due at 9pm the day before class (on Canvas).*** The paper to discuss will be assigned by the class period before the discussion, and will be led by each student in rotation.

**Schedule:** The lab activities and the schedule of primary literature discussions will be dependent on the weather and the research topics proposed by each group. This is a tentative schedule. Check Canvas for updates.

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| Week 1 - 8/27 | Intro to Insect Ecology  Lab: Survey of reforestation research site |
| Week 2 - 9/3 | Behavioral Ecology research project and insect collecting in arboretum |
| Week 3 - 9/10 | Primary literature discussion - behavioral ecology  Lab: Insect/Plant research projects - start |
| Week 4 - 9/17 | Social Insects and Plant-Insect Interactions  Lab: Insect/Plant research projects - complete |
| Week 5 - 9/24 | Primary literature discussion - social insects  Lab: Ant aggression and chemical signaling - start |
| Week 6 - 10/1 | Species interactions (species recognition and sexual selection)  Lab: Elevational survey project - start |
| Week 7 - 10/8 | **Tuesday: Exam 1**  Lab: Elevational survey project - complete |
| Week 8 - 10/15 | Insect identification  Lab: TBD |
| Week 9 - 10/22 | Population ecology  Lab: TBD |
| Week 10 - 10/29 | Biodiversity  Lab: TBD |
| Week 11 - 11/5 | Insects and climate change  Lab: TBD |
| Week 12 - 11/12 | **Tuesday: Exam 2**  Thursday: Work on insect collections |
| Week 13 - 11/26 | Insect collections  **Draft of paper due Thursday, 9pm on Canvas** |
| **THANKSGIVING BREAK** | |
| Week 14 - 12/3 | **Project Presentations**  **Insect collections due at the end of Thursday's class** |
| Week 15 - 12/10 | **Final paper due Monday at 5pm on Canvas (in place of final exam)** |
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