

INSECT MORPHOLOGY 11:370:515

Number of credit hours: Four (4), *3-credit lecture and 1-credit in lab *please see lab syllabus**

Semester: Fall 2021

Days and times of lectures: Tues, Thurs 7:00PM - 8:20PM

Days and times of lab: Tues 9:00AM - 12:00PM

Location: Thompson Hall, Room TBD

Instructor: Dr. Chloe Hawkings

Office location: Thompson Hall, Room 132

Office hours: By appointment

Phone: (848) 932-0005 **Email:** c.hawkings@rutgers.edu

Course Overview: Insect Morphology is an overview of insect structure, comparative morphology and the function of these characteristics across insect taxa.

Prerequisites: 11:370:381 Insect Biology (*suggested*)

Course Description: This course will introduce students to the morphological characteristics of insects and how they function in insect systems. The diversity of insects is readily recognizable through morphological features, and their abundance and ability to occupy a wide range of ecological niches can be attributed to adaptations of both external structures and internal physiology. Also covered is comparative external morphology relevant to identification of insect groups.

Learning outcomes:

1. Students should be able to define key concepts relating to insect morphology and evolution covered in lecture materials.
2. Students should be able to distinguish insects based upon morphological structures.
3. Students should be able to examine scientific studies to draw connections between lecture material and current research to draw conclusions on the need for research.

4. Students should be able to gain an understanding of the significance of different insect structures and how this relates to their function. Analyzing comparative mechanisms is crucial.

Resources:

Textbooks (recommended but not required):

Principles of Insect Morphology by R. E. Snodgrass

The Insects: Structure and Function by R. F. Chapman

Course Calendar:

September 2: Course Outline & Introduction to Insect Morphology

September 7: Phylogeny: Phylum Annelida, Onychophora & Arthropoda

September 9: Insect Body Plan & Segmentation

September 14: Insect Integument and Molting

September 16: Circulation

September 21: Respiration

September 23: Paper Discussion

September 28: Exam 1

September 30: The Insect Head

October 5: The Brain

October 7: Head Appendages: Sensory Structures

October 12: Head Appendages: Mouthparts

October 14: The Nervous System & Reception of Stimuli

October 19: Exam 2

October 21: Comparative Thoracic Morphology

October 26: Thoracic Segmented Appendages: Legs

October 28: Locomotion: Legs

November 2: ESA *no class*

November 4: Wing Anatomy

November 9: Insect Flight

November 11: Exam 3

November 16: The Abdomen



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November 18: The Alimentary Canal

November 23: Guest Lecture: Xanthe Shirley

November 25: *Thanksgiving no class*

November 30: Comparative Feeding Mechanisms

December 2: Insect Reproduction: Female

December 7: Insect Reproduction: Male

December 9: Paper Discussion

December 16 -23: Final Exam

Grading and assignment:

Exams: This course will have three midterm exams and one final exam consisting of both multiple choice and essay style questions which cover material from lectures prior to each exam. The final exam is cumulative and covers all lecture material. The exams will assess the ability of the student to define key processes and terms associated with the lecture material

Reading Assignment: Students will be assigned two reading assignments aimed to enhance class discussion and encourage students to understand the course content and scientific literature related to insect physiology and morphology. Students are expected to contribute to class discussions and should display the ability to both interpret and evaluate methodology used in scientific literature. The assignment will be assessed through class participation

Morphological Report: Students will write a one-page report describing a morphological adaptation of an insect species of their interest. This study will describe how this adaptation results in the biological success of the insects. Students should also develop ideas on the application of this knowledge that can be applied to control strategies. Students are expected to apply the knowledge from this course and scientific literature to correctly identify a trait.

Total % contributed (course):

Exams (12.5% each)	200	50%
Morphological Report	80	20%
Participation Paper Discussion	20	5%
Laboratory	100	25%

Attendance Policy

Attendance is expected and if you expect to miss classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

Course Etiquette

Participation is required for participation points, failure to participate in discussion will result in a zero. This course requires participation in class activities, discussions, and through questions. A strict late policy is followed in this class, lateness is regarded as absence. If you miss a class you are responsible for catching up in time for assignments. classes can only be excused through university approved absences. The instructor should be provided proof of university approval no more than one week after the exam date. All assignments are expected to be submitted before the due date. Failure to submit an assignment before the deadline without a university approved absence will result in a zero on the assignment. No disturbances will be tolerated in class, this includes engaging in disruptive behavior and inappropriate cell phone or laptop use that is not related to the course. We strive to create a positive classroom climate to facilitate all students to be able to learn. Grades are not rounded up and under no circumstances will grades be negotiated. Appeals through email will not be considered or replied to.

Americans with Disabilities Act (1990)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for

reasonable accommodation of their disabilities. If you believe you have a disability requiring an

accommodation, please visit the Office of Disability Services or contact their office for further information. Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

Academic Integrity

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academicintegrity-policy>. The principles of academic integrity require that a student: properly acknowledge and cite all use of the ideas, results, or words of others. You must acknowledge **all** contributors to a given piece of work. All work submitted for a course or other academic activity must be produced by the student turning in the assignment or task and is produced without the aid of impermissible materials or impermissible collaboration. All data or results must be obtained by ethical means and reported accurately without suppressing any results inconsistent with his or her interpretation or conclusions. Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress. You are expected to uphold the canons of the ethical or professional code of the profession for which he or she is preparing. Adherence to these principles is necessary in order to ensure that everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments. All student work is fairly evaluated, and no student has an inappropriate advantage over others. The reputation of the University for integrity in its teaching, research, and scholarship will be maintained and enhanced. Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

Student Wellness Services

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)



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(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professionals within Rutgers Health services to

support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

