

# ENTOM 343: GENERAL ENTOMOLOGY

Fall 2016 | TR 10:35-11:50 | Abelson 201

## SYLLABUS

**Instructors:** Dr. Nicole Rafferty / Dr. Paul Nabity

**Contact:** E-mail: nicole.rafferty@wsu.edu (FSHN 358B) / paul.nabity@wsu.edu (FSHN 260)

**Office Hours:** Dr. Rafferty: Thursday 1:30-2:30PM (FSHN 164) or by appointment  
Dr. Nabity: by appointment (FSHN 260)  
For questions about lecture material, please attend the office hours of (or contact) the instructor who delivered the lecture.

**Text:** *The Insects: An Outline of Entomology*, 5<sup>th</sup> ed. 2014. Gullan and Cranston. Wiley-Blackwell.  
ISBN: 978-1-4443-3036-6 (Available at The Bookie) [required]

**Description:** General Entomology is a three credit, M-course introducing students to the biology of insects. Lectures will cover insect function and form by examining diversity, ecology, physiology, natural history, and behavior. Lectures will coincide with assignments and activities that explore insect biology from a diversity of perspectives. To fulfill the [M] designation, students will: i) write a synopsis of a scientific article, explaining its broader importance, ii) write a paper and give a short presentation about the ecology, life history, behavior, and importance of an insect.

**Course Objectives:** Upon completion of this course, the student will be able to:

1. Use discipline-specific definitions and terminology to explain insect biology.
2. Identify the key groups of arthropods and insects.
3. Communicate clearly, concisely, and effectively on topics within insect biology.
4. Assess, evaluate, and discuss current problems in insect biology and use sources and data to demonstrate this.

This course fulfills six of the seven learning goals of the baccalaureate as outlined by WSU, including: Critical and Creative Thinking, Quantitative Reasoning, Scientific Literacy, Information Literacy, Communication, and Depth Breadth and Integration of Learning.

**Philosophy of Class:** We want this course to be interesting, applicable, and challenging for you. We hope each of you is successful in this class, and we will enjoy meeting outside of class to help you in your progress toward success. But learning is something you do and requires active participation and effort.

**Grading System:** Based on percentage of total accumulated points. Grades will be rounded to the closest whole number: 89.5% will become 90 (A-) whereas 89.4% will remain B+ (89).

Evaluation:	Points:	Percent:
Quizzes	120 pts (8 @ 15 pts)	12%
Exams	480 pts (4 @ 120 pts)	48%
Activities	100 pts (8 @ 12.5 pts)	10%
Writing and Presenting	300 pts	30%
<b>Total Points:</b>	<b>1000 pts</b>	<b>100%</b>

**Final Grade:**

A	=	94 - 100%	=	940 - 1000 points
A-	=	90 - 93%	=	900 - 939 points
B+	=	87 - 89%	=	870 - 899 points
B	=	83 - 86%	=	830 - 869 points
B-	=	80 - 82%	=	800 - 829 points
C+	=	77 - 79%	=	770 - 799 points
C	=	74 - 76%	=	740 - 769 points
C-	=	70 - 73%	=	700 - 739 points
D+	=	67 - 69%	=	670 - 699 points
D	=	60 - 66%	=	600 - 669 points
F	=	Below 60%	=	000 - 599 points

## POLICIES

**Attendance Policy:** You are expected to arrive to class on time and actively participate each class period. Tardies and absences usually result in lost points. Quizzes are given out at the beginning of class time and must be completed in the time allotted (usually 20 minutes but may be more or less). Activities occur in-class only. If you miss all or a portion of a class, then you are solely responsible for obtaining missed class materials. Complete attendance is mandatory during all student presentations; otherwise points will be forfeited.

**Make-up and Late Work Policy:** Quizzes and activities cannot be made up. No make-ups or late work accepted unless otherwise stated; however, most work may be turned in early when you know you have to miss a class. All work is due at or before the beginning of class unless otherwise noted. Email problems are not an acceptable excuse. If you are going to miss or have missed a class, please see instructors as soon as possible.

**Rebuttal System:** If you think you were graded unfairly (or erroneously) on an assignment or quiz, please turn in a written explanation (rebuttal) with your graded assignment/quiz to us within two weeks. We will write a response and return it to you. An appointment can be set up if you disagree with the resolution.

**WSU Academic Integrity Statement:** Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. Students who violate WSU's Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404) will fail the course, will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct. Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Students, WAC 504-26-010(3). You need to read and understand all of the definitions of cheating:

<http://app.leg.wa.gov/WAC/default.aspx?cite=504-26-010>. If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding. If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at [conduct.wsu.edu](http://conduct.wsu.edu).

**Be Courteous:** Every student is expected to contribute to a positive, distraction-free learning environment. No talking while the instructor or another student is talking to the class. In general, please be respectful of other students and the educational process.

**Posting of Grades and Course Materials:** Grades and course materials (including Powerpoint lectures) will be posted on Blackboard.

**WSU Reasonable Accommodation Statement:** Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist at 509-335-3417, or online at <http://accesscenter.wsu.edu>, or via email [Access.Center@wsu.edu](mailto:Access.Center@wsu.edu)

**WSU Safety:** Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the "Alert, Assess, Act," protocol for all types of emergencies and the "Run, Hide, Fight" response for an active shooter incident. Remain ALERT (through direct observation or emergency notification), ASSESS your specific situation, and ACT in the most appropriate way to assure your own safety (and the safety of others if you are able). Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the [FBI's Run, Hide, Fight video](#) and visit the [WSU safety portal](#).

**The Writing Center:** WSU offers help and guidance with student writing assignments, as well as other tutorial services. Information about the Writing Center can be accessed via: <http://universitycollege.wsu.edu/units/writingprogram/units/writingcenter/undergrad/>. Walk-ins are welcome (Smith CUE 303).

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**FALL 2016 SCHEDULE**

DATE	TOPICS and READINGS	ASSIGNMENTS
Aug 23 Aug 25	Insect Importance and Conservation (Ch 1) External Anatomy (Ch 2)	-- Activity 1
Aug 30 Sep 01	Internal Anatomy and Physiology (Ch 3) Sensory Systems and Behavior (Ch 4)	Quiz 1 Activity 2
Sep 06 Sep 08	Reproduction (Ch 5) Development and Life History (Ch 6)	Quiz 2 Activity 3
Sep 13 Sep 15	-- Evolution and Biogeography (Ch 8)	Exam 1 Activity 4
Sep 20 Sep 22	Systematics, Phylogenetics, Diversity (Ch 7) Insect Orders (Ch 7)	Quiz 3 "News & Views" Paper Due
Sep 27 Sep 29	Insect Orders (Ch 7) Insect Orders (Ch 7)	Quiz 4 Activity 5
Oct 04 Oct 06	Terrestrial Insects (Ch 9) Aquatic Insects (Ch 10)	Quiz 5 Activity 6
Oct 11 Oct 13	-- Insect-Plant Interactions (Ch 11)	Exam 2 "News & Views" Revision Due (Optional)
Oct 18 Oct 20	Insect-Plant Interactions (Ch 11) Insect-Plant Interactions (Ch 11)	Quiz 6 Activity 7
Oct 25 Oct 27	Sociality (Ch 12) Predation (Ch 13)	Quiz 7 Activity 8; Insect Collection Due (Extra Credit)
Nov 01 Nov 03	Parasitism (Ch 13) Defense (Ch 14)	Quiz 8 Activity 9
Nov 08 Nov 10	-- Medical and Veterinary Entomology (Ch 15)	Exam 3 "Insect Aside" Paper Due
Nov 15 Nov 17	Pest Management (Ch 16) Insects in a Changing World (Ch 17)	Quiz 9 Activity 10
Nov 22 Nov 24	Thanksgiving Break Thanksgiving Break	-- --
Nov 29 Dec 01	Insects in a Changing World (Ch 17) Insects in a Changing World (Ch 17)	Quiz 10; "Insect Aside" Revision Due (optional) --
Dec 06 Dec 08	"Insect Aside" Student Presentations "Insect Aside" Student Presentations	All Presentations Due by 5:00PM on Dec 05 All Presentations Due by 5:00PM on Dec 05
Dec 14	--	Exam 4 (10:10AM-12:10PM)

# Entom 343: General Entomology Grade Tracking Sheet

**Quizzes = 120 pts = 12% of final grade (\*drop 2 lowest quiz grades\*)**

Quiz 1 (15) \_\_\_\_\_ Quiz 6 (15) \_\_\_\_\_  
Quiz 2 (15) \_\_\_\_\_ Quiz 7 (15) \_\_\_\_\_  
Quiz 3 (15) \_\_\_\_\_ Quiz 8 (15) \_\_\_\_\_  
Quiz 4 (15) \_\_\_\_\_ Quiz 9 (15) \_\_\_\_\_  
Quiz 5 (15) \_\_\_\_\_ Quiz 10 (15) \_\_\_\_\_

Total Quizzes \_\_\_\_\_

**Exams = 480 pts = 48% of final grade**

Exam 1 (120) \_\_\_\_\_  
Exam 2 (120) \_\_\_\_\_  
Exam 3 (120) \_\_\_\_\_  
Exam 4 (120) \_\_\_\_\_

Total Exams \_\_\_\_\_

**Activities = 100 pts = 10% of final grade (\*drop 2 lowest activity grades\*)**

Activity 1 \_\_\_\_\_ Activity 6 \_\_\_\_\_  
Activity 2 \_\_\_\_\_ Activity 7 \_\_\_\_\_  
Activity 3 \_\_\_\_\_ Activity 8 \_\_\_\_\_  
Activity 4 \_\_\_\_\_ Activity 9 \_\_\_\_\_  
Activity 5 \_\_\_\_\_ Activity 10 \_\_\_\_\_

Total Activities \_\_\_\_\_

**Writing and Presenting = 300 pts = 30% of final grade**

"News and Views" Paper (100) \_\_\_\_\_  
"Insect Aside" Paper (150) \_\_\_\_\_  
"Insect Aside" Presentation (50) \_\_\_\_\_

Total Writing and Presenting \_\_\_\_\_

Extra Credit \_\_\_\_\_

**Total Points:**

**Grand Total** \_\_\_\_\_

## Entom 343: General Entomology Assignments and Extra Credit

### Quizzes: (120 points)

There will be 10 quizzes worth 15 points each, but only 8 quizzes will count (i.e., your 2 lowest quiz grades will be dropped). Quizzes are given out at the beginning of class time and must be completed in the time allotted (usually 20 minutes but may be more or less). Quizzes will be a combination of short answer, fill-in-the-blank, multiple choice, and insect identification. **Quizzes cannot be made up.**

### Exams: (480 points)

There will be 4 exams worth 120 points each. Exams are not explicitly cumulative, but exams given later in the semester will draw upon general knowledge gained earlier. Exams will be a combination of short answer, fill-in-the-blank, multiple choice, and higher-level analysis and synthesis questions. The entire class period (75 minutes) will be allotted for each exam.

### Activities: (100 points)

There will be 10 in-class activities worth 12.5 points each, but only 8 activities will count (i.e., your 2 lowest activity grades will be dropped). **Activities will always occur in class and cannot be made up.** Activities are designed to reinforce learning objectives and will sometimes require groupwork. Only those group members who actively contribute to the activity will receive credit.

### Writing and Presenting: (300 points)

There will be 3 writing and presenting assignments worth 50, 100, and 150 points each. **All writing assignments (except those completed as part of in-class activities) must be turned in as hard copies, typed on a computer and printed. They are due at the start of class and will not be accepted after the due date.**

#### 1. "News and Views" Paper (**due Sep 22**)

- a. Goals: 1) To locate primary literature, 2) read primary literature, 3) and summarize primary literature in popular, layperson-friendly manner.
- b. Please view the following articles on Blackboard (under course content)
  - i. Insect Fossils
  - ii. Pesticides and Birds
  - iii. Insect Resistance
  - iv. Insect Eyes
- c. Using the above articles as a reference for the style of a "News and Views" article you are to do the following:
  - i. **Locate an article from one of following journals ONLY.** Articles from other journals will not be accepted. Links are also available on Blackboard, under course content:
    1. Ecology Letters  
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1461-0248](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1461-0248)
    2. Trends in Plant Sciences, Trends in Ecology and Evolution  
<http://www.sciencedirect.com/science/journal/01695347>
    3. Current Opinion in Insect Science  
<http://www.sciencedirect.com/science/journal/22145745>
    4. Proceedings of the National Academy of Sciences  
<http://www.pnas.org/content/current>
  - ii. Search for an article of your interest that is related to insects.
  - iii. Read the article.

- iv. Summarize the article in the “News and Views” format:
    1. Define the problem or question being addressed.
    2. Describe the study.
    3. Why is this study significant?
    4. **Include the citation**, following this format:  
 Last Name, Initials. Publication Year. Article title. *Journal Name*,  
 Journal Volume:Page Numbers.  
 For example:
      - Smith, A.C. 2010. Reduced bumble bee density in fragmented habitats. *Ecology*, 55:142-148.
      - Smith, A.C. and Jones, B.D. 2010. Increased bumble bee density in contiguous habitats. *Ecology*, 56:122-127.
  - d. **Your “News and Views” article should be 550-600 words, 12-point Times New Roman font, double-spaced.**
  - e. Grading:
    - i. Article citation = 10
    - ii. Word count and formatting = 10
    - iii. Content = 70
      1. Problem/question = 20
      2. Brief summary = 25
      3. Significance = 25
    - iv. Grammar/spelling = 10
    - v. **Total = 100**
  - f. **You will have the opportunity to revise your paper and improve your grade (revision due Oct 13).**
2. “Insect Aside” Paper (**due Nov 10**)
- a. You will be assigned an insect to research.
  - b. Summarize key aspects of the insect’s taxonomy, life history, ecology, behavior, geographical range, and ecological and economic relevance.
  - c. **Include at least 3 citations from the primary literature** (i.e., peer-reviewed articles published in scientific journals), following this format:  
 For in-text citations:  
 Information you wish to cite (Last Names, Publication Year).  
 For example if 1-2 authors:
    - The sky is blue (Smith and Jones 2010).
 For example if >2 authors:
    - The sky is blue (Smith et al. 2010).
 For list of references cited:  
 Last Name, Initials. Publication Year. Article title. *Journal Name*, Journal  
 Volume:Page Numbers.  
 For example:
    - Smith, A.C. 2010. Reduced bumble bee density in fragmented habitats. *Ecology*, 55:142-148.
    - Smith, A.C. and Jones, B.D. 2010. Increased bumble bee density in contiguous habitats. *Ecology*, 56:122-127.
  - d. **Your “Insect Aside” paper should be 950-1000 words, 12-point Times New Roman font, double-spaced.**
  - e. Grading:
    - i. Article citations = 15
    - ii. Word count and formatting = 15
    - iii. Content = 110

1. Taxonomy = 15
  2. Life history = 20
  3. Ecology = 20
  4. Behavior = 20
  5. Geographical range = 15
  6. Ecological and economic relevance = 20
  - iv. Grammar/spelling = 10
  - v. **Total = 150**
- f. **You will have the opportunity to revise your paper and improve your grade (revision due Nov 29).**
3. "Insect Aside" Presentation (**to be given in class Dec 6 or 8**)
- a. You will give a brief (2 min) presentation on your insect.
  - b. Presentations must follow the format of the example that will be posted on Blackboard (under course content), with slides that automatically advance at set time intervals (details on how to do this in Powerpoint will be provided).
  - c. **Powerpoint files must be uploaded on Blackboard (under course content) by 5:00PM on Dec 5**
    - i. Name the file with the following format:  
 InsectNumberIncludingZeroes\_YourLastName\_YourFirstName  
 For example:  
 02\_Smith\_John  
 54\_Jones\_Anne
  - d. Grading:
    - i. Format = 5
    - ii. Timing = 5
    - iii. Content = 25
    - iv. Grammar/spelling = 5
    - v. Attendance at all other presentations = 10
    - vi. **Total = 50**

Extra Credit:

If you miss an in-class activity, perform less than you prefer on an exam or assignment, or just love insects, then you may collect and curate (pin and label) a minimum of 10 and a maximum of 15 unique insects from at least 5 different orders. Insects are considered unique if they look vastly different from one another (different size and color, different shapes, etc). One point is awarded per insect for correct order identification; one point is awarded per insect for correct pinning. You can achieve a maximum of 30 points. See instructor for curation supplies. Collections are **due by Oct 27**. No late collections will be accepted.