

Spring 2021 BIOL-4500-001 Syllabus

Applied Entomology - Biology 4500

Course Syllabus - Spring 2021

Instructor: Mark (Cody) Holthouse, e-mail: cody.holthouse@usu.edu (<mailto:cody.holthouse@usu.edu>)

Lab Instructor: Brandon Claridge, e-mail: brandon.claridge@usu.edu (<mailto:brandon.claridge@usu.edu>)

Office Hours:

Holthouse	email or zoom appointments by request (preferred times M & W after lecture)
Claridge	email or zoom appointments by request

Lecture: Monday, Wednesday 11:30 am -12:20 pm ZOOM (Virtual)

Laboratory: Tuesday or Thursday 2:30-5:20 pm Life Science Building Room 219

Supporting Texts: Pedigo, L.P. and M.E. Rice. 2009. *Entomology and Pest Management*
(at the library or LSB 219) Sixth Edition. Prentice Hall (Pearson Education, Inc.)

Cranshaw, W. and R. Redak. 2013. *Bugs Rule! An Introduction to the World of Insects*. Princeton University Press

Textbooks are recommended, not required

Course Objectives: Students will learn fundamentals of insect biology, with emphasis on insects of economic importance and principles and tactics of pest management. In the laboratory, students will learn basic classification and habits of insects, particularly those of beneficial and harmful insects affecting humans and agriculture. Field trips (if possible with new COVID-19 protocols) will introduce students to applied aspects of entomology and insect pest management (prerequisite: Introductory Biology – BIOL 1610/1615 or equivalent).

Participation: The course consists of weekly lectures and labs. Attendance and participation in both lectures and labs are required. **Lectures will be delivered virtually** through Zoom video meetings. All lecture materials will be available through Canvas and it is your responsibility to look for assignments and associated due dates there.

Laboratory sessions will be in person and abide by all USU COVID-19 (<https://www.usu.edu/covid-19/>) safety protocols. If you cannot attend a given laboratory session, discuss your necessary absence from the lab with the instructor **in advance**. If you find yourself feeling ill or displaying any symptoms (

you-are-sick/) of COVID-19, we ask that you not attend lab and instead email your lab instructor and fill out the COVID-19 questionnaire (https://usu.service-now.com/dashboard?id=covid_questionnaire&sys_id=25a86b35db625010bb89e25c13961990) as soon as possible.

Evaluation Methods and Criteria

Lecture Quizzes	5%
Lecture Midterm Exam I	17 %
Lecture Midterm Exam II	17
%	
Comprehensive Final Exam	25 %
Lab Quizzes	6%
Lab Worksheets	5%
Laboratory Midterm	10
%	
Laboratory Final	15 %

Grade Scheme

The following grading standards will be used in this class:

Grade	Range
A	100 % to 93.0%
A-	< 93.0 % to 90.0%
B+	< 90.0 % to 87.0%
B	< 87.0 % to 83.0%
B-	< 83.0 % to 80.0%
C+	< 80.0 % to 77.0%
C	< 77.0 % to 73.0%
C-	< 73.0 % to 70.0%

Grade	Range
D+	< 70.0 % to 67.0%
D	< 67.0 % to 60.0%
F	< 59.0 % to 0.0%

Schedule for Lectures and Lab

(**Tentative schedule**, check for regular updates as the semester progresses. *Asterisks * denote tentative guest speaker*)

Wk 1	1	M	Jan 18	NO SCHOOL <i>Martin Luther King, Jr. Day</i>
	2	W	Jan 20	Introduction to Applied Entomology
Wk 2	3	M	Jan 25	Introduction to insects and other arthropods (e.g., spiders and mites)
	4	W	Jan 27	The insect body [wings, legs]
		Tu, Th	Jan 26, 28	Lab 1: Orthoptera, Blattodea, Phasmatodea
Wk 3	5	M	Feb 1	Insect life cycles and development
	6	W	Feb 3	Life processes: eating, breathing, ...
		Tu, Th	Feb 2, 4	Lab 2: Hemiptera (suborder Heteroptera)
Wk 4	7	M	Feb 8	Life processes: molting and metamorphosis
	8	W	Feb 10	Life processes: Nervous system and sensing the environment
		Tu, Th	Feb 9, 11	Lab 3: Hemiptera (suborders Auchenorrhyncha & Sternorrhyncha)
Wk 5	9	M	Feb 15	NO SCHOOL <i>Presidents' Day</i>
	10	W	Feb 17	***** LECTURE EXAM I *****
		Tu, Th	Feb 16, 18	Lab 4: Miscellaneous Exopterygote orders, begin Coleoptera
Wk 6	11	M	Feb 22	Life processes: reproduction
	12	W	Feb 24	Insect pest management (IPM): overview
		Tu, Th	Feb 23, 25	Lab 5: Finish Coleoptera

Wk 7	13	M	Mar 1	Insect ecology: seasonal cycles
	14	W	Mar 3	Insect Ecology (<i>finish</i>) and Insect Behavior (<i>begin</i>)
		Tu, Th	Mar 2, 4	LAB MIDTERM
Wk 8	15	M	Mar 8	Insect Behavior
	16	W	Mar 10	USDA APHIS programs for invasive pest insects (<i>Dawn Holzer*</i>)
		Tu, Th	Mar 9, 11	Lab: Diptera, Siphonaptera
Wk 9	17	M	Mar 15	Biological control: parasitoids and predators
	18	W	Mar 17	Biological control (<i>Zach Schumm</i>)
		Tu, Th	Mar 16, 18	Lab: Lepidoptera, Neuroptera
Wk 10	19	M	Mar 22	Biological control: strategies
	20	W	Mar 24	***** LECTURE EXAM II *****
		Tu, Th	Mar 23, 25	Lab: Hymenoptera, Isoptera
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Wk 11	21	M	Mar 29	Plant-insect interactions and Host Plant Resistance
		Tu	Mar 30	Lab: Collembola, Thysanura and Arachnids
	22	W	Mar 31	Monitoring invasive pest insects in Utah (<i>Lori Spears</i>)
		Th	Apr 1	Lab: Collembola, Thysanura and Arachnids
Wk 12	23	M	Apr 5	Conventional insecticides I
	24	W	Apr 7	Conventional insecticides II, IGRs
		Tu, Th	Apr 6, 8	Lab: Review
Wk 13	25	M	Apr 12	Insecticide Resistance – Causes (<i>Ricardo Ramirez*</i>)
	26	W	Apr 14	Insecticide Resistance Management (<i>Ricardo Ramirez*</i>)
		Tu, Th	Apr 13, 15	LAB FINAL
Wk 14	27	M	Apr 19	Case study of major urban pests (<i>TBD*</i>)
	28	W	Apr 21	IPM programs in Utah (<i>Diane Alston*</i>)

Tu, Th Apr 20
Singer and colleagues)

Lab: Pollination biology (at Bee Lab; with Dr. Pitts-

Wk 15 29 M Apr 26 IGRs and Review

TU Apr 27 Lab: Collecting field trip (Green Canyon) & Making an
insect collection*

Library Services

All USU students attending classes in Logan, at our Regional Campuses, or online can access all databases, e-journals, and e-books regardless of location. Additionally, the library will mail printed books to students, at no charge to them. Students can also borrow books from any Utah academic library. Take advantage of all library services and learn more at libguides.usu.edu/rc. (<http://libguides.usu.edu/rc>)

Classroom Civility

Utah State University supports the principle of freedom of expression for both faculty and students. The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual engaging in such behavior may be subject to disciplinary action. Read Student Code Article V Section V-3 (<https://studentconduct.usu.edu/studentcode/article5>) for more information.

University Policies & Procedures

COVID-19 Classroom Protocols

In order to continue to provide a high standard of instruction at USU, and to limit the spread of COVID-19 during the pandemic, students are asked to follow certain classroom protocols. These protocols are in place not only for your safety but also the safety of the rest of the campus community. You will be asked to clean your desk area at the start of each class, sit in designated seats, wear face coverings, and follow dismissal instructions. There may be individual medical circumstances that prevent some students from using face coverings. These circumstances will be rare, but if they do exist, we ask that everyone be respectful. It is imperative that we each do our part so that on-campus instruction can continue.

Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>) further defines academic freedom and professional responsibilities.

Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:

"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University's Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating:** using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
 - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually;"
 - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
 - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
 - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
 - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
 - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification:** altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism:** representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

For additional information go to: ARTICLE VI. University Regulations Regarding Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)

Sexual Harassment/Title IX

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and USU Policy 339 (<http://www.usu.edu/policies/339>) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU's Office of Equity (<https://equity.usu.edu/>) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment (USU Policy 305 (<http://www.usu.edu/policies/305/>)), and has designated the Office of Equity Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

Withdrawal Policy and "I" Grade Policy

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Students with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) (<http://www.usu.edu/drc/>) as early in the semester as possible (University Inn # 101, (435) 797-2444, drc@usu.edu (<mailto:drc@usu.edu>)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

Students who are at a higher risk for complications from COVID-19 or who contract COVID-19 may also be eligible for accommodations.

Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Division of Student Affairs: <https://studentaffairs.usu.edu> (<https://studentaffairs.usu.edu/>), (435) 797-1712, studentservices@usu.edu (<mailto:studentservices@usu.edu>), TSC 220
- Student Legal Services: <https://ususa.usu.edu/student-association/student-advocacy/legal-services> (<https://ususa.usu.edu/student-association/student-advocacy/legal-services>), (435) 797-2912, TSC 326,
- Access and Diversity: <http://accesscenter.usu.edu> (<http://accesscenter.usu.edu/>), (435) 797-1728, access@usu.edu (<mailto:access@usu.edu>); TSC 315
- Multicultural Programs: <http://accesscenter.usu.edu/multiculture> (<http://accesscenter.usu.edu/multiculture>), (435) 797-1728, TSC 315
- LGBTQA Programs: <http://accesscenter.usu.edu/lgbtqa> (<http://accesscenter.usu.edu/lgbtqa/>), (435) 797-1728, TSC 3145
- Provost's Office Diversity Resources: <https://www.usu.edu/provost/diversity> (<https://www.usu.edu/provost/diversity/>), (435) 797-8176

You can learn about your student rights by visiting:

The Code of Policies and Procedures for Students at Utah State

University: <https://studentconduct.usu.edu/studentcode> (<https://studentconduct.usu.edu/studentcode/>)

Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: Article VII (<https://studentconduct.usu.edu/studentcode/article7>).

Full details for USU Academic Policies and Procedures can be found at:

- Student Conduct (<http://www.usu.edu/studentconduct>)
- Student Code (<https://studentconduct.usu.edu/studentcode/>)
- Academic Integrity (<https://studentconduct.usu.edu/studentcode/article6>)
- USU Selected Academic Policies and Procedures (<http://www.usu.edu/provost/faculty-life/syllabus.cfm>)
- USU Academic Policies and Procedures (<http://catalog.usu.edu/content.php?catoid=4&navoid=546>)
- Academic Freedom and Professional Responsibility Policy (<http://www.usu.edu/hr/files/uploads/Policies/403.pdf>)

Emergency Procedures

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.

Mental Health

Mental health is critically important for the success of USU students. As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Utah State University provides free services for students to assist them with addressing these and other concerns. You can learn more about the broad range of confidential mental health services available on campus at Counseling and Psychological Services (CAPS) (<https://counseling.usu.edu>).

Students are also encouraged to download the “SafeUT App” (<https://healthcare.utah.edu/uni/programs/safe-ut-smartphone-app>) to their smartphones. The SafeUT application is a 24/7 statewide crisis text and tip service that provides real-time crisis intervention to students through texting and a confidential tip program that can help anyone with emotional crises, bullying, relationship problems, mental health, or suicide related issues.

Fees

Please note that the course fee is charged to cover the cost for replacement of lab materials and supplies, partial funding for TA support, and field trip supplies/transport.