

# ARTHROPOD VECTOR IDENTIFICATION

ENY4932 | Fall Semester | 3 Credit Hours | Online Only

## INSTRUCTOR

Dr. Estelle Martin

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## TA

Charlotte Addae

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## OFFICE HOURS

- Dr. Martin: Wednesday 5-6 PM
- Ms. Addae: Thursday 3-4 PM

For additional times outside these office hours, you are encouraged to message TA Charlotte Addae at [charlotte.addae@ufl.edu](mailto:charlotte.addae@ufl.edu) or me at [estellemartin@ufl.edu](mailto:estellemartin@ufl.edu) to arrange a time to meet. Use the subject line: FALL 2023 – ENY4932 Meeting Request. All meetings will occur via Zoom. Please allow for a 48h response time.

## Course Communication

Please post course related questions on the discussion board and send private questions related to the course or grades to [estellemartin@ufl.edu](mailto:estellemartin@ufl.edu).

## Course Website

<https://ufl.instructure.com/courses/489120>

## Course Description

Insects and other arthropods play critical roles in the environment. In this course, we will focus on the role of arthropods as vectors of disease and learn how to identify to the species level the major arthropod vectors of human diseases.

## Prerequisite Knowledge and Skills

As a prerequisite, you must have completed BSC2005 or BSC2010.

## Purpose of Course

This course is designed to provide students with the skills and knowledge required to identify arthropod vectors of human and animal diseases. Students will learn about the major arthropod vector groups, including mosquitoes, ticks, fleas, and lice, and the diseases they transmit. The course will cover the principles of arthropod identification, including morphology, life cycle, and behavior. Students will also learn about the techniques used to collect and rear arthropod specimens for identification.

## Course Goals and/or Objectives

By the end of this course, students will develop the necessary skills to identify major arthropod vectors.

## Instructional Methods

The class will be conducted entirely online using Canvas. You are responsible for the course content in Canvas. You should view the lectures and read the materials in the order shown in the class outline. You should also view the videos, which serve to illustrate the items discussed.

## Minimum Technology Requirements

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. A student's computer configuration should include webcam, microphone, broadband access, and Microsoft Office Suite. Individual colleges may have additional requirements or recommendations, which students should review before starting their program. More [information on technical requirements](#) is available at the UF Online website.

## Minimum Technical Skills

To complete your tasks in this course, you will need a basic understanding of operating a computer and using word processing software.

## Learning Objectives

By the end of the course, students will be able to:

1. Define a vector and compare/contrast the different types of disease transmission.
2. Discuss insects' external and internal structures that are essential for arthropod identification.
3. Identify the major arthropods to the family, genus, and/or species level that transmit pathogens, causing disease in humans.
4. Judge and critique scientific literature related to insects and human health.

## Materials/Supply Fees

None

## Textbook and Additional Readings/Resources

**No required textbook:** All reading materials are provided via the eLearning site. Assigned peer-reviewed readings are included with assignments. Please see the individual Canvas modules for more details.

## List of Course Journal Articles and Related Materials:

- Salomon, J., Hamer, S. A. & Swei, A. (2020, November 2). A beginner's guide to collecting question hard ticks (Acari: Ixodidae): A standardized trick dragging protocol. *Journal of Insect Science* 20(6).  
<https://doi.org/10.1093/jisesa/ieaa073>
- Wheeler, L. (2018). *Pictorial key to genera of hard adult ticks in the USA*. The Monster Hunter's Guide to Veterinary Parasitology. [https://www.veterinaryparasitology.com/uploads/1/1/8/2/118230013/tick\\_identification.pdf](https://www.veterinaryparasitology.com/uploads/1/1/8/2/118230013/tick_identification.pdf)
- Thompson, A. T., White, S. A., Shaw, D., Barrett, K. B., Wyckoff, S. T., Doub, E. E., Ruder, M. G. & Yabsley, M. J. (2021, September). A multi-seasonal study investigating the phenology, host and habitat associations, and pathogens of *Haemaphysalis longicornis* in Virginia, U.S.A. *Ticks and Tick-borne Diseases* 12(5), 101773.  
<https://doi.org/10.1016/j.ttbdis.2021.101773>

- West, R. G., Mathias, D. K., Day, J. F., Acevedo, C., Unnasch, T. R. & Burkett-Cadena, N. D. (2020, September 1). Seasonal changes of host use by *Culiseta melanura* (Diptera: Culicidae) in Central Florida. *Journal of Medical Entomology* 57(5), 1627-1634. <https://doi.org/10.1093/jme/tjaa067>
- Colebunders, R., Basáñez, M. G., Siling, K., Post, R. J., Rotsaert, A., Mmbando, B., Suykerbuyk, P. & Hopkins, A. (2018, March 28). From river blindness control to elimination: Bridge over troubled water. *Infectious Diseases and Poverty* 7, 21. <https://doi.org/10.1186/s40249-018-0406-7>
- Basáñez, M. G., Pion, S. D. S., Churcher, T. S., Breitling, L. P., Little, M. P. & Boussinesq, M. (2006, September 26). River blindness: A success story under threat? *PLOS Medicine* 3(9), e371. <https://doi.org/10.1371/journal.pmed.0030371>
- Bouyer, J., Carter, N. H., Batavia, C., & Nelson, M. P. (2019, February). The ethics of eliminating harmful species: The case of the tsetse fly. *BioScience* 69(2), 125-135. <https://doi.org/10.1093/biosci/biy155>
- Bonney, K. M. (2014). Case study: Sick on a South American sugarcane plantation. *Journal of Science Teaching* 43(3), 67-71. [https://academicworks.cuny.edu/kb\\_pubs/106](https://academicworks.cuny.edu/kb_pubs/106)
- Lynteris, C. (2023, January 17). In search of lost fleas: Reconsidering Paul-Louis Simond's contribution to the study of the propagation of plague. *Medical History* 66(3), 242-263. <https://doi.org/10.1017/mdh.2022.19>
- Barley, E. & Sharp, J. (2023). *Clicker case: A tale of three lice*. National Science Teaching Association. <https://www.nsta.org/ncss-case-study/tale-three-lice>

## COURSE CALENDAR

Module	Course topic	Assessment	Due
0 (Aug. 23-Aug. 27)	Course Introduction	Syllabus quiz Introduce Yourself Discussion Assess Your Knowledge Pre-Quiz	Aug. 28
1 (Aug. 28-Sept. 3)	Perusall Introduction and Semester Projects	Introductory Perusall Discussion	Sept. 4
2 (Sept. 4-Sept. 10)	Ticks Part 1: Classification and Morphology	PlayPosit Practice Quizzes (2) Module 2 Quiz	Sept. 11
3 (Sept. 11-Sept. 17)	Ticks Part 2: Species of Interest	PlayPosit Practice Quizzes (3) Module 3 Quiz Module 3 Perusall Discussion	Sept. 18
4 (Sept. 18-Sept. 24)	Mosquitoes Part 1: Adult Identification	PlayPosit Practice Quizzes (4) Module 4 Quiz	Sept. 25
5 (Sept. 25-Oct. 1)	Mosquitoes Part 2: Larval Identification	PlayPosit Practice Quizzes (4) Module 5 Quiz Module 5 Perusall Discussion	Oct. 2
6 (Oct. 2-Oct. 8)	Mosquitoes Part 3: Species of Interest and Associated Disease	Mosquito Identification Practice Quiz	Oct. 9
7 (Oct. 9-Oct. 15)	Black Flies	PlayPosit Practice Quiz Module 7 Quiz Module 7 Perusall Discussion Midterm Exam	Oct. 16
8 (Oct. 16-Oct. 22)	Tsetse Flies	PlayPosit Practice Quizzes (2) Module 8 Quiz Module 8 Perusall Discussion	Oct. 23
9 (Oct. 23-Oct. 29)	Kissing Bugs	PlayPosit Practice Quizzes (6) Module 9 Quiz Live Case Study Discussion 1 (extra credit)	Oct. 30

Module	Course topic	Assessment	Due
10 (Oct. 30-Nov. 5)	Fleas	PlayPosit Practice Quizzes (3) Module 10 Quiz Module 10 Perusall Discussion	Nov. 6
11 (Nov. 6-Nov. 12)	Lice	PlayPosit Practice Quiz Module 11 Quiz Live Case Study Discussion 2 (extra credit)	Nov. 13
12 (Nov. 13-Nov. 19)	Arthropods and Disease Transmission	PlayPosit Practice Quizzes (2) Module 12 Quiz	Nov. 20
13 (Nov. 20-Nov. 26)	Solve the Outbreak	CDC "Solve the Outbreak" Game	Nov. 27
14 (Nov. 27-Dec. 3)	Vector Control	PlayPosit Practice Quizzes (2) Mosquito-borne Disease Quiz (extra credit) Module 14 Quiz Assess Your Knowledge Post-Quiz	Dec. 4
15 (Dec 4-Dec 10)	Course Conclusion	Final Exam	Dec 11

## METHODS OF EVALUATION

Assignment	Number & Points
Syllabus Quiz	20 points
Introduce Yourself Discussion	20 points
Practice Quizzes	33 @ 0 points each ( <b>ungraded</b> )
Module Quizzes	11 @ 20 points each
Perusall Discussions	6 @ 50 points each
CDC "Solve the Outbreak" Game	20 points
Midterm Exam	200 points
Final Exam	200 points
Pre and Post Quizzes	2 @ 10 points each
<b>TOTAL</b>	<b>1000 POINTS</b>
Extra Credit: Online Case Study Discussions	2 @ 20 points each
Extra Credit: Stopping Mosquito-borne Diseases Quiz	10 points

## COURSE FORMAT AND ASSIGNMENTS

This course is offered as pre-recorded lectures delivered by the eLearning course management system Canvas. Slides are available as PDFs and transcripts should you care to print them.

### Introductory Assignments

At the beginning of the term, you will complete a syllabus quiz to orient yourself in the course and an introductory assignment to become acquainted with your fellow students.

### PlayPosit Practice Quizzes

Over the course of the term, you will complete 30 PlayPosit quizzes which are embedded in the course lectures. These are ungraded but will help prepare you for the weekly module quizzes.

### Module Quizzes

Most weeks of the term, you will complete a module quiz which assesses your knowledge of the material for the week. Quizzes are multiple-choice and must be taken in Canvas unless other arrangements are made in advance.

### Perusall Discussions

You will complete 6 Perusall discussions this term. The first is an introductory discussion that will orient you in the platform. The other 5 discussions require that you read a journal article related to the focus of that week's module and annotate it with your peers. This will give you practice in reading and assessing scientific literature and help you establish a learning community with your fellow students.

### "Solve the Outbreak" Game

Over Thanksgiving week, you will complete a fun and interactive game where you are given a disease-outbreak scenario and asked to determine solutions for controlling it.

### Midterm Exam

This multiple-choice exam will be taken during Week 7 and assess your knowledge of Weeks 1-7. Completing the module quizzes successfully will help prepare you for the midterm. The exam is multiple-choice and must be taken in Canvas unless arrangements are made in advance.

### Final Exam

This multiple-choice exam will be taken during Week 15 and assess your knowledge of Weeks 8-14. Completing the module quizzes successfully will help prepare you for the final. The exam is multiple-choice and must be taken in Canvas unless arrangements are made in advance.

### Pre- and Post-Quizzes

At the beginning and end of the term, you will take pre- and post-quizzes on the subject matter of the course. This will help you determine your knowledge growth during the semester.

### Extra Credit

Twice during the term, you will have the opportunity to attend a live online case study discussion (via Zoom) for extra credit. This will give you the opportunity to interact with me and your fellow students.

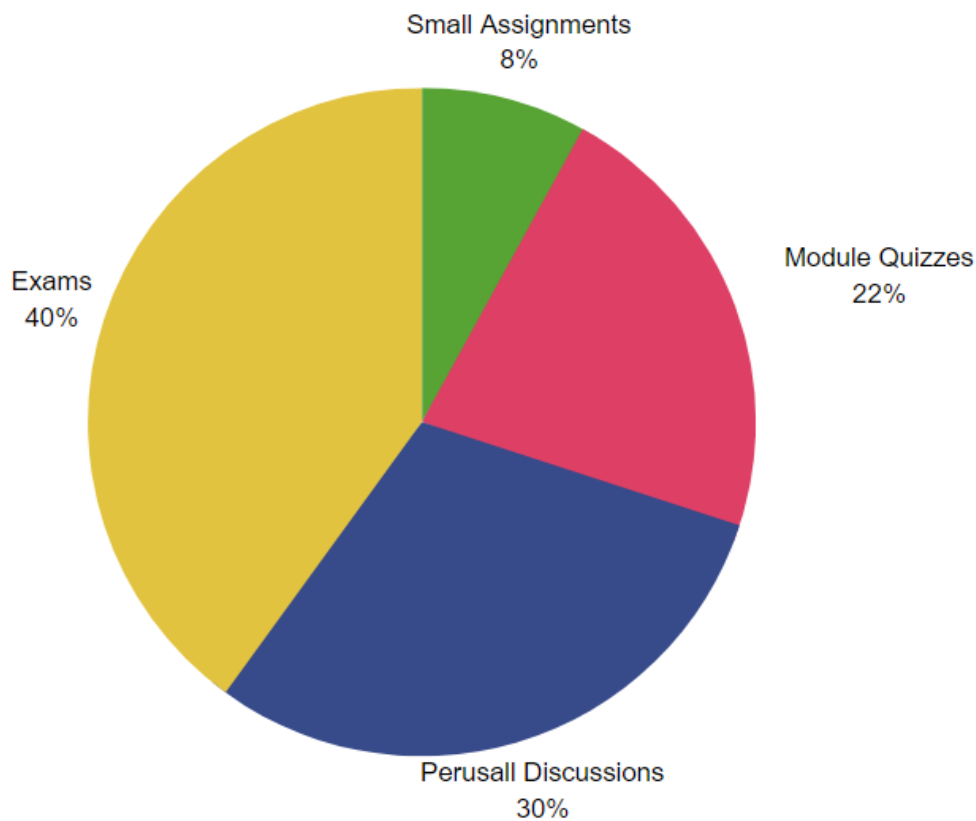
In addition, there is an extra-credit quiz on stopping mosquito-borne diseases that you can take after viewing a presentation on the subject during Week 14.

## COURSE GRADING

Students are responsible for the content of the lectures. To see the specific breakdown of course points, please look at the Methods of Evaluation table earlier in this document. Full point totals are available below:

- Small Quizzes/Assignments: 80 points
- Module Quizzes: 220 points
- Perusall Discussions: 300 points
- Exams: 400 points

**Total: 1000 pts**



The final grade, based on accumulation of points, will be assigned as:

A	93– 100	B-	80- 82.9	D+	67- 69.9
A-	90– 92.9	C+	77- 79.9	D	63- 66.9
B+	87– 89.9	C	73- 76.9	D-	60- 62.9
B	83– 86.9	C-	70- 72.9	E	<59.9 and below

Grade point equivalencies: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

## Grades and Feedback Posting Schedule

My general policy is to post grades and feedback for all assignments in Canvas one week after the due date. If there is ever a delay in grading, I will notify students via a Canvas announcement.

## Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

## TIPS FOR SUCCESS

Early in the week – over the weekend, or by Monday at the latest – you should read through the Canvas module pages for the week to get an idea of what you will need to do and how much time you will need to allot for each activity.

I recommend blocking out several chunks of time each week that you will dedicate to working on this course, the same way that you would have scheduled lecture times for a synchronous course.

To succeed in the course, remember to do the following:

- Digest course content.
- Utilize available resources.
- Pace yourself and work ahead whenever possible.
- Stay on top of the material.
- Plan and organize your semester.
- Remember that success requires time, effort, and commitment.

## COURSE POLICIES

### Attendance Policy

There is no attendance policy, but it will be difficult to pass the course unless you read the materials carefully and listen to the lectures. Students are encouraged to work on this class weekly since all writing assignments are due by the date posted and must be submitted using Canvas.

### Quiz/Exam Policy

You have only one chance to take each quiz or exam, so prepare in advance. Please take quizzes and exams using a reliable computer and connection. Contact me in advance (minimum of two weeks) if there will be a problem with the dates of the scheduled exams.

### Submission Policy

All assignments are due on the **Monday** of the following week @ **11:59 PM**, and the whole content of the course will be available to student as they start the course.

### Late Work Policy

To receive credit for late work, students must complete and submit the work by **Sunday** of the next course week @ **11:59 PM** (7 days after the original due date). All late submissions will be docked 10% for each 24 hours after the deadline.

## UF POLICIES

### Privacy

Any online class sessions may be audio-visually recorded. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image.

Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to having your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

### University Policy on Accommodating Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester. Accommodations are **not** retroactive.

### University Policy on Academic Conduct

UF students are bound by The Honor Pledge, which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The [Conduct Code](#) specifies behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor for this class.

### Plagiarism

The [Student Honor Code and Student Conduct Code](#) states that:

"A Student must not represent as the Student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

- Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
- Self-plagiarism, which is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
- Submitting materials from any source without proper attribution.
- Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author."

### Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing a course evaluation online via GatorEvals. The university has provided [guidance on how to give feedback](#).

Students will be notified when the evaluation period opens and can complete the evaluation either through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via the [GatorEvals website](#).

Summaries of course evaluation results are available to students at the [GatorEvals results page](#).



## Etiquette and Netiquette

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. UF has provided a [netiquette guide](#).

## Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course.

A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services.

A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Policy on Course Syllabi 3 UF, Academic Affairs, August 5th, 2021, Honor Code and Student Conduct Code.

## Copyright

All course materials posted on the Canvas course website are assembled and intended for students taking MCB5205 **only**, and only available for student use from our secure Canvas course website. Reposting any of these materials and sharing them via such resources as StudySoup, Course Hero, YouTube, Quizlet, Facebook, etc. is not permitted by the instructor. Unauthorized re-posting of course materials (including textbook PDFs) may infringe on [UF's copyright policies](#) and the [Fair Use Act](#).

## GETTING HELP AND ADDITIONAL RESOURCES

For issues with technical difficulties for e-Learning, please contact the [UF Computing Help Desk](#). The phone number is (352) 392-HELP (4357).

Any requests for make-ups due to technical issues **MUST** be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** email your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

## More Technical Resources

[UF Licensed Software](#) Students can access software programs like Office 365 and Adobe at free or reduced rates.

[UF All Access](#) The University of Florida's digital course materials program. Selected courses are available through UF All Access to provide students with the lowest prices on their eBooks and courseware products.

[UF Apps](#) Provides access to software applications from any computing device--laptops, tablets, desktops, and smartphones—from any location, at any time.

[VPN](#) The Gatorlink VPN service provides secure remote access to the University of Florida network and makes it appear as if your computer were physically attached to the campus network. By using the Gatorlink VPN client, you may access resources on the UF network that are not typically available over an Internet path.

[Canvas Quickstart Guide](#) This short guide will get you started with using Canvas.

[Training and Safety](#) UFIT offers free software and other technical training sessions for students, teachers, and staff.

[Safe Computing Practices](#) Learn how to protect your computer from threats regardless of brand, model, and operating system.

[Zoom](#) is an easy-to-use video conferencing service available to all UF students, faculty, and staff that allows for meetings of up to 100 participants.

## More Resources for Online Students

Available at the [Distance Learning website](#). These include:

- Counseling and wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

## HEALTH AND WELLNESS

If you or someone you know is in distress, please visit the [U Matter, We Care](#) website or call 352-392-1575 to refer or report a concern. A team member will reach out.

Visit the [Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services and non-crisis services.

Visit the [Student Health Care Center website](#) or call 352-392-1161 for 24/7 information on finding the care you need.

For safety and support, visit the [University Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

For immediate medical care, call 352-733-0111 or go to the UF Health/Shands Emergency Room and Trauma Center at 1515 SW Archer Road.

For prevention services focused on optimal wellbeing, including wellness coaching for academic success, visit the [GatorWell website](#) or call 352-273-4450.

## COVID-19

In response to COVID-19, UF has established practices to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

[UF COVID Information](#)

[UF Guidance on Health and Wellness](#)

## ACADEMIC RESOURCES

[Career Connections Center](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

[Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources. [Distance student resources](#) are also available.

[Teaching Center](#): Broward Hall, 352-392-2010 or to make an appointment, 352-392-6420. General study skills and tutoring.

[Writing Studio](#): 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

[Student Complaints and Grievances](#) Information is available in the Student Honor Code and Conduct Code.

[University Registrar](#) Find information on records, data, and enrollment.

[Academic Deadlines and Calendar](#) Consult for all important upcoming events.

[UF Online Resources](#) Access to many services to help you achieve your goals.

## ACCESSIBILITY AND PRIVACY POLICIES

For information about the privacy policies of the tools used in this course, see below:

Adobe

- [Adobe Privacy Policy](#)
- [Adobe Accessibility](#)

Instructure (Canvas)

- [Instructure Privacy Policy](#)
- [Instructure Accessibility](#)

Microsoft

- [Microsoft Privacy Policy](#)
- [Microsoft Accessibility](#)

PlayPosit

- [PlayPosit Privacy Policy](#)
- [PlayPosit Accessibility](#)

Perusall

- [Perusall Privacy Policy](#)
- [Perusall Accessibility](#)

Sonic Foundry (Mediasite Streaming Video Player)

- [Sonic Foundry Privacy Policy](#)
- [Sonic Foundry Accessibility](#) (PDF)

YouTube (Google)

- [YouTube \(Google\) Privacy Policy](#)
- [YouTube \(Google\) Accessibility](#)

Zoom

- [Zoom Privacy Policy](#)
- [Zoom Accessibility](#)

## **DISCLAIMER**

Information contained in this syllabus is, to the best knowledge of this instructor, considered correct and complete when distributed to students. The instructor reserves the right, acting within the policies and procedures of the University of Florida, to make necessary changes in course content or instructional techniques with notification to students.