

**University of Florida**  
**College of Public Health & Health Professions Syllabus**  
**PHC 6515: One Health: Applied Techniques in Public Health Entomology (3 credit hours)**  
Semester: Summer, 2023  
Delivery Format: Distance Learning  
Course Website: E-Learning on Canvas

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**Course Director:** Bernard A. Okech, MS, PhD, MPH  
**Room Number:** Office (TBD)  
**Phone Number:** 352-273-9188 (EGH main office)  
**Email Address:** bokech@ufl.edu  
**Office Hours:** By Appointment Only  
**Teaching Assistants:** TBD  
**Preferred Course Communications:** Email and via Canvas

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### **Prerequisites**

PHC 6370: Public Health Biology or equivalent after consulting with the instructor

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## **PURPOSE AND OUTCOME**

### **Course Overview**

Vector-borne diseases are a major public health concern globally. The interaction of living things in the environment (human, animals, insects, plants) is complex and can sometimes create conditions for the spread of vector borne diseases. To effectively curtail their spread to humans, a broad understanding of techniques and methodologies applied to study the vector borne disease transmission dynamics in specific contexts is required. The field of public health entomology seeks to understand population biology of insect vectors to better understand their involvement in the transmission these diseases and to come up with strategies to reduce their impact on human health.

This course aims to increase the pool of skilled workforce with the requisite knowledge to undertake detailed research studies that would generate meaningful data that can be applied for the control of vector borne diseases, many of which are emerging and re-emerging in nature. Students will learn entomology techniques used for collection and analysis of the insect vector samples to understand vector borne disease transmission. Emphasis will be placed on topical and emergent issues in the world related to prevention and control of vector borne diseases while appreciating the connections to animals, both domestic and wild, and environmental issues.

### **Relation to Program Outcomes**

Students will acquire the knowledge and skills to implement activities related to vector borne disease surveillance, prevention and control within the constantly changing and interconnected space covering animals (domestic and wild), humans and environment.

### **Course Objectives and/or Goals**

After completing this course, the student should be able to:

- Describe the global disease burden of vector-borne diseases and the public health importance.
- Identify the arthropod vectors of disease and describe their life cycles and the associated diseases they transmit.
- Compare and contrast the surveillance methods for arthropod vectors of disease based on ecological and public health considerations.
- Describe the basic techniques used in the incrimination of arthropod vectors as transmitters of disease.
- Formulate a prevention and control plan for the arthropod vectors of diseases paying particular attention to their impact on the environment.

### Instructional Methods

This course is delivered online via Canvas. All course content including lectures, readings, discussions, assignments, quizzes, exams are via Canvas.

#### *What is expected of you?*

You are expected to actively engage in the course and to prepare ahead of time for the classes by completing any assignments. This preparation gives you the knowledge and practice needed to engage in higher levels of learning during the course activities. If you are not prepared, you may struggle to keep pace with the activities occurring in the course, and it is unlikely that you will reach the higher learning goals of the course. You are expected to actively participate in online discussions and other online activities. Your participation fosters a rich course experience for you and your peers that facilitate overall mastery of the course objectives. You must complete all assignments by their due date.

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## DESCRIPTION OF COURSE CONTENT

### Topical Outline/Course Schedule

Week	Topic(s) and Assignments	Suggested Readings
1	Welcome and introduction to the course	Syllabus
2	Insects and Vector Borne diseases (VBD) of great public health importance in world <ul style="list-style-type: none"> <li>Assignment #1 due (5pts)</li> <li>Online discussion 1</li> </ul>	<ol style="list-style-type: none"> <li>1) Vector and Rodent Borne Diseases in Europe and North America, Norman Gratz, Cambridge University Press (Chapters 21 – 31)</li> <li>2) Public Health Entomology, Jerome Goddard, CRC Press (Chapter 1)</li> <li>3) Medical and Veterinary Entomology, 2<sup>nd</sup> edition. 2009. Academic Press (Chapter 1, 3, 9 -19)</li> </ol>
3	Overview of methods and techniques in used in public health entomology <ul style="list-style-type: none"> <li>Assignment #2 due (5 points).</li> <li>Online discussion 2</li> </ul>	<ol style="list-style-type: none"> <li>1. Medical and Veterinary Entomology, 2<sup>nd</sup> edition. 2009. Academic Press (Chapter 3, 27)</li> <li>2. Public Health Entomology, Jerome Goddard, CRC Press (Chapter 1, 4)</li> <li>3. Mosquito Ecology: Field Sampling methods, John B. Silver (Chapter 1- 5)</li> </ol>
4	Field methods for collection of insect vectors of disease <ul style="list-style-type: none"> <li>Assignment #3 due (5 points).</li> <li>Online discussion 3</li> </ul>	<ol style="list-style-type: none"> <li>1. Mosquito Ecology: Field Sampling methods, John B. Silver (Chapter 2- 3)</li> <li>2. Public Health Entomology, Jerome Goddard, CRC Press (Chapter 4, 7, 8, 11)</li> <li>3. Assigned journal articles</li> </ol>
5	Identification of vectors of disease <ul style="list-style-type: none"> <li>Assignment #4 due (5 points).</li> <li>Online discussion 4</li> </ul>	<ol style="list-style-type: none"> <li>1. Mosquito Ecology: Field Sampling methods, John B. Silver (Chapter 4, 6, 9)</li> <li>2. Public Health Entomology, Jerome Goddard, CRC Press (Chapter 4, 7, 8)</li> <li>3. Assigned journal articles</li> </ol>
6	Applied techniques used analysis of entomology data <ul style="list-style-type: none"> <li>Assignment #5 due (5 points).</li> <li>Online discussion 5</li> </ul>	<ol style="list-style-type: none"> <li>1. Mosquito Ecology: Field Sampling methods, John B. Silver, (Chapter 4, 6, 9)</li> <li>2. Public Health Entomology, Jerome Goddard, CRC Press (Chapter 4, 7, 8)</li> <li>3. Assigned journal articles</li> </ol>
7	Summer Break	None
8	Case studies in public health entomology: vector Borne Diseases – 1. <ul style="list-style-type: none"> <li>Online discussion of case study 1</li> <li>Written summary (2 pages)</li> </ul>	Journal articles that focus on major vector borne disease outbreaks in the world or similar

Week	Topic(s) and Assignments	Suggested Readings
9	Case studies in public health entomology: and vector Borne Diseases – 2. <ul style="list-style-type: none"> <li>• Online discussion of case study 2</li> <li>• Written summary (2 pages)</li> </ul>	Journal articles on insect vectors (or similar) to understand VBD transmission
10	Case studies in public health Entomology: and vector Borne Diseases – 3: <ul style="list-style-type: none"> <li>• Online discussion of case study 3</li> <li>• Written summary (2 pages)</li> </ul>	Journal articles on identification of insect vectors (or similar) and importance in understanding VBD transmission
11	Case studies in public health Entomology: and vector Borne Diseases - 4 <ul style="list-style-type: none"> <li>• Online discussion of case study 4</li> <li>• Written summary (2 pages)</li> </ul>	Journal articles with specific focus on analysis of entomology data
12	Case studies in public health entomology and vector Borne Diseases - 5 <ul style="list-style-type: none"> <li>• Online discussion of case study 5</li> <li>• Written summary (2 pages)</li> </ul>	Journal articles to focus on analysis of adult stages of arthropod vectors or similar
13	Exam	Proctored exam

### Course Materials and Technology

There are no required texts for this course but the following textbooks are highly recommended

- 1) Public Health Entomology, Jerome Goddard, CRC Press, Boca Raton, FL, ISBN 978-1-4398-4881-4
- 2) Vector and Rodent Borne Diseases in Europe and North America, Norman Gratz, Cambridge University Press, New York, NY, ISBN 0-521-85447-4
- 3) Medical and Veterinary Entomology, 3<sup>rd</sup> edition. Gary Mullen and Lance Durden, 2009. Academic Press, ISBN 9780128140437
- 4) Mosquito Ecology: Field Sampling Methods, 3<sup>rd</sup> Edition, John B. Silver, 2008, Springer Netherlands, ISBN 978-1-4020-6665-8
- 5) Journal articles assigned in the class

As this is an online class, access to a computer or tablet is required and you should make adequate arrangements to get access to either a computer or tablet before signing up for the class

For technical support for this class, please contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu)
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

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## ACADEMIC REQUIREMENTS AND GRADING

### Assignments

Students are required to prepare 5 written assignments, each of which will be provided at the end of each lecture. The assignments will require a written report of at least one and a half pages, single-spaced, font size 12, Times New Roman, with at least three paragraphs, and a minimum of 5 references covering the background, current state of the science, and summarizing the evidence supporting your conclusion(s).

**Online discussions:** You will be required to lead a discussion topic and actively participate in each discussion session. Each week, when not leading the weekly discussion, you will be required to participate actively in the discussion topic by responding to at least 2 posts in the discussion board.

**Case studies:** For your case studies, you/team will be assigned a topic and prepare a presentation to include the following areas i) Summary of assigned case based on at least 10 previously published studies, ii) the pertinent research questions relating to your assigned case, iii) scientific hypotheses based on previous findings, and iv) empirical methods or experiments to address your case study. You/team will present your case study online, and other teams will provide critique, which you will be required to respond to. You will then prepare a written 5 page (double spaced) summary paper including critical analysis of background literature (including at least 10 previously published scientific papers), pertinent research questions, hypotheses, experimental methodology addressing the case study and expected outcomes. Teams have to pull their weight in the case study as the grading for the case study will be equal for all members in the team.

### Grading

Requirement	Due date	Points or % of final grade (% must sum to 100%)
Assignments – 5 assignments each 5 points each	Outlined in Syllabus	25
Online discussions – 10 discussions	Outlined in Syllabus	25
Case studies – (5 case studies)	Outlined in Syllabus	25
Exam – 1 final exam	Outlined in Syllabus	25

Point system used (i.e., how do course points translate into letter grades).

<b>Points earned</b>	93%- 100%	90%- 92%	87%- 89%	83%- 86%	80%- 82%	77%- 79%	73%- 76%	70%- 72%	67%- 69%	63%- 66%	60%- 62%	Below 60%
<b>Letter Grade</b>	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Please be aware that a C- is not an acceptable grade for graduate students. The GPA for graduate students must be 3.0. in all 5000 level courses and above to graduate. A grade of C counts toward a graduate degree only if a sufficient number of credits in courses numbered 5000 or higher have been earned with a B+ or higher. In addition, the Bachelor of Health Science Program does not use C- grades.

You must include the letter grade to grade point conversion table below. Letter grade to grade point conversions are fixed by UF and cannot be changed.

<b>Letter Grade</b>	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
<b>Grade Points</b>	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at:

<http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**Exam Policy:** The exam will be administered online via Canvas. They will be proctored by an online proctoring company like HonorLock. The specific details about the exams (open book or closed book) will be provided beforehand.

### **Policy Related to Make up Exams or Other Work**

Students are allowed to make up work as a result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing an assignment deadline, consistent with the College policy. Documentation from a health care provider may be required. Work missed for any other unexcused reason will adhere to the UF absence policy. Students will also be allowed to take make-up work if permission from the instructor was requested at least 2 weeks ahead of your scheduled absence and received approval.

Please note: Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail me within 24 hours of the technical difficulty if you wish to request a make-up.

### **Policy Related to Required Class Attendance**

All faculty are bound by the UF policy for excused absences. For information regarding the UF Attendance Policy see the Registrar website for additional details:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Additional information can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **Policy Related to Guests Attending Class:**

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy:

<http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

## **STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT**

### **Expectations Regarding Course Behavior**

Students are expected to behave professionally throughout this course. Examples of professional behavior include completing required reading prior to class, participating actively in the discussion topic, and submitting assignments and discussion posts on time. There will be no use of recording devices, or cell phones during live online activities.

Communication Guidelines: All communication regarding the course MUST be done via Canvas. Exception to this guideline is when E-learning is down or on maintenance, in which case **you can send a message to the official email address of the instructor**. Here is a link to the Netiquette Guidelines:

<http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

### **Academic Integrity**

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

**“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit 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.”**

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>  
<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

### **Online Faculty Course Evaluation Process**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## **SUPPORT SERVICES**

### **Accommodations for Students with Disabilities**

Accommodations for Students with Disabilities

**If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.**

### **Counseling and Student Health**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from:  
 Alachua County Crisis Center:  
 (352) 264-6789  
<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

### **Inclusive Learning Environment**

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: [www.multicultural.ufl.edu](http://www.multicultural.ufl.edu)