Course Description: Vector-borne pathogens have enormous adverse effects on humans, wildlife, domestic animals and agriculture. Researchers, policy makers, and public health workers need a firm understanding of the ecology of vector-borne pathogens in order to manage vectors and/or interrupt transmission. This course begins with an introduction to basic concepts of ecology, the components inherent to vector-borne disease systems and common frameworks for understanding disease ecology. The course then focuses on various pathogens and how aspects of the environment, host and vector biology influence pathogen transmission.

Course Prerequisite:
A 2000-level (or above) course in Biology, Entomology, Ecology or related discipline.

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

1. Compare and contrast between ecology of vector-borne and directly transmitted pathogens.
2. Apply the basic concepts of epidemiological models.
3. Delineate the factors that initiate, maintain, and spread the transmission of vector-borne pathogens.
4. Differentiate the varied pathogens transmitted by diverse vector groups.
5. Critique, synthesize and discuss scientific literature pertinent to the ecology of vector-borne diseases including emergent pathogens, climate change, host selection and biological diversity.

Materials and Supply Fees: None

Required Textbooks and Software: None
Course lecture materials are derived from various published sources, information on these is provided at the end of the syllabus. All required and optional readings are provided through Canvas.

Course Schedule
Week 1 - Vectors, pathogens, parasites and diseases
Week 2 - Arthropods: Diversity, biology, life cycle, morphological adaptations
Week 3 – Vertebrates: Diversity, hosts, migration, reproduction and immunity
Week 4 – Ecology, niche, energy pathways, biological interactions
Week 5 – Zoonoses, anthropoones, diversity and disease, host and vector competence
Week 6 - Blood meal analysis, host preference, amplification fraction, vectorial capacity
Week 7 – Periodicity of populations, Lotka-Volterra models, SIR models
Week 8 - Exam 1 (October 10); Space and time | Rabies
Week 9 - Malaria | onchocerciasis
Week 10 - Plague | tularemia
Week 11 - Dengue fever, yellow fever, chikungunya and Zika | Biology of Aedes | Dengue ecology
Week 12 - Lyme disease
Week 13 - West Nile virus | Biology of Culex
Week 14 - Eastern equine encephalitis virus
Week 15 - Summary and conclusions
Week 16 – Exam 2 (December 5)
**Attendance Policy, Class Expectations, and Make-Up Policy**
Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: [https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/).

Students are strongly advised to stay current on lecture material. Graded quizzes for each lecture week are available for a limited period during the lecture week and the following week. Students that stay current with lectures and quizzes generally perform well in the course. Excused absences must be consistent with university policies in the [Graduate Catalog](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/) and require appropriate documentation. Additional information can be found in [Attendance Policies](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/).

**Evaluation of Grades – ENY 4202 (undergraduate students)**

<table>
<thead>
<tr>
<th>Graded assessment</th>
<th>Number</th>
<th>Points each</th>
<th>Total points</th>
<th>Percentage of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Weekly Quizzes</td>
<td>15</td>
<td>10</td>
<td>150</td>
<td>30%</td>
</tr>
<tr>
<td>On-line Discussion Participation</td>
<td>5</td>
<td>10</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Writing assignments</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Evaluation of Grades – ENY 6206 (graduate students)**

<table>
<thead>
<tr>
<th>Graded assessment</th>
<th>Number</th>
<th>Points each</th>
<th>Total points</th>
<th>Percentage of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Weekly Quizzes</td>
<td>15</td>
<td>5</td>
<td>75</td>
<td>15%</td>
</tr>
<tr>
<td>On-line Discussion Participation</td>
<td>5</td>
<td>10</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Writing assignments</td>
<td>1</td>
<td>75</td>
<td>75</td>
<td>15%</td>
</tr>
<tr>
<td>Review article</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Critical dates – important graded assessments**

<table>
<thead>
<tr>
<th>Graded assessment</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>October 10</td>
</tr>
<tr>
<td>Exam 2</td>
<td>December 5</td>
</tr>
<tr>
<td>Current outbreaks assignment</td>
<td>October 31</td>
</tr>
<tr>
<td>Review article (ENY 6206 only)</td>
<td>December 3</td>
</tr>
</tbody>
</table>

**Grading Policy**
Letter grades for ENY 4202 and ENY 6206 are assigned using the following scale which follows grading recommendations of the Entomology and Nematology Department.

<table>
<thead>
<tr>
<th>Percent</th>
<th>93.0 - 100</th>
<th>90.0 - 92.99</th>
<th>87.0 - 89.99</th>
<th>83.0 - 86.99</th>
<th>80.0 - 82.99</th>
<th>77.0 - 79.99</th>
<th>73.0 - 76.99</th>
<th>70.0 - 72.99</th>
<th>60.0 - 69.99</th>
<th>&lt;60.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade:</td>
<td>A</td>
<td>A-</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
<td>C+</td>
<td>C</td>
<td>C-</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>

More information on UF grading policy may be found at: [UF Graduate Catalog, Grades and Grading Policies](https://catalog.ufl.edu/UGRD/academic-regulations/grades-and-grading-policies/).

**Academic Honesty**
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 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.”
It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. 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 more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sscr/process/student-conduct-honor-code.

**Services for Students with Disabilities**
The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565 https://disability.ufl.edu/

**Online Course Evaluation Process**
Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

**Software Use**
All UF faculty, staff and students are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

**Student Privacy**
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the Notification to Students of FERPA Rights.

**Campus Resources:**

<table>
<thead>
<tr>
<th>Health and Wellness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U Matter, We Care:</strong> If you or a friend is in distress, please contact <a href="mailto:umatter@ufl.edu">umatter@ufl.edu</a> or 352 392-1575 so that a team member can reach out to the student.</td>
</tr>
<tr>
<td><strong>Counseling and Wellness Center:</strong> counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.</td>
</tr>
<tr>
<td><strong>Sexual Assault Recovery Services (SARS)</strong> Student Health Care Center, 392-1161.</td>
</tr>
<tr>
<td><strong>University Police Department</strong> at 392-1111 (or 9-1-1 for emergencies), or police.ufl.edu.</td>
</tr>
</tbody>
</table>

**Academic Resources**

| **E-learning technical support**, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. |
| **Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. |
| **Library Support**, Various ways to receive assistance with respect to using the libraries or finding resources. |
| **Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. |
| **On-Line Students Complaints** |

**Class Demeanor or Netiquette:** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. It is important to recognize that the online classroom is in fact a classroom,
and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

**SECURITY**

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone.
- Change your password if you think someone else might know it.
- Always log out when you are finished using the system.

**GENERAL GUIDELINES**

When communicating online, you should always:

- Treat your instructor and classmates with respect in email or any other communication.
- Always use your professors' proper title: Dr. or Prof., or if in doubt use Mr. or Ms.
- Unless specifically invited, don't refer to your instructor by first name.
- Use clear and concise language.
- Remember that all college level communication should have correct spelling and grammar (this includes discussion boards).
- Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you."
- Use standard fonts such as Arial, Calibri or Times new Roman and use a size 10 or 12 point font
- Avoid using the caps lock feature AS IT CAN BE INTERPRETTED AS YELLING.
- Limit and possibly avoid the use of emoticons like :) or 9.
- Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or sound offensive.
- Be careful with personal information (both yours and other's).
- Do not send confidential information via e-mail.

**EMAIL NETIQUETTE**

When you send an email to your instructor, teaching assistant, or classmates, you should:

- Use a descriptive subject line.
- Be brief.
- Avoid attachments unless you are sure your recipients can open them.
- Avoid HTML in favor of plain text.
- Sign your message with your name and return e-mail address.
- Think before sending the e-mail to more than one person.
- Be sure you REALLY want everyone to receive your response when you click, “reply all.”
- Be sure that the message author intended for the information to be passed along before you reply.

**MESSAGE BOARD NETIQUETTE AND GUIDELINES**

When posting on the Discussion Board in your online class, you should:

- Make posts that are on topic and within the scope of the course material.
- Take your posts seriously and review and edit your posts before sending.
- Be as brief as possible while still making a thorough comment.
- Always give proper credit when referencing or quoting another source.
- Be sure to read all messages in a thread before replying.
- Don't repeat someone else's post without adding something of your own to it.
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point.
- Always be respectful of others' opinions even when they differ from your own.
- When you disagree with someone, you should express your differing opinion in a respectful, non-critical way.
- Do not make personal or insulting remarks.
- Be open-minded.

Getting Help:

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:
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 e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at http://www.distance.ufl.edu/getting-help for:
- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

REQUIRED READING LIST (PROVIDED BY INSTRUCTOR)
Ogden NH. (2017) Climate change and vector-borne diseases of public health significance. FEMS microbiology letters.

Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.