I. **Course Information:**

- 3 credit hours
- Thursday, 4:00pm-6:45pm
- Kettering Lab Complex, G17

**Prerequisites:** BE7076 Introduction to Epidemiology or PH7030 Epidemiology for Public Health

II. **Instructor Information:**

- Ann Vuong, DrPH, MPH
- **Email:** ann.vuong@uc.edu
- **Office:** Kettering Lab Complex, G08
- **Office Hours:** By appointment

**Communication Policy:** Students are encouraged to contact me anytime via email. A response will be given within 36-48 hours except on weekends.

III. **Course Materials**


Additional readings will be posted. These readings will be the basis for in-class discussions and activities.

**Course Website:** [http://canopy.uc.edu](http://canopy.uc.edu) - meta_vuongan_2822: (Meta 18FS-Full) EPI INFECTIOUS DIS

IV. **Course Description**

This course builds upon the epidemiologic concepts covered in the BE7076 Introduction to Epidemiology or PH7030 Epidemiology for Public Health courses. It will cover methods in infectious disease epidemiology, molecular epidemiology, the immune system, vaccines, emerging and re-emerging diseases, infection control and prevention, development of drug resistance, and the role of public health practitioners in infectious disease outbreaks. Experts in the field will provide in-depth guest-lectures for selected topics.
V. Student Learning Objectives

Upon successful completion of this course, the learner will be able to:

| 1. Characterize the major infectious diseases, their measurement, natural history, risk factors and epidemiology. | CEPH 1, 11; GH 1, 2, 6 | Application - Intermediate | Exams, Student Presentation, In-class Activities and Discussions |
| 2. Explain and utilize infectious disease epidemiology terminology and concepts including incubation period, infectious period, mode of transmission, host and reservoir. | CEPH 1, 3; GH 1, 3, 6 | Comprehension, Application - Intermediate | Exams, Student Presentation, In-class Activities and Discussions |
| 3. Distinguish between mechanisms of disease transmission as they relate to the host/agent/environment model, causation, prevention, and control. | CEPH 1, 7; GH 2, 3, 4 | Comprehension – Intermediate/Advanced | Exams, Student Presentation, In-class Activities and Discussions |
| 4. Explain and assess the components, purposes, and strengths and weaknesses of different surveillance systems. | CEPH 5, 7; GH 5 | Comprehension, Evaluation – Intermediate/Advanced | Exams |
| 5. Evaluate, propose and design intervention, prevention, and control strategies for diverse infectious disease problems in various settings. | CEPH 9, 11; GH 4, 5 | Evaluation, Synthesis – Intermediate/Advanced | Exams, Student Presentation, In-class Activities and Discussions |

VI. Instructional Methods and Course Organization:

The instructors will facilitate learning through lectures, discussion, and other interactive classroom activities. Students are required to complete readings, in-class lab assignments and group project assignments. Students are advised to complete the assigned readings before the class for which they are assigned. Students should review the lab material before coming to class; this will allow adequate time for discussion and presentation in the class. Participation in class discussions is highly encouraged for students. In-class assignments are meant to reinforce the lecture and provide additional practice problems for students. Midterm and final exams are used for evaluating learning outcomes.

This course uses the Blackboard (Bb) Learning Management System to provide student-centered online learning that will enhance the teaching and learning process. If you are not familiar with these tools, please visit IT@UC’s Knowledge Base for Blackboard.
**VII. Course Communication, Office Hours and Email**

University policy requires that the email set up in Blackboard is the primary means of communication. It is advisable that you use your UC email for this purpose and that you check it often. If you choose to change your email in Blackboard to a non-UC email it is your responsibility to ensure you check it frequently. On Blackboard, please use the following course for all communication:
meta_vuongan_2822: (Meta 18FS-Full) EPI INFECTIOUS DIS (001).

I will respond to emails as promptly as possible. Please note that emails received after 5pm on weekdays (and on weekends) may not be answered until the following business day. Meetings or office hours may also be requested via email.

**VIII. Course and Grading Policies**

1. **Course Contract**: Upon officially registering for the course, the student assumes responsibility for understanding and complying with the entire contents of the course syllabus. It is the student's responsibility to raise questions or concerns directly with the instructor. The course instructor reserves the right to change, modify, add or delete any class assignment, reading, or activity at any time. Such changes will be made at the earliest possible time.

2. **Course Structure**: Changes to the syllabus, due dates, course requirements or grading requirements will be made as far in advance as possible.

   **Class Attendance and Participation Policy:**
   Attendance and participation are important for successful completion of the course. Missing more than two sessions without a valid excuse (e.g., documented medical reason) may lower your course grade. The instructor reserves the right to make decisions about extenuating circumstances for missing classes on a case-by-case basis.

   **Withdrawal, Pass-Fail, And Audit Policies Policy**: See MPH program and UC policies.

3. **Academic Code of Conduct**: Academic misconduct or dishonesty is defined in the University of Cincinnati Student Code of Conduct. Academic misconduct includes, but is not limited to: acts of cheating, plagiarism, falsification, and misappropriation of credit. The Student Code of Conduct defines behavior expected of all University of Cincinnati students. It is each student’s responsibility to know and comply with the University's Student Code of Conduct. Disciplinary procedures are explained in a step-by-step manner, and the procedures for appeal of decisions are stated. (see: UC's Student Code of Conduct)

   The faculty of the Department of Environmental Health believes that the conduct of a student taking a course in the Department should be consistent with that of a professional individual. All students in this course will be expected to conduct themselves with complete integrity. All work by the student will be the work of that student, unless otherwise referenced. Academic misconduct will be handled on a case-by-case basis with consultation from the Department Graduate Studies Director.

   **Plagiarism is defined as:**
   - Submitting another’s published or unpublished work in whole, in part, or in paraphrase, as one’s own without fully and properly crediting the author with footnotes, quotation marks, citations, or bibliographic reference.
   - Submitting as one’s own original work, material obtained from an individual, agency, or the internet without reference to the person, agency or webpage as the course of the material.
• Submitting as one’s own original work material that has been produced through unacknowledged collaboration with others without release in writing from collaborators.
• Submitting one’s own previously written or oral work without modification and instructor permission.

Plagiarism will not be tolerated and according to the Student Code of Conduct (https://www.uc.edu/conduct/Code_of_Conduct.html), may result in the following consequences:
• Formal report of academic misconduct.
• Reduced or failing grade on the exercise.
• Reduced or failing grade for the course.
• Recommendation to the College Hearing Panel/Dean/Provost for probation, suspension, or dismissal.

3. **Disability:** Students with disabilities who need academic accommodations or other specialized services while attending the University of Cincinnati will receive reasonable accommodations to meet their individual needs as well as advocacy assistance on disability-related issues. Students requiring special accommodation must register with the Disability Services Office. UC’s Disability Services Office.

4. **Counseling Services, Clifton Campus:** Students have access to counseling and mental health care through the University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, Counseling and Psychological Services (CAPS) can provide professional counseling upon request; students may receive five free counseling sessions through CAPS without insurance. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue of concerns. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours students may call 513-584-7777.

5. **Title IX:** Title IX is a federal civil rights law that prohibits discrimination on the basis of your actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also covers sexual violence, dating or domestic violence, and stalking. If you disclose a Title IX issue to me, I am required forward that information to the Title IX Office. They will follow up with you about how the University can take steps to address the impact on you and the community and make you aware of your rights and resources. Their priority is to make sure you are safe and successful here. You are not required to talk with the Title IX Office. If you would like to make a report of sex or gender-based discrimination, harassment or violence, or if you would like to know more about your rights and resources on campus, you can consult UC’s webpage for Title IX or contact the office at 556-3349.

6. **Missed and/or late examinations, quizzes, and graded exercises:** Missing and/or submission of late assignments without a valid excuse (to be determined by the instructor) will result in a 5% grade deduction per day.

7. **UC Weather Related Protocol:** When inclement weather threatens the safety of the University of Cincinnati community, the Senior Vice President for Administration and Finance may invoke

College of Medicine Students: Graduate Students – follow all University snow policies and procedures. All classes and exams are canceled when the university has closed. On days when the University delays opening, classes and exams will resume at the hour that the University reopens if this is at or before 3 pm.

8. **Academic Values Statement** This class is committed to the fundamental principles of academic freedom and human dignity. Diversity in all forms is something we welcome, we foster, and we prize. We believe that honest attempts to understand the perspectives of others facilitates learning, and we will strive to achieve this goal at all times. We strongly disavow discrimination -- including harassment -- on the basis of race, national or ethnic origin, religion, sex or gender identity, disability, age, sexual orientation, or veteran status. We expect that each of us will hold one another accountable for maintaining these ideals.

9. **Criteria for letter grades:**

   *Assessment of student performance will be based on:*

<table>
<thead>
<tr>
<th>Assessment</th>
<th>% of Final Grade</th>
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<tbody>
<tr>
<td>Class Participation</td>
<td>15%</td>
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<tr>
<td>Infectious Disease</td>
<td>45%</td>
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<tr>
<td>Presentation</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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   **Grading Scale**

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<tr>
<th>Overall Percentage</th>
<th>Letter Grade</th>
<th>Performance Description</th>
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<tbody>
<tr>
<td>93% and above</td>
<td>A</td>
<td>High intellectual initiative and achievement</td>
</tr>
<tr>
<td>90%</td>
<td>A-</td>
<td>Above average, approaching high achievement</td>
</tr>
<tr>
<td>87%</td>
<td>B+</td>
<td>Above average, approaching high achievement</td>
</tr>
<tr>
<td>83%</td>
<td>B</td>
<td>Clearly acceptable performance</td>
</tr>
<tr>
<td>80%</td>
<td>B-</td>
<td>Acceptable, but somewhat below average</td>
</tr>
<tr>
<td>77%</td>
<td>C+</td>
<td>Acceptable, but somewhat below average</td>
</tr>
<tr>
<td>73%</td>
<td>C</td>
<td>Acceptable, nearing questionable achievement</td>
</tr>
<tr>
<td>70%</td>
<td>C-</td>
<td>Achievement of questionable quality</td>
</tr>
<tr>
<td>Below 70%</td>
<td>F</td>
<td>Failure</td>
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IX. Course Schedule*

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
<th>Instructor</th>
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| 1  | Aug. 30  | - Course overview  
- History and General Principles of Infectious Disease  
- Infectious Disease Study Design | Chapters 1-4              | Dr. Ann Vuong            |
| 2  | Sep. 6   | - Immune System & Host Defenses  
- Vaccines                              | Chapters 9-11             | Dr. Senu Apewokin          |
| 3  | Sep. 13  | - Epidemiology and Control of Malaria                                                  | Chapter 27                | Dr. Ann Vuong             |
| 4  | Sep. 20  | - Infectious disease dynamics                                                          | Chapter 6                 | Dr. David Hartley         |
| 5  | Sep. 27  | - Influenza: Disease, Epidemics and Pandemics                                          | Chapters 15, 16           | Dr. Rebecca Brady         |
| 6  | Oct. 4   | - Epidemiology of HIV/AIDS                                                             | Chapter 22                | Dr. Carl Fichtenbaum      |
| 7  | Oct. 11  | University Reading Day – No Class                                                      |                           |                            |
| 8  | Oct. 18  | - Healthcare-Associated Infections                                                       | Chapters 12, 14           | Dr. Shantini Gamage       |
| 9  | Oct. 25  | - Emerging and re-emerging infections  
- Diarrheal Diseases                                      | Chapters 13, 25           | Dr. Elizabeth Schlaudecker|
|    |          |                                                                                       | Chapter 20                | Dr. Robert Frenck         |
| 10 | Nov. 1   | - Epidemiology of Viral Hepatitis                                                       | Chapter 23                | Dr. Ken Sherman           |
| 11 | Nov. 8   | - Sexually Transmitted Diseases                                                        | Chapter 24                | Dr. Michelle Chyatte      |
| 12 | Nov. 15  | - Tuberculosis                                                                          | Chapter 18, 19            | Dr. Liza Murrison         |
| 13 | Nov. 22  | Thanksgiving – No Class                                                                 |                           |                            |
| 14 | Nov. 29  | - Outbreak Epi and Investigation in Practice                                            | Chapters 5, 8             | Dr. Stephen Kralovic      |
| 15 | Dec. 6   | - Infectious Disease Presentations                                                      |                           | Dr. Ann Vuong             |
| 16 | Dec. 13  | FINAL EXAM                                                                             |                           |                            |

*I reserve the right to update this syllabus as class needs arise. Be assured that I will communicate to you any changes to our schedule, syllabus or policies quickly and efficiently through Blackboard.
X. Description of Course Assessments

1. In-Class Activities and Discussion

Students are required to actively participate in in-class activities and discussions. Assigned readings will be provided prior to class to foster discussion. You should read and review the material prior to class so that will be prepared to actively participate during the class.

2. Infectious Disease Presentations

Students are expected to present on an infectious disease of his/her choice in groups of 2-3. You will be assigned to a group during the first week of class. Discuss your choice of an infectious disease amongst your group and submit your topic for approval by the third week of class via email. Note that the same disease cannot be presented by more than one group. As such, if two or more groups select the same infectious disease, then the group who sent in his/her selection first will be given their preference.

Students will present main features of the infectious disease, including at one incident of an outbreak that occurred in the past - highlighting unique aspects of the outbreak, and evaluating whether the infectious disease would make a viable weapon in bioterrorism.

The infectious disease presentation should take about 30 minutes, reserving 2-3 minutes for questions. The presentation format should include a Power Point and oral presentation and may include handouts, journal articles and any other relevant material. All group members are required to participate in the presentation. Each group is REQUIRED to submit a copy of the Power Point slides to the instructor the day of the presentation. Presentations will be evaluated and the evaluation represents 45% of the class grade. Please note that one aspect of your grade will depend on your partner’s evaluation of your contribution to the presentation. All students should contribute somewhat equally to the presentation. It is understandable that one student may contribute a little bit more (e.g., 55% versus 45%), but it should not be significantly uneven contributions (e.g., 70% versus 30%). Ten percent of your infectious disease presentation grade will be your partner’s evaluation of you.

Student presentations should include the following elements (and other information relevant to your presentation). Note that not all elements apply to all presentations, so please don’t be alarmed at the list below. It is the general framework, which should be adapted for your particular presentations.

Overview of the disease:

a) Signs and symptoms
b) Prevalence
c) Geographic areas of high prevalence and causes for the high prevalence
d) Geographical/epidemiologic data
e) Cause/Vector (and lifecycle if applicable)
f) Pathogenesis (origin, development of disease, potential for reoccurrence)
g) Genetic resistance (if any)
h) Fatality rate
i) Ease of transmission
j) Environmental factors
k) Method of diagnosis
l) Prevention (including immunizations and prophylactic treatment)
m) Medical treatment options and prognosis for successful treatment
Outbreak:
Define who, what, when and where the outbreak occurred. Determine how and why the outbreak occurred.

a. Where did it occur and at what time of year?
b. Discuss what sources of data were used to establish background rates. How and from whom was information obtained? Compare rates of the outbreak to the background rates.
c. What were the existing living conditions (if relevant)? Who was affected?
d. Definition of identified cases.
e. How were cases of disease been identified, for example by what type of diagnosis?
f. Epidemic curve - Identify the important features of the curve – discuss the incubation period, the suspected first case of disease, the type and shape of the curve.
g. Geography of the outbreak, current weather patterns (if applicable) or features of the social and existing environment that were relevant.
h. Determine the attack rates by age, sex, race, occupation, or any other factor for which information was available and deemed pertinent. Discuss population subgroup differences if relevant.
i. What were the suspected modes of spread, sources or reservoirs of infection, time and duration of exposure that could account for the epidemic pattern, and any combinations of relevant time/place/person variables. What was concluded as the primary mode(s) of transmission and reservoir(s) of infection?
j. What strategies were taken to control the epidemic?

Bioterrorism:
Based on the information you know about the pathogen, including infectivity, pathogenicity, virulence, mode of transmission, fatality rate, etc, determine whether this infectious disease would be a viable weapon of bioterrorism. Describe the conditions for a “perfect storm,” in which the infectious disease would be able to result in a major outbreak. If you do not believe your infectious disease would be a good candidate for bioterrorism, describe why not AND present a perfect scenario situation wherein this infectious disease could be a potential weapon of bioterrorism. How big of an epidemic could your pathogen produce?

3.Final Exam
Students will be required to complete the Final Exam on your own in-class. Exams may include multiple choice, fill in the blank, short answer, and other question formats as appropriate. The content will be taken from the lectures and required readings, with a major emphasis on lecture material.

Exams will begin promptly at the start of class on the days listed on the course schedule. ***If you have a conflict with the exam date, discuss with the instructor during the first week of class.