Course Title: VTPMD 6640 - Introduction to Epidemiology

Semester: Spring/2026

Room: S1-214 (Hagan)
Class meeting times:
Lecture: T, R: 11:15 am – 12:05 pm
Laboratory: T, R: 12:20 pm – 1:10 pm

Grading: Letter grade
Credit Hours: 3 Hours

Instructor: Dr. Renata Ivanek-Miojevic
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Office hours: After class or by appointment

Teaching Assistant:
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I. Rationale:

Course covers fundamental epidemiology concepts and methods in the investigation of determinants of health or disease in populations. Topics include causation, measures of disease frequency and association, sampling methods, selection and interpretation of diagnostic tests, type and characteristics of observational and controlled studies, and bias and confounding.

II. Course Aims and Outcomes:

Aims: The goal of this course is to introduce students to epidemiology concepts and methods used in the investigation of determinants of health or disease in populations; stressing basic methods for experimental design, conduct and analysis of both observational and experimental epidemiologic studies and their critical appraisal. Examples of epidemiological studies in human and animal populations will be discussed.
Co-requisite: *BTRY 6010 (College of Agriculture and Life Sciences) or permission of instructor. If permission is granted, it should be viewed as an opportunity—not a substitute for academic preparation. Students take full responsibility for their learning by ensuring they have the necessary background and committing themselves to the coursework. A passing grade is based on demonstrated mastery of the course material through assignments, regardless of the enrollment method.*

Specific Learning Outcomes: At the end of the course, students should be able to (i) Identify, calculate and explain common measures of disease frequency and association; (ii) Describe the major types of sampling strategies and calculate appropriate sample sizes; (iii) Describe the major types of observational study designs and justify the choice of an observational study design for answering a research question; (iv) Describe the characteristics of a well-designed randomized controlled trial; (v) Demonstrate understanding of diagnostic and screening test characteristics, including sensitivity, specificity, and predictive values; and (vi) List and explain the major types of bias affecting epidemiological studies and how to control them. In terms of the acquired public health competences students will be expected to be able to interpret data analysis, analyze quantitative data, apply epidemiological methods appropriate for population-based inquiry, design a population-based research project, chose appropriate strategies for communicating epidemiology to novice audience, and use epidemiology to describe and assess a population's heath.

III. Format, Requirements and Grading:

Format: This is an intensive introductory level graduate course in Epidemiology concepts and methods. The course will be delivered through lectures and laboratory classes. As part of the learning process, students may score homework and prelims of fellow students. Attendance to lectures and laboratories is expected.

Required text: Ian Dohoo et al., Veterinary Epidemiologic Research (VER Inc. Charlottetown, Prince Edward Island, Canada, 2010). Freely available for download at https://projects.upei.ca/ver/

Course requirements: Access to Canvas and Internet are required. Canvas is a web-based course management system that aids management of course materials, assignments, communications, and other aspects of instruction. It will be your responsibility to check this site regularly for course related announcements. **Students will be required to use their personal laptops/computers in several laboratory class meetings.** Students unable to comply with this requirement should contact Dr. Ivanek at the start of the semester.

Additional resources: Veterinary Epidemiologic Research - 2nd Edition: http://www.upei.ca/ver/welcome; OpenEpi http://www.openepi.com/Menu/OE_Menu.htm

Grading policy: For all students, grade for this course will be based on the quizzes, homework and prelims.

***Quizzes*:** Prior to coming to the lecture/lab each week you will be expected to read pertinent text from the course textbook. The assigned reading will be tested by the quizzes with open notes. If you have done the reading the questions should pose you no difficulty. For any missed quiz, you will write a page long essay about the assigned reading; there will be no make-up quizzes except if your absence was excused (http://courses.cornell.edu/content.php?catoid=12&navoid=2089). A single quiz in which you got the lowest score during the semester will not be accounted in your grade.

***Homework*:** Unless specified otherwise, assigned homework will be due a week from the day of assignment. Late homework will be marked down by 10% per day except if the delay is due to an excused absence (http://courses.cornell.edu/content.php?catoid=12&navoid=2089). Homework may involve writing a short essay, and/or conducting analyses using software or by hand. You will submit your homework via Canvas (or via e-mail to ri25@cornell.edu if so instructed).

Prelims: During the course students will have 2 prelims. Each prelim will involve development and recording of a Powerpoint presentation (delivered as a recorded pretend mini-lecture/presentation). You will submit your prelims via Canvas (or via e-mail to ri25@cornell.edu if so instructed). Prelim submitted late will be marked down by 10% per day except if the delay is due to an excused absence (http://courses.cornell.edu/content.php?catoid=12&navoid=2089).

***Cheat Sheet Bonus*:** During the course you will be encouraged to gradually build your personal cheat sheet for epidemiology methods and concepts covered in the course. The cheat sheet should be brief, logical and easy to understand. At the end of the course fellow students and instructors will evaluate the cheat sheets. For a well-designed cheat sheet, earned score of up to a maximum of 1.5% could be added to the student's course grade as a bonus.

***Grading*:**

- Quizzes = 20%
- Homework = 50%
- Prelims = 30%

- Optional bonus: Cheat sheet= up to +1.5%

Grading scale:

Percent	Letter	Grade Point Value
100+	A+	4.3
97-100	A	4
92-96	A-	3.7
88-91	B+	3.3
85-87	B	3
82-84	B-	2.7
79-81	C+	2.3
76-78	C	2
73-75	C-	1.7
70-72	D+	1.3
67-69	D	1
61-66	D-	0.7
0-60	F	0

IV. Tentative course schedule*:

Week	Date	Lecture/Lab/Quiz Chapter/Topic	Homework (HW) or Prelim due:
1	Jan 20	**Course introduction**	
1	Jan 22	**Ch 1.** Introduction and causal concepts	
2	Jan 27	**Ch 3.** Questionnaire design	
2	Jan 29	**Ch 4.** Measures of disease frequency	HW on Ch 1
3	Feb 3	**Ch 4.** Measures of disease frequency	
3	Feb 5	**Ch 2.** Sampling	
4	Feb 10	**Ch 2.** Sampling	HW on Ch 4
4	Feb 12	**Ch 2.** Sampling	
5	Feb 17	**Ch 5.** Screening and diagnostic tests	
5	Feb 19	**Ch 5.** Screening and diagnostic tests	HW on Ch 2
6	Feb 24	**Ch 5**. Screening and diagnostic tests	
6	Feb 26	***Ch 2-5 Revision***	
7	Mar 3	**Ch 6.** Measures of association	HW on Ch 5
7	Mar 5	**Ch 6.** Measures of association	
8	Mar 10		**Prelim 1. Mini lecture:** Sampling/sample size determination, frequency measures and screening and diagnostic tests (Ch 2, 4, 5)
8	Mar 12	**Ch 7.** Intro to observational studies; **Ch 8.** Cohort studies	
9	Mar 17	**Ch 9.** Case-control studies; **Ch 10.** Hybrid study designs;	HW on Ch 6
9	Mar 19	**Ch 11.** Controlled studies*;* **Ch 7-11 Revision**	
10	Mar 24	**Ch 12**. Validity in observational studies	HW on Ch 7, 8, 9, 10, 11
10	Mar 26	**Ch 12.** Validity in observational studies	
11	Mar 31	***Spring break-NO CLASS***	
11	April 2	***Spring break-NO CLASS***	
12	April 7	**Ch 13.** Confounding: detection & control	
12	April 9	**Ch 13.** Confounding: detection & control	HW on Ch 12
13	April 14	**Ch 13.** Confounding: detection & control	
13	April 16	**Ch 1-13 Revision**	
14	April 21	Study design application/evaluation	HW on Ch 13
14	April 23	Study design application/evaluation	
15	April 28		**Prelim 2. Mini lecture:** Measures of association, study designs; validity and confounding in observational studies (Ch 6, 7, 8, 9, 11, 12, 13)
15	April 30	Study design application/evaluation	
16	May 5		FINAL HW on Ch 1-13

**Subject to change to accommodate students' learning process*

V. Academic Integrity

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

VI. Accommodations for students with disabilities

In compliance with the Cornell University policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances, so arrangements can be made. Students are encouraged to register with Student Disability Services to verify their eligibility for appropriate accommodations.

VII. Inclusivity Statement

Population medicine and Diagnostic Sciences department is committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to:

- share their unique experiences, values and beliefs
- be open to the views of others
- honor the uniqueness of their colleagues
- appreciate the opportunity that we have to learn from each other in this community
- value each other’s opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the Cornell community

I am looking forward to getting to know each of you and to working with you as we accomplish the learning outcomes in this course.