

COURSE: Epidemiologic methods I

VIBS 608-601

Spring Semester – 2012

Lecture: T, R 12:45pm-2:00pm, 106 FAS Bldg. 1194

Lab: T, R 2:20pm-3:35pm, 106 FAS Bldg. 1194

The first lecture meets on January 17, 2012.

INSTRUCTOR: Dr. Renata Ivanek-Miojevic

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Office hours: After class/lab or by appointment

Teaching Assistants: Dr. Barbara Szonyi; **E-mail:** BSzonyi@cvm.tamu.edu

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Office hours: After class/lab or by appointment

CREDIT HOURS: 4 Hours

COURSE DESCRIPTION: 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 studies. Prerequisite: STAT 651 or equivalent. *Course is limited to a maximum of 10 students.*

REQUIRED TEXT: Ian Dohoo et al., Veterinary Epidemiologic Research (VER Inc. Charlottetown, Prince Edward Island, Canada, 2010).

COURSE REQUIREMENTS: Access to e-Learning is required. e-Learning is an online Learning Management System that allows the development and delivery of educational courses using the Internet. It will be your responsibility to check this site regularly for course related announcements. Having access to personal computer and e-Learning at home would be a plus; however, all students at Texas A&M have computing resources available to them on campus. Also, as per appointment, students will have access to the epidemiology computer lab in 106 FAS Bldg. 1194.

ADDITIONAL RESOURCES:

R: <http://www.r-project.org/>; R codes: [http://epicentre.massey.ac.nz/Default.aspx?tabid=187&pid=0](http://epicentre.massey.ac.nz/Default.aspx?tabid=187&pid=0;);

EpiInfo <http://wwwn.cdc.gov/epiinfo/>; e-Learning <http://elearning.tamu.edu/elearning-orientation/>.

LEARNING OUTCOMES: The course is intended to provide students the ability to design and critically appraise epidemiological studies. You will learn the concepts of 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. Examples of epidemiological studies in human and animal populations will be discussed. At the end of the course, you 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.

I am looking forward to getting to know each of you and to working with you as we accomplish these learning outcomes.

GRADING POLICY: Your grade for this course will be based on the in-class quizzes, homework, and final project. Homework and final project will be submitted through the eLearning site.

In-class quizzes: Prior to coming to each lecture you will be expected to read pertinent text from the course textbook. The assigned reading will be tested by the in-class quizzes. In-class quizzes will be open-notes. If you have done the reading the questions should pose you no difficulty. For any missed in-class quiz, you will write a page long essay about the assigned reading; there will be no make-up quizzes.

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. Homework may involve writing a short essay, conducting analysis and/or preparing a Powerpoint presentation.

Final project: For the final project, you will write a 5 pages long research paper (or proposal) on a topic of your choice. By mid semester, you should indicate your choice of the topic and the rationale for your choice in a page long summary. You will receive feedback on the summary and will be consulted during paper (proposal) writing. The final project will be due at the end of the semester.

Grading:

- In-class quizzes = 30%
- Homework = 35%
- Final project = 35%

TENTATIVE COURSE SCHEDULE*:

Introduction to epidemiology and causal concepts

Sampling

Questionnaire design

Measures of disease frequency

Screening and diagnostic tests

Measures of association

Introduction to observational studies

Cohort studies

Case-control studies

Hybrid study designs

Controlled studies

Validity in observational studies

Confounding: detection and control

**Subject to change*

ATTENDANCE POLICY: Attendance to lectures and laboratories is expected.

HONOR CODE AND PROFESSIONAL ETHICS: Academic Integrity Statement and Policy: “*An Aggie does not lie, cheat or steal, or tolerate those who do.*” Reference to the Honor Council Rules and Procedures on the web: <http://www.tamu.edu/aggiehonor>.

ADA POLICY STATEMENT: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe that you have

a disability requiring accommodation, please contact the Department of Student Life Services for Students with Disabilities in Room 126 of the Koldus Building promptly at the beginning of the semester. The phone number of this office is 845-1637.