

North South University
Department of Public Health
Course Name: Epidemiology II (PBH-742)

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Course Name Epidemiology II.

Objectives The course covers necessary knowledge and skills for understanding advanced epidemiology principles, concepts, designs and procedures useful in the surveillance and investigation of health-related states or events.

Office 8th Floor (SAC), Room 824.

Class Location SAC 403.

Class Time Wednesday 6:00 PM- 9:00 PM.

Office Time MWTF

Text Book :

1. Bonita, Beaglehole and Kjellstorm, Basic Epidemiology, 2006, WHO
2. Principles of Epidemiology in Public Health Practice, 3rd edition, U.S. Department of Health and Human Services.
3. Kenneth J. Rothman and Sander Greenland, Modern Epidemiology, 1998

Mark Distribution All exams and quizzes will be OPEN BOOK. But you are not allowed to use any types of electronic devices.

Mid Term	20%
Quizzes	15%
Final Exam	30%
Project & presentation	20%
Assignments	10%
Attendance	05%
Total	100%

Software SPSS or R. Few analysis can be done by Excel.

Website http://individual.utoronto.ca/ahmed_3/courses

Course Content

1. Review from Epidemiology I :

- List and describe the steps necessary to conduct an epidemiologic investigation.
- Measurements of Morbidity and Mortality.
- Disease causation
- Concepts in the communicable/infectious diseases .

2. Epidemiologic study designs :

- Observational studies.
- Analytical: Cross sectional, Prospective/ Cohort and Retrospective/Case control.
- Experimental studies: Randomized cotrol tirals.

QUIZ 1 based on first 2 tutorials.

3. Epidemiologic Issues :

- Bias: Selection bias and Information bias.
- Confounding and Standardization.
- Relative Risks and Odds Ratio
- Attributable risk and population attributable risk

ASSIGNMENT 1 based on first 3 tutorials.

4. Sampling Technique and Sample Size Estimation :

- Simple Random, Stratified sampling and cluster smapling.
- Sample size estimation for cross-sectional and case-control studies.

QUIZ 2 based on tutorials 3-4.

5. Descriptive Epidemiology :

- Descriptive Epidemiology and the major characteristics in Descriptive Epidemiology.
- Cross-sectional versus Longitudinal studies.
- Potential errors in epidemiological studies: Systematic erros and random errors.

MIDTERM based on tutorials 1-4.

6. Evaluation of a screening test and screening in health :

- Aims of screening program
- Screening tests
- Sensitivity and Specificity of a test
- Predictive value of a test
- ROC curve

QUIZ 3 based on tutorials 5-6.

7. Survival Analysis :

- Time-to-Event Data and Censoring
- Survival function, hazard rate, mean survival time.
- The Kaplan Meier Procedure
- Life table analysis.

ASSIGNMENT 2 based on tutorials 4-7.

8. Epidemiological Surveillance and Investigation of epidemics :

- Purpose of surveillance
- Types and activities of surveillance
- Features of a good surveillance system
- Epidemic and endemic disease

Project Submission and Presentation You are asked to find an instance of epidemiologic study in the field of public health. One of the sources should be a journal article, one should be from a newspaper or magazine and the last could be from any source. For the project, provide a concise (maximum three DOUBLE SPACED pages) commentary. Your comments can include an explanation of the methods, design and calculations, the assumptions required by the methods, and most importantly, comments on whether the major conclusions follow from the data and methods presented. You should take into consideration the source, for example, one cannot expect a brief newspaper article to have a complete description of the methods when reporting about a public health finding.

The project report counts for 10% and your presentation counts for 10% of the final grade for the course. In assessing, I will consider to extent to which you demonstrate understanding of important statistical concepts via the examples, and your judgment in evaluating the conclusions. Credit will be also be given for ingenuity in the use of the available information. For example, if an article provides a risk factor for a disease, you may be able to find another

risk factor which may or may not be related with the disease, which would usually be more informative.

Final Exam