Instructor Details
Professor Elizabeth Miller, BSc, MBBS, FRCPATH, FFPH, DSc (Hons), F Med Sci, OBE

Class Details
Introduction to Epidemiology
9.30 am to 12.30 pm Tuesday morning 28th January to 20th May 2014
Class location ???

Class Description
This course has two main components: a lecture and a discussion section. Students are expected to attend both lecture and discussion section. Student attendance at lectures is considered as important as their attendance and participation in the discussion sections. Lectures will be led by the professor or a guest lecturer as designated on the course schedule.

The discussion section serves two main purposes. First, students will be able to further discuss lecture material covered during that week by critiquing key published papers or completing exercises developed to provide more in-depth understanding of concepts covered in lectures and, as appropriate, reviewing homework assignments from the previous week. The discussion section will also be used for student presentations of their selected “fact sheet” topics.

Homework assignments are also an integral part of the course, since they are developed to provide students with examples of practical applications of the concepts and theories discussed in class.

Desired Outcomes
By the end of this course students will develop the ability to:
1. Understand the evolution and current role of epidemiology as an approach to assessing public health problems.
2. Describe different epidemiological approaches to defining and measuring health problems in defined populations.
3. Understand how epidemiological studies are designed, implemented and analyzed.
4. Understand the concepts of measurement of test performance and be able to apply these concepts of testing and screening in a range of health and other settings.
5. Understand and apply epidemiological criteria needed to establish cause and effect relationships.
6. Understand, and apply key ethical issues to the conduct of epidemiological and other scientific investigations.
7. Conduct library research to find information on diseases and other health
conditions.
8. Critically read and understand health information.

**Assessment Components**

Grading:
1. Homework assignments (4 x 10% each) 40%
2. Fact sheet and presentation assignment:: 15%
3. Midterm Exam: 15%
4. Final Exam: 20%
5. Attendance & Participation (lecture & lab): 10%

TOTAL: 100 points

Failure to submit or fulfil any required course component results in failure of the class.

**Assessment Expectations**

NYU in London uses the following scale of numerical equivalents to letter grades:

A=94-100
A-=90-93
B+=87-89
B=84-86
B-=80-83
C+=77-79
C=74-76
C-=70-73
D+=67-69
D=65-66
F=below 65

Where no specific numerical equivalent is assigned to a letter grade by the class teacher, the mid point of the range will be used in calculating the final class grade (except in the A range, where 95.5 will be used).

NYU in London aims to have grading standards and results in all its courses similar to those that prevail at Washington Square.

**Required Text(s)**

Epidemiology 101 by Robert H Friis. Part of the series Essential Public Health. ISBN 9780763754433. The order of topics covered in class doesn’t exactly follow the order in the text book. Relevant sections in the book are easily identified via the alphabetical index at the end

### Supplemental Texts (not required to purchase as copies are in NYU-L Library)

Additional reading assignments noted in the syllabus or that are required for homework assignments will be posted to the course blackboard eg ERIC notebooks (produced by the Epidemiologic Research and Information Center at Durham Veterans Administration Medical Center in conjunction with the Department of Epidemiology at UNC’s Gillings School of Global Public Health) which are also available via the web at [http://cphp.sph.unc.edu/trainingpackages/ERIC/index.htm](http://cphp.sph.unc.edu/trainingpackages/ERIC/index.htm)

### Session 1

**28th January**

Lecture: Introduction and course overview: Historical overview and some basic epidemiological concepts

Discussion: How to conduct scientific literature searches and discussion of fact sheet assignment

### Session 2

**4th February**

Lecture: Crude and adjusted rates, and key concepts in infectious disease epidemiology

Optional additional texts
- ERIC Notebook: Incidence vs Prevalence

Discussion activity: Incidence and prevalence exercise

### Session 3

**11th February**

Lecture: Vital statistics, and other morbidity and mortality measures

Optional additional texts
- ERIC Notebook: Common measures and Statistics in Epidemiological literature
- ERIC Notebook: Common statistical tests and applications in epidemiological literature

Discussion activity: worked examples of measures covered in lecture

### Session 4

**18th February**

Lecture: Ethical issues in epidemiologic research.

Background reading
- The Belmont Report

Optional additional texts
- Declaration of Helsinki
- Nuremberg Code

Discussion activity: ethical scenarios
Session 5  
25th February  
Lecture: Descriptive epidemiology: data sources, ecologic and cross-sectional studies

Optional additional texts

- ERIC Notebook: *Ecologic Studies*
- ERIC Notebook: *Cross Sectional Studies*

Assignment due: Disease fact sheets with annotated bibliography

Discussion: worked examples

Session 6  
4th March  
Lecture: Outbreak investigation

Background reading

- Reingold AL Outbreak investigations Emerging Infectious Diseases 1998: 40 (1) 21-27

Discussion activity: Outbreak exercise

Homework assignment 1 given out: Outbreak investigation

Session 7  
11th March  
Measuring Disease Burden, modeling, cost effectiveness and public health policy

Midterm review and exam on sessions covered in weeks 1-6

Session 8  
18th March  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 1) Experimental Studies

Optional additional texts

- ERIC Notebook: *Randomized trials*

Discussion activity: Experimental exercise and review of analytic study designs

Assignment due: Homework 1. Outbreak investigation

Session 9  
25th March  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 2) Case Control Studies

Optional additional texts

- ERIC Notebook: *Case control studies*

Discussion activity: Case control exercise
**Session 10**  
1st April  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 3) Cohort and other types of analytic studies  
Optional additional texts  
- ERIC Notebook: *Cohort studies*  
Discussion activity: Cohort exercise  
Assignment due: all power point talks to be submitted  
Homework assignment 2 given out: Case control and cohort studies

**Session 11**  
8th April  
Lecture: The basics of bias and confounding:  
Optional additional texts  
- ERIC Notebook: *Selection bias*  
- ERIC Notebook: *Information bias*  
- ERIC Notebook: *Confounding part 1*  
Discussion activity: presentation of power point talks (1st group)  
: Bias exercise  
Assignment due: Homework 2: Case control and cohort studies  
Spring break 11th – 27th April

**Session 12**  
29th April  
Lecture: The basics of bias and confounding (continued). Assessing causality  
Optional additional texts  
- ERIC Notebook: *Confounding part 2*  
- ERIC Notebook: *Causality*  
Discussion activity: presentation of power point talks (2nd group)  
Causality case study  
Homework assignment 3 given out: Bias and confounding

**Session 13**  
6th May  
Lecture: Risk Assessment and Screening  
Optional additional texts  
- ERIC Notebook: *screening*  
Discussion activity: Illustrative case studies
Presentation of power point talks (3rd group)

Assignment due: Homework 3: Bias and confounding

Homework assignment 4 given out: Screening

Session 14

Homework assignment on screening due

13th May

Final exam

Classroom Etiquette

Lively and questioning and participation encouraged

Your Instructor

Your Instructor: Professor Elizabeth Miller is a medical epidemiologist with a special interest in infectious diseases. She is a consultant in the Immunisation, Hepatitis and Blood Safety Department of Public Health England (www.phe.gov.uk) and has a professorship at the London School of Hygiene and Tropical Medicine, which is part of London University. Her research interests include clinical trials of new vaccines, post licensure vaccine safety studies, modeling and cost-effectiveness evaluation of public health interventions, the effect of viral infections in pregnancy, seroepidemiology, and evaluation of the correlates of protection and clinical effectiveness of vaccines as used in the field. Professor Miller’s has over 300 peer reviewed publications, including a number that relate to the recent swine influenza pandemic (see listing for Elizabeth Miller at “google scholar uk”).

Plagiarism Policy

Plagiarism: the presentation of another piece of work or words, ideas, judgments, images or data, in whole or in part, as though they were originally created by you for the assignment, whether intentionally or unintentionally, constitutes an act of plagiarism.

Please refer to the Student Handbook for full details of the plagiarism policy.

Not all assignments will need to be submitted to www.turnitin.com. Students will be advised which assignments require submission