Introduction to Epidemiology

Class code
PUHE-UE 9306-002

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 Wednesday morning 4th September 2013 to 11th December 2013

Class location to be confirmed.

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 fulfill any required course component results in failure of the class.

**Grade conversion**

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 midpoint of the range will be used in calculating the final class grade (except in the A range, where 95.5 will be used).

**Grading Policy**

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

**Attendance Policy**

NYUL has a strict policy about course attendance. **No unexcused absences are permitted.** While students should contact their class teachers to catch up on missed work, you should NOT approach them for excused absences.

Excused absences will usually only be considered for serious, unavoidable reasons such as personal ill-health or illness in the immediate family. Trivial or non-essential reasons for absence will not be considered.
Excused absences can only be considered if they are reported in accordance with guidelines which follow, and can only be obtained from the appropriate member of NYUL’s staff.

Please note that you will need to ensure that no make-up classes – or required excursions - have been organised before making any travel plans for the semester. See also section 11.1 - Make up days.

Absence reporting for an absence due to illness

1. On the first day of absence due to illness you should report the details of your symptoms by e-mailing absences@nyu.ac.uk including details of: class(es) missed; professor; class time; and whether any work was due including exams. Or call free (from landline) 0800 316 0469 (option 2) to report your absences on the phone.

2. Generally a doctor’s note will be required to ensure you have sought treatment for the illness. Contact the Gower Street Health Centre on 0207 636 7628 to make an appointment, or use HTH general practitioners if you cannot get an appointment expediently at Gower Street.

3. At the end of your period of absence, you will need to complete an absence form online at http://bit.ly/NuCl5K. You will need to log in to NYU Home to access the form.

4. Finally you must arrange an appointment to speak to Nigel Freeman or Donna Drummond-Smart on your first day back at class. You must have completed the absence form before making your appointment.

Supporting documentation relating to absences must be submitted within one week of your return to class.

Absence requests for non-illness reasons

Absence requests for non-illness reasons must be discussed with the Academic Office prior to the date(s) in question – no excused absences for reasons other than illness can be applied retrospectively. Please come in and see us in Room 308, 6 Bedford Square, or e-mail us at academics@nyu.ac.uk.

Further information regarding absences

Each unexcused absence will be penalized by deducting 3% from the student’s final course mark. Students are responsible for making up any work missed due to absence.

Unexcused absences from exams are not permitted and will result in failure of the exam. If you are granted an excused absence from an examination (with authorisation, as above), your lecturer will decide how you will make-up the assessment component, if at all (by make-up examination, extra coursework, viva voce (oral examination), or an increased weighting on an alternate assessment component, etc.).

NYUL also expects students to arrive to class promptly (both at the beginning and after any breaks) and to remain for the duration of the class. If timely attendance becomes a problem it is the prerogative of each instructor to deduct a mark or marks from the final grade of each late arrival and each early departure.

Please note that for classes involving a field trip or other external visit, transportation difficulties are never grounds for an excused absence. It is the student’s responsibility to arrive at an agreed meeting point in a punctual and timely fashion.

Please refer to the Student Handbook for full details of the policies relating to attendance. A copy is in your apartment and has been shared with you on Google Docs.
Late Submission of Work

Written work due in class must be submitted during the class time to the professor. Late work should be submitted in person to a member of NYU London staff in the Academic Office (Room 308, 6 Bedford Square) during office hours (Mon – Fri, 10:30 – 17:30). Please also send an electronic copy to academics@nyu.ac.uk for submission to Turnitin.

Work submitted within 5 weekdays after the submission time without an agreed extension receives a penalty of 10 points on the 100 point scale.

Written work submitted more than 5 weekdays after the submission date without an agreed extension fails and is given a zero.

Please note end of semester essays must be submitted on time.

Plagiarism Policy

Plagiarism: the presentation of another piece of work or words, ideas, judgements, 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.

All students must submit an electronic copy of each piece of their written work to www.turnitin.com and hand in a printed copy with the digital receipt to their professor. Late submission of work rules apply to both the paper and electronic submission and failure to submit either copy of your work will result in automatic failure in the assignment and possible failure in the class.

Electronic Submission

The Turnitin database will be searched for the purpose of comparison with other students’ work or with other pre-existing writing or publications, and other academic institutions may also search it.

In order for you to be able to submit your work onto the Turnitin website, you will need to set up an account:

1) Go onto the Turnitin website http://www.turnitin.com
2) Click ‘Create Account’ in the top right hand corner
3) Select user type of ‘student’
4) Enter your class ID & Turnitin class enrolment password (these will be e-mailed to you after the drop/add period, or contact academics@nyu.ac.uk if you have misplaced these).
5) Follow the online instructions to create your profile.

To submit your work for class, you will then need to:

1) Log in to the Turnitin website
2) Enter your class by clicking on the class name
3) Next to the piece of work you are submitting (please confirm the due date), click on the ‘submit’ icon
4) Enter the title of your piece of work
5) Browse for the file to upload from wherever you have saved it (USB drive, etc.), please ensure your work is in Word or PDF format, and click ‘submit’
6) Click ‘yes, submit’ to confirm you have selected the correct paper (or ‘no, go back’ to retry)
7) You will then have submitted your essay onto the Turnitin website.
8) Please print your digital receipt and attach this to the hard copy of your paper before you submit it to your professor (this digital receipt appears on the website, immediately after you submit your paper and is also sent to your e-mail address). Please also note that when a paper is submitted to Turnitin all formatting, images, graphics, graphs, charts, and drawings are removed from the paper so that the program can read it accurately. Please do not print the paper in this form to submit to your lecturers, as it is obviously pretty difficult to read! You can still access the exact file you uploaded by clicking on the ‘file’ icon in the ‘content’ column.

Please also see the Late Submission of Work policy, above.

Students must retain an electronic copy of their work for one month after their grades are posted online on Albert and must supply an electronic copy of their work if requested to do so by NYU in London. Not submitting a copy of a piece of work upon request will result in automatic failure in the assignment and possible failure in the class. NYU in London may submit in an electronic form the work of any student to a database for use in the detection of plagiarism, without further prior notification to the student.

Penalties for confirmed cases of plagiarism are set out in the Student Handbook.

**Required Text(s)**

Epidemiology 101 by Robert H Friis. Part of the series Essential Public Health. ISBN 9780763754433


**Supplemental Texts(s) (not required to purchased)**

Additional reading assignments noted in the syllabus or that are required for homework assignments will be posted to the course blackboard.

**Session 1**

4th September 2013

Lecture: Introduction and course overview: Historical overview

Discussion: How to conduct scientific literature searches

Background reading
- Friis: Ch. 1, pgs. 1-19

**Session 2**

11th September 2013

Lecture: Foundations of epidemiology and practical disease concepts in epidemiology

Background reading
- Friis: Ch 2 pgs. 25-32
- Friis Ch 8
Discussion activity: Decisions on topics for fact sheets and commencement of work on annotated disease-specific bibliographies

**Session 3**

18 September 2013

Guest lecturer: Dr. Andre Charlett

Lecture: Vital statistics and other morbidity and mortality measures, data sources

Background reading
- Friis: Ch 2, Pgs 32-42; Ch. 3

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

Discussion activity: Incidence and prevalence exercise

**Session 4**

25th September 2013

Lecture: Ethical issues in epidemiologic research.

Background reading
- Friis: Ch. 1, pgs 19-21
- Friis: Ch. 7
- The Belmont Report

Optional additional texts
- Declaration of Helsinki
- Nuremburg Code

Discussion activity: ethical scenarios

Assignment due: Homework 4 Screening

**Session 5**

2nd October 2013

Lecture: Descriptive Epidemiology: Person, Place & Time: Cross-sectional and ecologic studies

Background reading
- Friis: Ch. 4
- Friis: Ch. 6, pgs. 105-110
- ERIC Notebook: Ecologic Studies
- ERIC Notebook: Cross Sectional Studies

Assignment due: Disease fact sheets with annotated bibliography
Session 6  
9th October 2013  
Dr. Andre Charlett  
Lecture: Outbreak!!.

Background reading  
- Friis Ch 8  
- 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  
16th October 2013  
Measuring Disease Burden, modeling, cost effectiveness and public health policy

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

Session 8  
23rd October 2013  
Dr. Nick Andrews  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 1) Case Control Studies

Background reading  
- Friis: Ch. 6, pgs. 110-111  
- ERIC Notebook: Case control studies

Discussion activity: Case control exercise

Assignment due: Homework 1. Outbreak investigation

Session 9  
25th October 213  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 2) Cohort and other types of analytic studies

Background reading  
- Friis: Ch. 6, pgs. 112-114  
- 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

Fall break 1st – 10th November

Session 10  
13th November  
Lecture: Design Strategies & Statistical Methods in Analytic Epidemiology: 3) Experimental Studies
2013 Background reading

- Friis: Ch. 6, pgs. 114-117
- ERIC Notebook: *Randomized trials*

Discussion activity: presentation of power point talks (1st group)
Experimental exercise and review of analytic study designs

Assignment due: Homework 2: Case control and cohort studies

**Session 11**

Lecture: The basics of bias and confounding:

20th November 2013 Background reading:
- Friis: Ch. 6, pgs 117-118
- ERIC Notebook: *Selection bias*
- ERIC Notebook: *Information bias*
- ERIC Notebook: *Confounding part 1*

Discussion activity: presentation of power point talks (2nd group)
: Bias exercise

**Session 12**

Lecture: The basics of bias and confounding (continued). Assessing causality

27th November 2013 Background reading
- ERIC Notebook: *Confounding part 2*
- ERIC Notebook: *Causality*

Discussion activity: presentation of power point talks (3rd group)
Causality case study

Homework assignment 3 given out: Bias and confounding

**Session 13**

Lecture: Risk Assessment and Screening

4th December 2013 Background reading
- Friis Ch 7pgs.130- 133
- 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 15**

Final exam

11th December 2013
Lively and questioning and participation encouraged.

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”).