Semester: SPRING 2018

Class code

Instructor Details: Dr Jo Southern, Prof Nick Andrews

Class Details: Epidemiology for Global Health

Room to be confirmed – Bedford Square.

Prerequisites: The course involves some manipulation of data, and calculations, so some mathematical ability is required. Looking at the ERIC notes online (link below) will give students an indication of the appropriate level.

Class Description: Topic lecture, a break and then class discussion/practical with worked examples

Desired Outcomes: By the end of the course, students should be able to:

1. Discuss the evolution and current role of epidemiology as an approach to assessing public health problems worldwide, including infectious diseases, chronic diseases and mental health priorities.
2. Describe epidemiological approaches to defining and measuring public health problems in defined populations around the globe.
3. Distinguish how epidemiological studies are designed, implemented, analysed and presented.
4. Apply concepts of testing and screening to a range of global public health problems.
5. Analyse cause and effect relationships through use of epidemiological criteria.
6. Evaluate ethical considerations in epidemiological and other scientific investigations in human populations worldwide.
7. Formulate research strategies and conduct searches on global disease/health related priorities.
8. Critically appraise the epidemiological research literature.

Assessment Components: Four written homeworks based on material taught in class, 40% total; mid-term exam 15%; final exam 20%; fact sheet and class presentation 15%; class attendance and participation 10%. Failure to submit or fulfil any required course component results in failure of the class.

Assessment Expectations: Grade A: Excellent work showing thorough knowledge and understanding of the various epidemiological concepts, with excellent use of scientific language and clear logical explanations of their meaning. Course assignments should reveal a considerable degree of independent reading and research and use of primary...
reference material.

Grade B: Good work with good general knowledge and understanding of the various epidemiological concepts, accurate use of scientific language and ability to describe what they mean in a clear manner. Coursework should display ability to use primary reference material.

Grade C: Satisfactory work, broadly correct both factually and analytically, with some explanation and reasoning; the work will typically demonstrate a basic understanding of the topic.

Grade D: Passable work, showing a general, superficial knowledge and understanding of the topic, but lacking satisfactory use of scientific language or adequate analysis or reasoned explanations.

Grade F: Unsatisfactory work in assessed criteria.

Required Text(s)
Epidemiology, Leon Gordis, fifth edition. ISBN 9781455737338
A dictionary of Epidemiology edited by Miguel Port. 6th edition. ISBN 9780199976737

Supplemental Text(s) (not required to purchase as copies are in NYU-L Library)
Additional reading assignments noted in the syllabus or that are useful for background reading or homework assignments will be posted to the course blackboard. ERIC notebooks (produced by the Epidemiological Research and Information Center at Durham Veterans Administration Medical Centre in conjunction with the Department of Epidemiology and UNC's Gillings School of Global Public Health) can be used as an adjunct to the lectures and recommended text book and are available via the web at http://cphp.sph.unc.edu/trainingpackages/ERIC/index.htm

Internet Research Guidelines
Only the factsheet assignment for this course will require Turnitin receipt

Additional Required Equipment
Laptop with Word and Powerpoint software
| Session 1 | Lecture - Introduction and course overview: Historical overview and some basic epidemiological concepts  
Discussion - Fact sheet assignment [presentations on 2 March, slots to be assigned] (also 23 March if needed re no. students on course) | Nick and Jo |
| Session 2 | Lecture - Crude and adjusted rates and key concepts in infectious disease epidemiology  
Discussion - worked examples of measures covered in lecture | Nick |
| Session 3 | Lecture - Vital statistics and other morbidity and mortality measures  
Discussion - worked examples as covered in lecture | Jo |
| Session 4 | Lecture - Screening  
Discussion - worked examples as covered in lecture  
Issue Homework 1 (Screening), due in 1 March | Nick |
| Session 5 | Lecture - Descriptive epidemiology: data sources: study design ecological and cross sectional studies  
Discussion - worked examples as covered in lecture  
FACTSHEET PRESENTATIONS  
Factsheets due in Homework 1 (screening) due in | Jo |
| Session 6 | Midterm Exam | Jo |
| Session 7 | Lecture - Statistical analyses in epidemiology – with case control and cohort studies  
Discussion - worked examples as covered in lecture  
Issue Homework 2 (case control/cohort), due in 22 Mar | Nick |
| Session 8 | Lecture - Randomised controlled trials  
Discussion - worked examples as covered in lecture  
Homework 2 (case control/cohort) due in  
FACTSHEET PRESENTATIONS if needed re no. students on course | Jo |
| Session 9 | Lecture - review of key points covered so far and survival analysis  
Discussion - survival analysis example | Nick |
| Mid term break | NO SESSION | --- |
| Session 10 | Lecture - Bias, confounding and causality  
Discussion - practical examples  
Issue homework 3 (bias and confounding), due in 19 April | Nick |
| Session 11 | Lecture - Outbreak investigations  
Discussion - Outbreak exercise  
Issue homework 4 (outbreaks), due in 26 April  
Homework 3 (bias and confounding) due in | Jo |
| Session 12 | Lecture - Ethical issues in epidemiological research  
Discussion - practical examples  
Course revision  
Homework 4 (outbreaks) due in | Jo |
| Session 13 | Lecture - Quantifying disease burden at a national and global level. Cost effectiveness analyses  
Discussion - Practical exercise  
Course revision | Nick |
| Session 14 | End of term exam | Jo |
| Session 15 | Feedback on exam and individual course performance | Nick and Jo |
### Classroom Etiquette
Arrive on time, active participation in class discussion session and questions if points in lectures are unclear.

### Required Co-curricular Activities
None

### Estimated Travel Costs
N/a

### Suggested Co-curricular Activities
N/a

### Your Instructors
- **Prof Nick Andrews**: is deputy head of the Statistics Unit at Public Health England in the UK and the Statistician responsible for work in the Immunisation Department. In this role he has worked extensively on post licensure vaccine safety, impact and effectiveness assessment, clinical trials and correlates of protection. He is currently a partner in European projects on vaccine safety and effectiveness as well as a member of the World Health Organization (WHO) global advisory committee on vaccine safety. Recently he assisted WHO in determining the best way to implement any licensed ebola vaccines. He is also a project lead on a research collaboration on using electronic health records for vaccine assessment with the London School of Hygiene and Tropical Medicine (LSHTM). He lectures at the LSHTM, NYU in London and on vaccine courses internationally. He has over 300 publications with more than half of these in the vaccine field.

- **Dr Jo Southern (MSc PhD MFPH CSci)**: is a Clinical Epidemiologist based in the Immunisation and Respiratory Departments of Public Health England as Clinical Research Lead. She has two decades of experience in conducting large programmes clinical research funded by the UK Department of Health, in specific areas of interest including paediatric vaccines and infectious diseases.

### NYU GLOBAL ACADEMIC POLICIES

Policies and procedures for Global Academic Centres, including policies on academic integrity and the Study Away Standard, can be found here: [https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/student-services.html](https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/student-services.html)

**Absences**: Key information on NYU London’s absence policy, how to report absences, and what kinds of absences can be excused can be found here: [http://www.nyu.edu/london/academics/attendance-policy.html](http://www.nyu.edu/london/academics/attendance-policy.html)

**NYU London work submission policies** can be found here: [http://www.nyu.edu/london/academics/academic-policies.html](http://www.nyu.edu/london/academics/academic-policies.html)