

# UGPH-GU 9030, Epidemiology for Global Health

## Instructor Information

- **Adolphina Addo-Lartey, PhD**
- aaddo.lartey@gmail.com; aal16@nyu.edu
- Office: University of Ghana, School of Public Health, first floor (SPH Room 4)
- +233(0)26 145 8709 and +233(0)54 413 2970
- Office hours: Wednesdays 10 am – 12 noon or by appointment. Please allow at least 24 hours for the instructor to respond to your emails.

## Course Information

Epidemiology is the study of the distribution and determinants of health and illness in human populations and the application of this study to control health problems. The purpose of this course is to introduce students to the basic principles and methods of epidemiology in a global context and to demonstrate their applicability in the field of public health. Topics covered in this course include history, background and different perspectives of epidemiology, measures of disease frequency; measures of association; epidemiologic study designs; public health surveillance; outbreak investigations; assessment of causality; and relationship between epidemiology and public health policies. In addition, students will develop the necessary skills to critically read, interpret and assess health information from published epidemiological studies and mass media sources.

The course will comprise three major segments:

- The epidemiologic approach to disease and intervention
- Using epidemiology to identify the cause of disease
- Applying epidemiology to evaluation and policy

The course structure will consist of readings, lectures, in-class case studies, discussions, exercises and student presentations, and in-class time to work on a research design. Each class will involve a lecture as well as exercises which are meant to complement and apply (as opposed to repeat) the material in the text. Hence completing the readings and homework on time is essential for success in the course. A field visit will be arranged to give students a glimpse of the public health surveillance system in Ghana. There will be one or two guest lecturers, who will introduce an area of public health epidemiology, reinforce epidemiological principles, and/or provide relevant examples to place epidemiological concepts in context. Additional reading materials will be provided as necessary.

- Prerequisites - None
- Class Meeting Day(s)/Time: Wednesdays, 12:00pm – 3:00pm
- Class Location: NYU Accra Campus, Class room number 3
- Address: No.8 3rd Norla Street, Labone

## Course Overview and Goals

### Upon Completion of this Course, students will be able to:

- Explain the role of epidemiology in public health. Contrast the epidemiologic population-based approach with the clinical perspective. Provide the appropriate research question when presented with a public health problem that requires an epidemiologic investigation.
- Identify sources of health-related data to describe the distribution of disease in populations. Generate hypotheses from descriptive data on disease frequency in relation to person, place and time. Interpret health status indices based on these data, example morbidity and mortality rates.
- Explain the critical differences between epidemiologic descriptive and analytic study designs, the measures that can be estimated from each, as well as strengths and limitations of these designs. Describe how to select and appropriate study design for a specific research question or health problem.
- Analyze data using the appropriate epidemiologic techniques (under the guidance of someone with more advanced training). Define, compute and interpret epidemiologic measures of prevalence, incidence, relative risk, attributable risk, mortality ratios.
- Identify practical issues in conducting epidemiological studies e.g. the various forms of potential bias in epidemiological data and their potential for occurrence in specific study situations. Discuss the implications of study findings.
- Evaluate the evidence in favor of and against the likelihood that an observed association in epidemiological studies is causal using a set of criteria.
- Communicate the role of epidemiology in public health surveillance. Present the purpose and problems of data interpretation in surveillance and outbreak investigations.
- Communicate epidemiological information to lay and professional audiences

## Course Requirements

### Class Participation

**[In-class Exercises]**- In class exercises will provide an application of the Gordis chapter readings, assigned readings, and lecture concepts and will also reflect the kinds of problems that could be posed in exams. Exercises will be graded on a 10-point scale and will count towards your final grade.

## Assignment 1

[Homework]- Students are encouraged to work individually on homework assignments. Homework will be collected at the beginning of class on the day it is due and will be graded on a 10-point scale which will count towards your final grade. Solutions will be discussed in class.

## Assignment 2

[Problem sets]- Three practice problem sets will be distributed in class and will be due two weeks after distribution. Each problem set will emphasize important topics from lectures and assigned readings. Students are expected to work independently and should not discuss these assignments with others. These will be graded on a 100-point scale. Problem sets will be collected at the beginning of class on the day it is due. Solutions will be discussed in class.

## Assigned Readings

Readings will be assigned on a weekly basis and this is outlined in the schedule of classes. Students are expected to complete all assigned readings prior to each synchronous class. Students are also encouraged to read/explore any additional resources pertinent for each class and share during the lectures.

## Grading of Assignments

The grade for this course will be determined according to the following formula:

<b>Assignments/Activities</b>	<b>% of Final Grade</b>
Homework	10%
Class exercises	10%
Practice problem sets	15%
Midterm exam	20%
In class evaluation of a published study	10%
Media project	15%
Design a study-Final take home exam	20%

## Letter Grades

Letter grades for the entire course will be assigned as follows:

<b>Letter Grade</b>	<b>Points</b>	<b>Percent</b>
<b>A</b>	4.00	92.5% and higher

Letter Grade	Points	Percent
A-	3.67	90.0 – 92.49%
B+	3.33	87.5% - 89.99%
B	3.00	82.5% - 87.49%
B-	2.67	80% - 82.49%
C+	2.33	77.5% - 79.99%
C	2.00	72.5% - 77.49%
C-	1.67	70% - 72.49%
D+	1.33	67.5% - 69.99%
D	1.00	62.5% - 67.49%
D-	.67	60% - 62.49%
F	.00	59.99% and lower

**Note: All assignments should reflect independent work except for group projects which should reflect the contributions of each member of the group.**

## View Grades

NYU Classes will be used extensively throughout the semester for assignments, posting of readings, and communication. NYU Classes is accessible through at <https://home.nyu.edu/academics>

## Course Schedule

### Topics and Assignments

Week/Date	Topic	Reading	Assignment Due
[Week 1, Feb 06, 2019]	- Syllabus, course overview - Introduction to epidemiology	- John Snow website ( <a href="http://www.ph.ucla.edu/epi/snow.html">www.ph.ucla.edu/epi/snow.html</a> ) - Epi Monitor ( <a href="http://www.epimonitor.net">www.epimonitor.net</a> )	- Case study “Video Ebola: The Plague Fighters” - <b>Class Exercise 1</b> – Ebola

Week/Date	Topic	Reading	Assignment Due
	- Dynamics of disease transmission	- <i>Reading for next week:</i> CDC Surveillance - <a href="https://www.cdc.gov/hiv/statistics/surveillance/">https://www.cdc.gov/hiv/statistics/surveillance/</a> - District Health Information Management System DHIMS II: <a href="http://solutionscenter.nethope.org/cas_studies/view/district-health-information-management-system-dhims-ii-the-data-challenge-f">http://solutionscenter.nethope.org/cas_studies/view/district-health-information-management-system-dhims-ii-the-data-challenge-f</a> - Gordis, Chap. 1 & 2	
[Week 2, Feb 13, 2019]	- <b>Guest lecture 1:</b> (Topic to be announced) - Surveillance and measures of morbidity	- “Your disease risk” ( <a href="http://www.yourdiseaserisk.com">www.yourdiseaserisk.com</a> ) - Gordis, Chap. 3 & 4	- <b>Class Exercise 2</b> – Outbreak following charity luncheon  - <b>Homework 1</b> - Gordis, Chap. 1 & 2: complete chapter questions
[Week 3, Feb 20, 2019]	- Mortality and other measures of disease impact - Natural history of disease	- Gordis, Chap. 6 - Problem set #1 distributed.	- <b>Class Exercise 3</b> - Disease frequency  - <b>Homework 2</b> - Gordis, Chap. 3 & 4: complete chapter questions
[Week 4, Feb 27, 2019]	- Descriptive epidemiology - Analytic epidemiology	- Gordis, Chap. 10 & 13 - Field Task Sheet (FTS) distributed	- <b>Class Exercise 4</b> – Breast cancer and dietary fat  - <b>Homework 3</b> - Gordis, Chap. 3 & 4: complete chapter questions
[Week 5, Mar 06, 2019]		<i>Independence Day Holiday</i>	
[Week 6, Mar 13, 2019]	- Randomized trials & Cohort Studies - Case-Control and Other Study designs	- Gordis, Chap. 7 & 9	- <b>Homework 4</b> – Study designs  - <b>Problem set #1</b>

<b>Week/Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Assignment Due</b>
[Week 7, Mar 20, 2019]		<i>Spring Break</i>	
[Week 8, Mar 20, 2019]	- Estimating risk - Measures of Association - Attributable Risk	- Gordis, Chap. 11 & 12 - Summary Sheet Attributable Risk - Problem set #2 distributed	- <b>Class Exercise 5</b> - Measures of Association & Attributable risk
[Week 9, Apr 03, 2019]	- <b>Midterm Exam</b>  - Literature Critique	- Covers material through attributable risk  - Gordis, Chap. 5 - Field Task Sheet (FTS) distributed	- <b>Field Task Sheet</b>
[Week 10, Apr 10, 2019]	<b>Field Trip 1:</b> Location to be announced		- <b>Problem set #2</b>
[Week 11, Apr 17, 2019]	- Age adjustment	- Media Project guidelines distributed - Problem set #3 distributed	- <b>Class Exercise 6</b> - Age Adjustment
[Week 12, Apr 24, 2019]	- Bias & Chance - Group work media project	- Gordis, Chap. 14 & 15	- <b>Homework 5</b> – Bias & Chance
[Week 13, May 01, 2019]	- <b>Field Trip 2:</b> Location to be announced		- <b>Homework 6</b> - Literature Critique  - <b>Problem set #3</b>
[Week 14, May 08, 2019]	<b>Media Project Presentations</b> - Epidemiology movie (Title to be announced)		- <b>Media Project Outline</b>  - <b>Field Task Sheet</b>
[Week 15, May 15, 2019]	- <b>Guest lecture 2:</b> (Topic to be announced)		
[Week 16, May 22, 2019]	<b>Pyramid exam</b>	- In class assessment of a published study- Covers material from measures of association through literature critique	- <b>Design a study – Take home exam</b>

## Tests & Quizzes

**[Midterm exam]**- One midterm exam will be organized based on the material covered in the first half of the course and may include multiple choice questions, computational, and short answer type questions. The exam will be graded on a 100-point scale. Students may bring ONE SHEET of paper with notes to this exam. The note sheet will be collected and returned with the exam.

**[In class evaluation of a published study]**- This assessment provides an opportunity to apply the concepts from the course by reviewing a published journal article. A pdf copy of the article will be made available for students to review and discuss with colleagues outside class hours. One week later, there will be an in-class assessment following the “pyramid exam” structure. This is explained as follows: For the first part of the assessment, students will be given a clean hard copy of the same paper and asked to answer multiple choice questions about the reviewed article independently. After submitting their answers for part 1, students will be given a chance to discuss the questions within small groups and submit a new group answer sheet. The final grade of the assessment will be based on both the individual answers (75%) and group answers (25%).

**[Media Project/Presentation]**- This project addresses how epidemiological findings are filtered through the media. What do media reports convey correctly and what are conveyed incorrectly? Students will be asked to choose a health-related statement from the popular press (e.g. from a newspaper, magazine, or on a cereal box, wine bottle, billboard, general websites, etc.) Students will then find an epidemiologic journal article (e.g. medical or public health journal) which relates to this statement. In a brief, structured oral presentation, the student will compare the journal article’s conclusions with those from the media report. Further instructions including length of presentation time will be given in class. The presentation will be graded on a 100-point scale. The grade will be based two-thirds on content: collection and analysis of literature, critical thinking, and application of course concepts; and one-third on form clear organization, well prepared and delivered presentation. Students should submit their presentations to NYU Classes or via email to the instructor before the day of their presentation.

**[Design a study – Final take home exam]**- The purpose of this project is to pull together the concepts conveyed in the course using a real-life epidemiologic problem. The project will simulate a situation faced by a team of working epidemiologists. The aim of the project is for students to apply the concepts covered in lectures to address important aspects of designing an epidemiological study (e.g., defining the population of interest, choosing a data source, understanding the strengths and limitations of the chosen study design). Students will work in groups and at least one class session will be reserved for groups to meet. The exam/project will be distributed in class and will be graded on a 100-point scale. The grade will be based two-thirds on content and one-third on form.

**Note: Unless otherwise specified, all written work must be submitted as a hard copy. All assignments must be typed (1” margins, Times New Roman, Calibri, Arial, Font size 11 or**

12). Your full name(s) must be on the top of each page. All in-class exercises must be completed during class time.

## Course Materials

### Required Textbooks & Materials

- Epidemiology: with STUDENT CONSULT Online Access, 5e (Gordis, Epidemiology)  
Author: Leon Gordis, MD, MPH, DrPH  
Publisher: Saunders; 5th edition (December 9, 2013)  
ISBN-13: 978-1455737338  
ISBN-10: 145573733X

### Optional Textbooks & Materials

- Not applicable currently

### Resources

- Access your course materials: [NYU Classes](http://nyu.edu/its/classes) (nyu.edu/its/classes)
- Databases, journal articles, and more: [Bobst Library](http://library.nyu.edu) (library.nyu.edu)
- Assistance with strengthening your writing: [NYU Writing Center](http://nyu.mywconline.com) (nyu.mywconline.com)
- Obtain 24/7 technology assistance: [IT Help Desk](http://nyu.edu/it/servicedesk) (nyu.edu/it/servicedesk)

## Course Policies

### Attendance and Tardiness

Attend class on time and participate in all class sessions. If you cannot attend a certain session, it is your responsibility to email the instructor prior to the start of the class, or in the case of an emergency, immediately upon return. Unexcused absences and continuing lateness will impact your attendance grade.

### Late Assignment

Late homework and problem sets without prior permission will not be accepted. Late submission of home work or problem sets will be accepted only with justifiable reasons of health or family emergency. Late media projects and take-home exams will not be accepted (no exceptions) and no make-up in class presentation will be given.

### Academic Honesty/Plagiarism

*At NYU, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community.*



**Plagiarism:** *presenting others' work without adequate acknowledgement of its source, as though it were one's own. Plagiarism is a form of fraud. We all stand on the shoulders of others, and we must give credit to the creators of the works that we incorporate into products that we call our own. Some examples of plagiarism:*

- *a sequence of words incorporated without quotation marks*
- *an unacknowledged passage paraphrased from another's work*
- *the use of ideas, sound recordings, computer data or images created by others as though it were one's own*
- *submitting evaluations of group members' work for an assigned group project which misrepresent the work that was performed by another group member*
- *altering or forging academic documents, including but not limited to admissions materials, academic records, grade reports, add/drop forms, course registration forms, etc.*

*For further information, students are encouraged to check [www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/academic-integrity-for-students-at-nyu.html](http://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/academic-integrity-for-students-at-nyu.html)*

## **Disability Disclosure Statement**

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu)) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

## **Instructor Bio**

Dr. Adolphina Addo-Lartey holds a BSc (Honors) from the University of Ghana in Biochemistry and Nutrition, an MS from Iowa State University (USA) in Human Nutrition, and a PhD in Public Health from the University of Massachusetts, Amherst, USA. Her research primarily focuses on epidemiological studies in women's health. She has done extensive research on nutritional factors influencing reproductive health outcomes and chronic disease risk, maternal and child health, healthcare accessibility and the social support aspect of healthcare delivery, as well as gender and health issues in Ghana. She is experienced in research and research design, data collection and management, and statistical analysis for epidemiological studies. Dr. Addo-Lartey is a lecturer at the University of Ghana's School of Public Health, where she teaches undergraduate and postgraduate courses in the Department of Epidemiology and Disease Control. Dr. Addo-Lartey is also an adjunct faculty at the NYU College of Global Public Health and NYU Accra where she teaches "Assessment of Community Health Needs and Resources", "Intermediate Epidemiology" and "Epidemiology for Global Health".

Publications:

- Dako-Gyeke P, **Addo-Lartey AA**, Ogum Alangea D, Sikweyiya Y, Chirwa ED, Coker-Appiah D, Jewkes R, Adanu RMK. 'Small small quarrels bring about happiness or love in the relationships': Community Perceptions and Gendered Norms Driving Male Perpetrated

Intimate Partner Violence in the Central Region of Ghana. *Submitted* Gender & Society [GENDSOC-18-9847]

- **Addo-Lartey AA**, Ogum Alangea D, Sikweyiya Y, Chirwa ED, Coker-Appiah D, Jewkes R, Adanu RMK. Rural Response System to Prevent Violence Against Women: Methodology and Baseline Characteristics for a Community Randomised Controlled Trial in Ghana. *Submitted* Global Health Action [ZGHA-2018-0124]
- Ogum Alangea D, **Addo-Lartey AA**, Sikweyiya Y, Chirwa ED, Coker-Appiah D, Jewkes R, Adanu RMK. Prevalence and Risk Factors of Intimate Partner Violence among Women in Four Districts of the Central Region of Ghana: Baseline findings from a Cluster Randomised Controlled Trial. PLoS ONE 13(7): e0200874. <https://doi.org/10.1371/journal.pone.0200874>
- Chirwa ED, Sikweyiya Y, **Addo-Lartey AA**, Ogum Alangea D, Coker-Appiah D, Adanu RMK, Jewkes R. (2018) Prevalence and risk factors of physical or sexual intimate violence perpetration amongst men in four districts in the central region of Ghana: Baseline findings from a cluster randomized controlled trial. PLoS ONE 13(3): e0191663. <https://doi.org/10.1371/journal.pone.0191663>
- Senya KY, Ibrahim A, Lindong I; **Addo-Lartey A**. Use of Smartphone applications for clinical decision-making in a poor country: an exploratory study of Smartphone use among medical practitioners in Ghana. Glob Soc Welf. 2016. DOI 10.1007/s40609-016-0078-9. Glob Soc Welf. 2017, March 4(1):1–10
- **Addo AA**; Marquis GS; Lartey AA; Pérez-Escamilla R; Mazur RE; Harding KB. Food insecurity and perceived stress but not HIV infection are independently associated with lower energy intakes among lactating Ghanaian women. Matern Child Nutr. 2011 Jan; 7(1): 80-91.