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Epidemiology in Kenya

IPBH-3550 (3 credits)

Kenya: Global Health and Human Rights

This syllabus is representative of a typical semester. Because courses develop and change over time to take advantage of unique learning opportunities, actual course content varies from semester to semester.

Course Description

The Epidemiology in Kenya seminar introduces students to the history, principles, concepts and methods of epidemiology. The course also examines trends, patterns and the social determinants of disease in Kisumu County and assesses the way in which epidemiological data is used to inform health policy, planning and implementation in Kisumu County. The course starts by delving into the importance of epidemiology in the context of Kenya, a developing country. Students will describe and apply epidemiological terms using hands-on data to make causal inferences and be able to communicate their findings to both lay and professional audiences. Topics include the dynamic behavior of disease, measures of disease incidence and prevalence, using rates, proportions, and other statistics to assess population health.

Learning Outcomes

Upon completion of the course, students will be able to:

- Explain the importance of epidemiology to scientific, ethical, economic and political discussions of health issues;
- Describe public health problems using epidemiological terms such as person, place, and time;
- Calculate basic epidemiology measures by causal inferences, including how to mitigate bias and the effects of confounding factors; and
- Communicate epidemiologic information to lay and professional audiences (disease outbreak investigation); and policy development.

Language of Instruction

The course is taught in English.

Instructional Methods

Lectures with key personalities in public health are complemented by case studies at studies of Kisumu City Department of Public Health, Teaching and Referral Hospitals. Students also study research protocols that utilize epidemiologic designs to answer specific research questions.

Required Texts
See Course Schedule for a full list of readings. Students are responsible for all the required readings and should be prepared to bring them to bear on discussions in class. The readings will help you place the classes in their context, to challenge and engage lecturers, to generate questions for class discussions and to deepen your knowledge of particular aspects discussed in class.

Assignments and Evaluation

Assignment Descriptions and Grading Criteria

1) **Assessing the role of Epidemiology in Kenya's Health Care System (30%):** Assess the role of epidemiology in the planning, delivery, and evaluation of Kenya's health policy and health care system? To what extent is data used in the planning and delivery of Kenya's health care system? What types of data are used? Where are the gaps? 1500 words.
2) **Infographics Project (30%):** Students are required to prepare a creative presentation (PPT, etc.) that examines the distribution, patterns, and trends of any one communicable or non-communicable disease in Kenya. The student should choose which data set they will use and provide a justification for the choice of data set World Bank Data, WHO Data, DHS, etc.). The PPT should be 15 to 20 slides. Each EPI student completing this assignment will make a presentation to the entire student group on a date as shown on the program calendar.
3) **USOMA Policy Brief (30%):** Students will learn and practice how to prepare a policy brief using community level health data. Additional guidelines will be provided prior to the community project week.
4) **Participation (10%):** Participation in class refers to attendance, punctuality, attentive listening and active engagement in all lectures, discussions, educational excursions, and other activities. It also means polite and respectful behavior.

Assessment

Epidemiology in Kenya's Health Care System – 30%
Infographics Project - 30%
USOMA Policy Brief - 30%
Participation - 10%

Attendance and Participation
Due to the nature of SIT Study Abroad programs, and the importance of student and instructor contributions in each and every class session, attendance at all classes and for all program excursions is required. Criteria for evaluation of student performance include attendance and participation in program activities. Students must fully participate in all program components and courses. Students may not voluntarily opt out of required program activities. Valid reasons for absence – such as illness – must be discussed with the academic director or other

designated staff person. Absences impact academic performance, may impact grades, and could result in dismissal from the program.

Late Assignments

SIT Study Abroad programs integrate traditional classroom lectures and discussion with field-based experiences, site visits and debriefs. The curriculum is designed to build on itself and progress to the culmination (projects, ISP, case studies, internship, etc.). It is critical that students complete assignments in a timely manner to continue to benefit from the sequences in assignments, reflections and experiences throughout the program.
Example: Students may request a justified extension for one paper/assignment during the semester. Requests must be made in writing and at least 12 hours before the posted due date and time. If reason for request is accepted, an extension of up to one week may be granted at that time. Any further requests for extensions will not be granted. Students who fail to submit the assignment within the extension period will receive an 'F' for the assignment.

Grading Scale

94-100%	A
90-93%	A-
87-89%	B+
84-86%	B
80-83%	B-
77-79%	C+
74-76%	C
70-73%	C-
67-69%	D+
64-66%	D
below 64	F

Program Expectations

- Show up prepared. Be on time, have your readings completed and points in mind for discussion or clarification. Complying with these elements raises the level of class discussion for everyone.
- Have assignments completed on schedule, printed, and done accordingly to the specified requirements. This will help ensure that your assignments are returned in a timely manner.
- Ask questions in class. Engage the lecturer. These are often very busy professionals who are doing us an honor by coming to speak.
- Comply with academic integrity policies (no plagiarism or cheating, nothing unethical).
- Respect differences of opinion (classmates', lecturers, local constituents engaged with on the visits). You are not expected to agree with everything you hear, but you are expected to listen across difference and consider other perspectives with respect.

- Storing Your Work: Keep several copies of your work as back up and keep one copy accessible to you through an online forum, such as an attachment in your email, the course learning management system, or cloud-based storage. This way your work will always be available to despite technical issues. Lost files, deleted drives, or computer crashes are not excuses for late, missing work.
- All written assignments should be typed and double-spaced.

SIT Policies and Resources

Please refer to the SIT Study Abroad Handbook and the Policies section of the SIT website for all academic and student affairs policies. Students are accountable for complying with all published policies. Of particular relevance to this course are the policies regarding: academic integrity, Family Educational Rights and Privacy Act (FERPA), research and ethics in field study and internships, late assignments, academic status, academic appeals, diversity and disability, sexual harassment and misconduct, and the student code of conduct.

Please refer to the SIT Study Abroad Handbook and SIT website for information on important resources and services provided through our central administration in Vermont, such as Library resources and research support, Disability Services, Counseling Services, Title IX information, and Equity, Diversity, and Inclusion resources.

Course Schedule

**Please be aware that topics and excursions may vary to take advantage of any emerging events, to accommodate changes in our lecturers' availability, and to respect any changes that would affect student safety. Students will be notified if this occurs*

Course Schedule Module 1: Overview of epidemiology
This module introduces students to key concepts in the field of epidemiology and how the field has evolved.

- Definition of Epidemiologic Terms
- History and Philosophy of Epidemiology
- Historic Developments in Epidemiology

Assigned reading

Krieger, N. (2014). Chapter 1. *Epidemiology and the people's health: theory and context*. Oxford University Press.

Winkeistein, W. (2000). Interface of Epidemiology and History: A Commentary on Past, Present, and Future. *Epidemiologic Reviews*, *22*(1), 2–6. https://doi.org/10.1093/oxfordjournals.epirev.a018020

Vandenbroucke, J. P. (2004). Commentary: The HRT story: vindication of old epidemiological theory. *International Journal of Epidemiology*, *33*(3), 456–457. https://doi.org/10.1093/ije/dyh121

Aschengrau, A., & Seage, G. R. (2020). Chapter 1. In *Essentials of epidemiology in public health* (4th ed.). Jones & Bartlett Learning.

Module 2: Application of epidemiology

The broad applications of epidemiology can be categorized into two focal areas i.e. uses related to health status and health services and the other use related to disease etiology. This module introduces students to Epidemiology in the Kisumu County Department of Health.

- Uses of Epidemiology
- Practical Disease Concepts
- Descriptive Epidemiology I

Assigned reading

Morris, J. N. (1964). Recapitulation: General. In *Uses of epidemiology* (2nd ed., pp. 274–278). Livingstone.

Rose, G. (2001). Sick individuals and sick populations. *International Journal of Epidemiology*, *30*(3), 427–432. https://doi.org/10.1093/ije/30.3.427

Forsdahl, A. (2002). Observations throwing light on the high mortality in the county of Finnmark: Is the high mortality today a late effect of very poor living conditions in childhood and adolescence? *International Journal of Epidemiology*, *31*(2), 302–308. https://doi.org/10.1093/ije/31.2.302

Stampfer, M. (2004). Commentary: Hormones and heart disease: Do trials and observational studies address different questions? *International Journal of Epidemiology*, *33*(3), 454–455. https://doi.org/10.1093/ije/dyh191

Module 3: Epidemiology II: The Kenyan context

This module explores how epidemiological research Kisumu County Government department of health informs health policy, planning and delivery. Lectures will review select articles from epidemiological work done in Kenya and in the region. Students will work with existing statistical datasets. Case studies will include HIV/AIDS, malaria, tuberculosis, diarrheal diseases, emerging and re-emerging infectious diseases, maternal and child health, non-communicable diseases.

Assigned reading

Kenya AIDS Strategic Framework, 2014/2015-2018/2019

Malaria Operational Plan FY 2017

Moore, D. M., & Hogg, R. S. (2004). Trends in antenatal human immunodeficiency virus prevalence in Western Kenya and Eastern Uganda: evidence of differences in health policies?. *International journal of epidemiology*, *33*(3), 542–548. https://doi.org/10.1093/ije/dyh127

Kenya National Strategy for the prevention and control of non-communicable diseases 2015-2020

Module 4: Practical Epidemiology I
Epidemiology does not occur in confinement and therefore in this module students will be taken through platforms that evaluate and synthesize epidemiological work in the following sectors/areas of practice: health and demographic surveillance systems, social and behavioral epidemiology, infections and outbreaks investigation, epidemiology and policy.

Assigned reading

Kenya Demographic Health Survey, 2014

Rodgers, G. B. (1979). Income and Inequality as Determinants of Mortality: An International Cross-Section Analysis. *Population Studies*, *33*(2), 343. https://doi.org/10.2307/2173539

Leung, M. W. (2004). Community based participatory research: a promising approach for increasing epidemiology's relevance in the 21st century. *International Journal of Epidemiology*, *33*(3), 499–506. https://doi.org/10.1093/ije/dyh010

Kark, S. L. (2003). The social pathology of syphilis in Africans. *International Journal of Epidemiology*, *32*(2), 181–186. https://doi.org/10.1093/ije/dyg025

Shapiro, S. (1991). Epidemiology and Public Policy. *American Journal of Epidemiology*, *134*(10), 1057–1061. https://doi.org/10.1093/oxfordjournals.aje.a116007

Module 5: Practical Epidemiology II
Students observe epidemiology in action in which clinical teams (Teaching and Referral Hospitals, County Governments) use epidemiologic information to make necessary decisions in public health promotion. Students are also appraised of research protocols that utilize epidemiologic designs to answer specific research questions**.**

Assigned reading

Leitch I. (2001). *Growth and health*. *International Journal of Epidemiology* 30:212–16.

Kermack, W., McKendrick, A., & McKinlay, P. (2001). Death-rates in Great Britain and Sweden. Some general regularities and their significance. *International Journal of Epidemiology*, *30*(4), 678–683. https://doi.org/10.1093/ije/30.4.678

Davey Smith G, Ebrahim S. (2003). Mendelian randomization': can genetic epidemiology contribute to understanding environmental determinants of disease? *International Journal of Epidemiology* 32:1–22.

Berkson J. (2003) *Tests of significance considered as evidence*. *International Journal of Epidemiology* 32:687–91.

Barrett-Connor E. (2004) Commentary: Observation versus intervention—what's different? *International Journal of Epidemiology* 33**:**457–59.

Adcock F. (2004) *Future Work*. *International Journal of Epidemiology* 33**:**468

Degenhardt, L., Hall, W., & Lynskey, M. (2003). Testing hypotheses about the relationship between cannabis use and psychosis. *Drug and Alcohol Dependence*, 71(1), 37–48. https://doi.org/10.1016/s0376-8716(03)00064-4

Module 6: Public Health and Disease Surveillance

This module draws on current ongoing work at Kisumu County Department of Health and their partners through which students explore the incidence, distribution and possible control of the major tropical and nontraditional tropical diseases. Malaria, NCD, ARIs, maternal and child health are employed as the major cases studies.

Assigned Reading:

Nwaka, S. (2005). Drug discovery and beyond: the role of public-private partnerships in improving access to new malaria medicines. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, *99*(S), 20–29. https://doi.org/10.1016/j.trstmh.2005.06.003

Petchesky, R. P. (2003). *Global prescriptions: gendering health and human rights*. Zed Books.

Shretta, R., Walt, G., Brugha, R., & Snow, R. (2001). A political analysis of corporate drug donations: the example of Malarone in Kenya. *Health policy and planning*, *16*(2), 161–170. https://doi.org/10.1093/heapol/16.2.161

