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EPID 7233 - Public Health Surveillance Methods

Jian Zhang

Georgia Southern University, jianzhang@georgiasouthern.edu

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Georgia Southern University
Jiann-Ping Hsu College of Public Health
EPID 7233– Public Health Surveillance Methods

<u>Instructor:</u>	Jian Zhang, MD. Dr. PH.
<u>Office:</u>	2032, Hendricks Hall
<u>Phone:</u>	(912)-478-2290 (office, rarely used), (678)-814-3788(cell)
<u>E-Mail Address:</u>	Jianzhang@georgiasouthern.edu (best way to reach instructor)
<u>Office Hours:</u>	Monday 3:00 PM - 5:00 PM Tuesday 11:00 PM - 3:00 PM Consultation appointments are available on an as-needed basis.
<u>Class Meets:</u>	Room: 2202, IT Bldg;
<u>Class Time:</u>	5:00 – 7:45, Tuesday

Prerequisites: PUBH6133 or equivalent or permission of instructor.

Catalog Description:

This course will provide students with a strong foundation in public health surveillance of both health conditions and risk factors. The course will teach the theory and practice of surveillance supported by many examples of surveillance systems from the developed and developing world. The class will build on and reinforce basic epidemiologic concepts. Students will be given the opportunity to design and evaluate a surveillance system.

Required Textbook:

Teutsch & Churchill. *Principles and Practice of Public Health Surveillance*. 3rd Edition. Oxford University Press

Supplemental reading materials, chapters from other books or publications appearing in major journals, will be provided by the instructor and accessible online at the course website or distributed during class.

MPH Core Student Learning Outcomes (CORE)

1. Demonstrate proficiency and effectiveness in the communication of core public health principles and practices, both oral and written.
2. Demonstrate proficiency in the integration of the core public health disciplines (Biostatistics, Epidemiology, Environmental Health, Health Policy/Management, and Social/Behavioral Science) in practice and research.
3. Demonstrate proficiency in problem solving, critical thinking, and public health leadership.

MPH Epidemiology Student Learning Outcomes (EPID)

1. Formulate population-based hypotheses and develop appropriate research designs to test these hypotheses.
2. Collect, analyze, and interpret data derived from population-based research.
3. Create and implement public health surveillance systems for population-based studies.
4. Recommend evidence-based interventions and control measures in response to epidemiologic findings.
5. Communicate epidemiologic principles and concepts to lay and professional audiences through both oral and written communication.

MPH Core Competencies in Epidemiology

Upon graduation, a student with an MPH degree should be able to:

1. Describe a public health problem in terms of magnitude, person, and time in rural and urban settings.
2. Analyze data from epidemiologic investigations, studies, and surveillance, with special emphasis on the identification of health disparities and promotion of health equity.
3. Apply principles of causation to make judgments about causal inference from epidemiologic data.
4. Apply the principles and limitations of public health screening programs.
5. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
6. Apply basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
7. Explain the basic terminology and definitions of epidemiology.
8. Identify the role of laboratory resources in epidemiologic activities.
9. Explain how determinants of health affect public health practice.
10. Communicate epidemiologic information to lay and professional audiences.
11. Identify the strengths and limitations of epidemiologic research findings.
12. Explain the different uses of basic study designs and selection of variables used in public health.

Performance-Based Objectives Linked to Course Activities (Note: Activities Described in Next Section)

1. Students will demonstrate competence in the basic terminology associated with public health surveillance. (Activity 1)

2. Students will demonstrate the ability to integrate basic concepts of surveillance (Activity 2)
3. Students will demonstrate the ability to communicate surveillance concepts through writing to lay audiences. (Activity 3)
4. Students will demonstrate the ability to communicate public health surveillance concepts through writing to professional audiences. (Activity 4)
5. Students will demonstrate the ability to communicate public health surveillance concepts through presentation to lay and professional audiences. (Activity 5)

Assessment of Student Learning

1. Activity 1: Use course lectures and class discussions to explain the basic terminology and definitions of public health surveillance, including, but not limited to, disease surveillance, epidemiology surveillance, zero reporting. Competence in basic terminology will be evaluated using two activities: (1) A limited numbers of pop quizzes (2) final examine and (3) final class project.
2. Activity 2: Use course lectures, class discussions and class exercises to how to analyze data from different sources for surveillance. Competence in the ability to calculate and interpret basic epidemiologic measures evaluated using two activities: (1) final class project.
3. Activity 3: Use course lectures, class discussions, and case studies to explain the basic application of epidemiologic principles, as well as the integration of these principles across the public health spectrum. Competence in the ability to integrate concepts will be evaluated using two case studies administered at the mid-term and the end of the semester.
4. Activity 4: Competence in written communication to the lay audience will be evaluated using one brief (1 page) writing assignments that focus on current disease or behavioral risk or biological risk trends identified from groups' class project.
5. Activity 5: Competence in written communication to the professional audience will be evaluated using the final submission of the class project based on real-world seniors.
6. Activity 6: Competence in oral presentation will be evaluated using the Preparation and delivery of a PowerPoint presentation of a comprehensive review of an assigned infectious/chronic disease surveillance projects.

Outline of Course Content

WEEK	TOPIC ASSIGNMENT (DEVELOPMENT OF THE CLASS PROJECT)	READING (NOTE)
1 08/16	Review class projects from previous class cohort Introduction to Surveillance Systems (Topic for group project will be provided)	Ch1: Historical Development
2 08/23	The past of Public Health Surveillance	Ch2: Considerations in Planning a Surveillance System
3 08/30	Purpose of Public Health Surveillance (Topic selection finalized)	Ch3: Sources of Health-Related Information
4 092/06	Scheme and Method of Surveillance (Due outline of your group project)	Ch 4, 10, 11
5 09/13	Design a Surveillance System	Ch6: Analyzing and Interpreting Surveillance Data:
6 09/20	Infectious Disease Surveillance	CDC publication Zhang J (2011) J Infect Dis. 204 (suppl1): S463-S470.
7 09/27	Non-communicable Disease Surveillance (Due Power-points of your class project)	Students' publication on surveillance (TBA)
8 10/04	Analytic issue in non-communicable disease surveillance	Zhang J (2014) Pediatrics; September
9 10/11	Evaluation of Public Health Surveillance Class project presentation (1st draft of your group project)	Ch8: Evaluating Public Health Surveillance Zhang J (2011) J Infect Dis. 204 (suppl1): S455-S462.
10 10/18	To be arranged	
11 10/25	State and Local Public Health Surveillance	MMWR 2001 Oct 19;50(41):893-897
12 11/01	Future of Public Health Surveillance (Finalized submission of group project) *	Cha 12, and 13
13 11/08	Specific topic: Surveillance for disease eradication	Zhang J (1997) J of infectious Disease; 175:s122-34
14 11/15	Specific topic: Diabetes Surveillance	Students' publication on surveillance (TBA)
11/22	Thanksgiving break – no class	
15 11/29	Course Wrap-Up and Final Evaluations	

* We will emphasize the quality of the final version of your literature review in evaluations, but some consideration will also be given to the amount of progress made over the course of the semester.

Samples of your work may be reproduced for search purposes and/or inclusion in the professor's teaching portfolio. You have the right to review anything selected for use, and subsequently ask for its removal.

Instructional Methods:

Class meetings will be a combination of lecture, class discussion, and active participation. Computer-generated presentations will be used in the lecture portion of this course. Prior to each lecture, the student is encouraged to complete the recommended readings and to thoughtfully answer the study questions for that learning experience. This active learning exercise is intended to assist the student in prioritizing and focusing their attention to the more salient points of the material found in the supportive readings. In this way it is hoped that the learner will be better prepared to successfully accomplish the learning objective of each lecture experience.

Mid-term exams:

Students will complete one take-home exam, addressing basic concepts of surveillance systems, and applying the principles and methods discussed in the class to evaluate an existing surveillance system.

Group project:

The primary aims of this course are to provide class participants with experience in application of the epidemiological concepts and methods effectively and efficiently. The ultimate goal of this course is to prepare students to apply appropriate methods and software in the analysis of epidemiological data and to effectively communicate the results of their analysis in the form of papers, technical reports or others forms of scientific communication. To this end, the course will require each group to develop a final project paper based on an independent analysis of data set. The instructors will be available throughout the course to assist students in each successive phase of the development of the project paper.

Grading:

Component	%
Final exam (take home)	30
Class participation, <ul style="list-style-type: none"> • Class attendance (5 points) • Discussion participation (5 points) 	10
Project presentation	20
Final of class project (In the format of publishable manuscript) <ul style="list-style-type: none"> • Importance (15 points) • Methodology (15 points) • Lessons learned (10 points) • Clarity (20 points) 	40

90 – 100	A	80 – 89	B	70 – 79	C
60 – 69	D	Below 60	F		

Your grades ***will not*** be posted. All exams and assignments will be graded and returned promptly so that students may accurately calculate their grades at any point in time during the semester.

All your work needs to be produced in a professional manner. The typos, grammar errors should be kept at minimum if any. The format and readability of your submissions will be taken into consideration when the instructor grades. At the present time, only MS word files are acceptable.

All assignments should be received by 12:00PM of the due day by electronic submission to jjianzhang@georgiasouthern.edu. You must receive a confirmation of receipt to assume these have been well received by instructor for the final grade. You are responsible for these submissions and if the files are not received in a readable format, hard-copies are due at the same time in my mailbox located in the Western wing of Cone Hall. So attempt early submission.

There are times when extraordinary circumstances occur (e.g., serious illness, death in the family, etc.). In such circumstances, and/or if you need additional time to satisfactorily complete any course requirement, please consult with the instructor within a reasonable amount of time.

****** Technological difficulties do NOT constitute legitimate excuses or emergencies******

Extensions are not guaranteed and will be granted solely at the discretion of the instructor.

NO EXTRA CREDIT PROJECTS WILL BE ASSIGNED!

CLASS POLICY

Class Attendance and Participation Policy: Federal regulations require attendance be verified prior to distribution of financial aid allotments and University policy requires all students to attend the first class meeting of all classes for which they are registered. Excused absences follow the criteria of the Graduate Catalogue (e.g., illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor in advance. Students must attend the session of student presentations and in-class exam. Regardless of attendance, students are responsible for all material presented in class and meeting the scheduled due dates for class assignments. Students are not allowed to make up work unless illness or other unanticipated circumstance occurs, warranting a medical (family) excuse and resulting in the student missing a homework or project deadline.

Please come to class on time and be prepared to stay until the end of class. Cell phones should not be used in class. Please set them to “vibrate” in case of emergency or if you have an urgent personal or professional reason for expecting a call. “Side” conversations among students are not acceptable unless your conversation is a course-related one.

Academic integrity: As a student registered at this University, it is expected that you will adhere to only the strictest standards of conduct. It is recommended that you review the latest edition of the *Student Conduct Code* book, as well as the latest *Undergraduate & Graduate Catalog* to familiarize yourself with the University’s policies in this regard. Your continued enrollment in

this course is an implied contract between you and the instructor on this issue. From this point forward, it is assumed that you will conduct yourself appropriately. Academic integrity relates to the appropriate use of intellectual property. The syllabus, lecture notes, and all materials presented and/or distributed during this course are protected by copyright law. Students are authorized to take notes in class, but that authorization extends only to making one set of notes for personal use. As such, students are not authorized to sell, license, commercially publish, distribute, transmit, display, or record notes in or from class without the express written permission of the instructor.

Students are expected to abide by the Academic Handbook, located at <http://students.georgiasouthern.edu/sta/guide/>. Your failure to comply with any part of this Handbook may be a violation and thus, you may receive an F in the course and/or be referred for disciplinary action.

GENERAL DISCLAIMERS

The contents of this syllabus are as complete and accurate as possible. The instructor reserves the right to make any changes necessary to the syllabus and course material. The instructor will make every effort to inform students of changes as they occur. It is the responsibility of the student to know what changes have been made in order to successfully complete the requirements of the course.