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Spring 2018

### EPID 7233 - Public Health Surveillance Methods

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

<b><u>Instructor:</u></b>	Jian Zhang, MD. Dr. PH.
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<b><u>Phone:</u></b>	(912)-478-2290 (office, rarely used), (678)-814-3788(cell)
<b><u>E-Mail Address:</u></b>	<a href="mailto:Jianzhang@georgiasouthern.edu">Jianzhang@georgiasouthern.edu</a> (best way to reach instructor)
<b><u>Office Hours:</u></b>	Monday 3:30 PM - 5:30 PM Tuesday 1:00 PM - 4:00 PM Consultation appointments are available on an as-needed basis.
<b><u>Class Meets:</u></b>	Room: 1201, IT Bldg;
<b><u>Class Time:</u></b>	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*. 3<sup>rd</sup> 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 3,4)
5. Students will demonstrate the ability to communicate public health surveillance concepts through presentation to lay and professional audiences. (Activity 4)

**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 final examine and pop quizzes.
2. Activity 2: *Capability to explain the basic application of public health surveillance principles, and to integrate these principles across the public health spectrum* will be evaluated using in-class discussion on selected topics.
3. Activity 3: *Competence in written communication to the professional audience* will be evaluated using the final submission of the class project based on real-world research project.
4. Activity 4: *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 (Milestones of the class project)	READING (NOTE)
<b>1</b> <b>01/09</b>	Warm-up and Courses review	<b>Assignment 1:</b> Reading/outline class projects from previous class cohort
<b>2</b> <b>01/16</b>	Introduction to Surveillance Systems <b>(Topic for group project will be provided)</b> <b>(Outline of previous class project due=2/100)</b>	Ch1: Historical Development  <b>(Assignment 1 due)</b>
<b>3</b> <b>01/23</b>	The Past of Public Health Surveillance <b>(Topic selection finalized)</b>	Ch2: Considerations in Planning a Surveillance System
<b>4</b> <b>01/30</b>	Purpose of Public Health Surveillance <b>(Literature search)</b>	Ch3: Sources of Health-Related Information
<b>5</b> <b>02/06</b>	Scheme and Method of Surveillance <b>(Literature search)</b>	Ch 4, 10, 11
<b>6</b> <b>02/13</b>	Design a Surveillance System <b>( Tables of literature search =10/100)</b>	Ch6: Analyzing and Interpreting Surveillance Data: Zhang J (2017) Matern Child Health
<b>7</b> <b>02/20</b>	Infectious Disease Surveillance <b>(Preliminary results of project available)</b>	Zhang J (2011) J Infect Dis. 204 (suppl1): S463-S470.
<b>8</b> <b>02/27</b>	Non-communicable Disease Surveillance <b>(Due mini review of your topic=5/100)</b>	Zhang J (2016) International Journal of Obesity. 40:1480-1485
<b>9</b> <b>03/06</b>	Analytic issue in non-communicable disease surveillance <b>(Introduction of class paper ready)</b>	Zhang J (2014) Pediatrics; September
<b>03/13</b>	Spring break, No class	
<b>10</b> <b>03/20</b>	Evaluation of Public Health Surveillance <b>(Results of class project ready for review)</b>	Ch8: Evaluating Public Health Surveillance
<b>11</b> <b>03/27</b>	State and Local Public Health Surveillance <b>(Due Power-points of your class project=5/100)</b>	Zhang J (2011) J Infect Dis. 204 (suppl1): S455-S462.
<b>12</b> <b>04/03</b>	Class project presentation <b>(Class presentation as a group=8/100)</b> <b>(Discussion of class project ready for review)</b>	MMWR 2001 Oct 19;50(41):893-897
<b>13</b> <b>04/10</b>	Future of Public Health Surveillance Social Media and Public Health Surveillance <b>(1<sup>st</sup> draft of your group project)</b>	Cha 12, and 13
<b>14</b> <b>04/17</b>	Specific topic: Surveillance for disease eradication <b>(Finalized submission of group project=40/100) **</b>	Zhang J (1997) J of infectious Disease; 175:s122-34 <b>(Class project due)</b>
<b>15</b> <b>04/24</b>	Specific topic: Diabetes Surveillance	Students' publication on surveillance (TBA)
<b>15</b> <b>04/30</b>	Course Wrap-Up and <b>Final Examination</b> <b>(Final exam = 20/100)</b>	

\* Samples of your work may be reproduced for pedagogical 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.

\*\* 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.

### **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.

### **Assignment (project-warm up):**

There are two purposes for the class assignment one. (1) As a part of the training of your writing skills and (2) to help you to get more sense about what your final submission of class project looks like.

### **Pop quiz:**

Occasionally, the instructor will ask you to complete a pop quiz on the materials covered in previous class lecture before he starts the class lecture. The answer sheets of the pop quizzes will be submitted anonymously. However, you are encouraged to submit it with your name on if you are confident about your quiz performance. The quiz will not be accounted towards your courses scores, it is likely if your performance is consistently poor that instructor's impression may go negatively against you.

### **Class project:**

The primary aims of the class project are to provide class participants with experience in application of the concepts and methods of surveillance effectively and efficiently. The ultimate goal of this project is to prepare students to apply appropriate methods and software in the analysis of surveillance 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 project will require each group to develop a final 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.

### **Final 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.

**Grading:**

Component	% of grade *
Outline of previous class project	2
Literature search	10
Literature review (Project mini-review)	5
Project Power-point	5
Project presentation	8
Final of class project (In the format of publishable manuscript, rubric would be available) <ul style="list-style-type: none"> <li>• Importance (10 points)</li> <li>• Methodology (10 points)</li> <li>• Results (5 points)</li> <li>• Lessons learned/ policy or practice implications ( 5 points)</li> <li>• Clarity (5 points)</li> <li>• Abstract (5 points)</li> </ul>	40
Class participation, <ul style="list-style-type: none"> <li>• Class attendance (5 points)</li> <li>• Discussion participation (5 points) **</li> </ul>	10
Final exam (take home?)	20

\*: **One point** would be taken away from the group for every one week delay.

\*\* : Your performance on pop quizzes may be reflected by the points instructor is going to grant you on discussion participation.

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 [jianzhang@georgiasouthern.edu](mailto:jianzhang@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.