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EPID 7135-A – Epidemiology of Infectious Disease

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Georgia Southern University
Jiann-Ping Hsu College of Public Health

EPID 7135-A – Epidemiology of Infectious Disease
Fall 2019

Version as of August 14, 2019

<u>Instructor:</u>	(Isaac) Chun Hai Fung, PhD
<u>Office:</u>	Hendricks 2029
<u>Phone:</u>	(912) 478-5079
<u>E-Mail Address:</u>	cfung@georgiasouthern.edu
<u>Office Hours:</u>	Wednesday 11am – 4pm
<u>Class Meets:</u>	Monday/Wednesday 4pm – 5.15pm; IT building 2201.

Course Catalog available at:
<http://em.georgiasouthern.edu/registrar/resources/catalogs/>
under Jiann-Ping Hsu College of Public Health Programs

Prerequisites: *A minimum grade of “B” in PUBH 6533 and PUBH/BIOS 6541.*

FOLIO Access: <https://my.georgiasouthern.edu/portal/portal.php>

Access to course materials are available for up to one year after graduation.

Catalog Description

This course is designed to provide students with an overview of the principles and practices of infectious diseases epidemiology with focus on how the presence and control of communicable diseases affects public health locally, nationally and internationally. Topics to be covered include: 1) general principles of infectious diseases epidemiology, including outbreak investigation, surveillance, analysis of infectious diseases data, and laboratory testing of specimens; 2) major modes of infectious disease transmission, including airborne, food and water, zoonotic, insect vector, blood, and sexual transmission; 3) different control strategies for infectious diseases, including infection control, antimicrobial management, immunization, risk factor modification, and screening; 4) the practical application of epidemiologic tools for the understanding and control of infectious diseases.

Required customized eBook: Required readings. Isaac Chun-Hai Fung, PhD, EPID 7135, Georgia Southern University. eBook. ISBN: 978-1-284-01264-4. \$16.50

Access Code Purchase Method:

Students will need to purchase an Access Code in order to redeem their eBooks. eBook Access Codes are redeemable on the PUBLISH web site (<http://publish.jblearning.com/ebooks>).

Students may purchase Access Codes for the eBook directly through www.jblearning.com. Students will search for their PUBLISH eBook edition's ISBN to purchase an Access Code. Alternatively, students may purchase their eBook at the college bookstore, and the bookstore will obtain Access Codes (necessary for redemption of eBook) through Jones & Bartlett Learning.

For your info: This eBook contains the following required chapters:

- Cummings, Derek A. T., and Lessler, Justin (2013). **Infectious Disease Dynamics**. In Nelson, K. E., and Masters Williams, C. (2013). *Infectious Disease Epidemiology: Theory and Practice. 3rd Edition*. New York: Jones & Bartlett. ISBN-13: 978-1449683795. Chapter 6.
- Marghella, Pietro D. (2011) **The 2009 H1N1 Influenza Pandemic**. In Hunting and Gleason (ed.) *Essential Case Studies in Public Health* (New York: Jones & Bartlett Learning, 2011) Case 21.

Required readings:

Other required readings will be provided via FOLIO, or distributed in the classroom. Except for the e-book aforementioned, there is no other purchase required.

Optional readings:

Nelson, K. E., and Masters Williams, C. (2013). *Infectious Disease Epidemiology: Theory and Practice. 3rd Edition*. New York: Jones & Bartlett. ISBN-13: 978-1449683795.

Other optional readings will be provided via FOLIO, or distributed in the classroom.

Required Resource: There are a few classes that will require the use of Microsoft Excel in the classroom. If you have a laptop computer, please bring it to use in the classroom. If you do not have one, you may share a computer with another student in the classroom.

MPH Core Student Learning Outcomes

1. Select quantitative and qualitative data collection methods appropriate for a given public health context
2. Analyze and Interpret data for public health research, policy, or practice
3. Assess population needs, assets, and capacities that affect communities' health
4. Design a population-based policy, program, project or intervention
5. Communicate audience-appropriate public health content, both in writing and through oral presentation

CEPH Concentration Competencies

1. Apply the terminology and definitions of epidemiology to a variety of settings appropriately.
2. Calculate epidemiologic measures using statistical software, as appropriate.
3. Draw appropriate inferences from epidemiologic data.
4. Evaluate the strengths and limitations of epidemiologic reports.
5. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.

CEPH MPH Competencies

Evidence-based Approaches to Public Health

1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice

Public Health & Health Care Systems

5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels

Planning & Management to Promote Health

7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs

Policy in Public Health

12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity

Leadership

16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
17. Apply negotiation and mediation skills to address organizational or community challenges

Communication

18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

Interprofessional Practice

21. Perform effectively on interprofessional teams

Systems Thinking

22. Apply systems thinking tools to a public health issue

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

List of course objectives.

1. Students will synthesize biological, epidemiological, medical, mathematical and statistical information about infectious diseases for public health purposes. (Activities 1,2,3)
2. Students will demonstrate competence in the ability to perform calculations related to infectious disease epidemiology, e.g. vaccine efficacy, and to acquire a quantitative understanding of the transmission dynamics of infectious diseases. (Activities 1,2,3)
3. Students will demonstrate the ability to create and to lead participants in a hypothetical outbreak investigation scenario. (Activity 3)
4. Students will demonstrate the ability of comprehension of scientific writing and of presenting scientific findings in a professional setting. (Activity 3)

Assessment of Student Learning

Detailed descriptions of assessments that are linked to student learning outcomes, competencies, and/or objectives.

Assessment Activity 1: Examinations. Use course lectures and class discussions to explain epidemiology of infectious diseases. Competence in the knowledge of this discipline will be evaluated using examinations.

Assessment Activity 2: In-class activities. Use in-class activities, both worksheet-based and computer-based, to instruct the quantitative aspects of epidemiology of infectious diseases. Participation in the in-class activities will be counted towards the final grade.

Assessment Activity 3: Foodborne disease investigation (Outbreak scenario enactment). Students will be asked to create a hypothetical scenario of food poisoning outbreak and will enact that scenario in a class of first-year MPH students. Students will be instructed the basics of outbreak investigation and the writing of outbreak investigation report. Competence in this ability will be evaluated through an in-class presentation of the scenario, written submission of the scenario materials, and the implementation of the scenario for a class of first-year MPH students.

Students may vary in their ability to achieve levels of competence in this course. Students can

expect to achieve course competence only if they honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of them as students.

Overview of the content to be covered this semester: See Class schedule.

Class schedule

The class schedule is listed in an appendix that is a separate document that will be frequently updated. For the exact dates of a specific lecture or class activity, please refer to the most updated version of the schedule in your FOLIO folder.

Portfolio Inclusion

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 lectures, class discussion, and active participation in class activities that could be either paper-based or computer-based. Prior to each lecture, the student is encouraged to read the recommended materials. Students are encouraged to actively participate in class activities. In this way, it is hoped that the learner will be better prepared to successfully accomplish the learning objectives of the course experience.

Grading

Examinations (Individual assessment) (150 of 300 points):

The examinations are closed-book examinations that will be delivered in the classroom during normal class hours:

1. October 7, 2019 (Monday): covers Modules 1-4.
2. November 11, 2019 (Monday): covers Modules 5-7.
3. Final Exam covers Modules 1-7 & Guest Lectures. Please refer to the University's announcement for the exact date and time.

Examination papers will be given to the students in the classroom. Students answer the questions with their pens and their calculators. You are not allowed to use your cell phones as calculators.

An examination is an individual assessment. Any form of communication, such as verbal, written or electronic, between students during an examination is strictly prohibited.

Major Assignment: Foodborne disease investigation (Group assessment) (100 of 300 points):

An assignment of creating a scenario of a hypothetical food poisoning investigation for first-year MPH students will be offered. Students are required to work together as a team.

The class will be divided into more than one groups. Assessment will be made by group.

Peer evaluation: However, each student will be given an opportunity to evaluate each member of their team regarding the time and efforts that they made. **Peer evaluation will be taken into account to adjust the grading for each individual. Free riders will receive fewer points than the rest of the team.**

Deliverable #1. All groups have to present their scenario in the class (PowerPoint presentation). They will be graded by the Instructor.

Deliverable #2. All groups have to submit all written materials to be used in the activity in PUBH 6533 Epidemiology course. Students have to submit all the materials pertinent to the practical by the prescribed deadline. The outbreak scenario written submission should include the scenario (the overall story line), the answer key to the scenario (with the attack rate calculation), the story for each participant (including the food items that they ate), and etc. as instructed by the Instructor. The written submission will be graded by the Instructor.

Deliverable #3. The best scenario will be chosen to be delivered by EPID 7135 students to the first-year MPH students who will participate in the scenario as a class-room practical in PUBH 6533 Epidemiology course. All students of EPID 7135 should participate in the practical during the allotted date and time. Attendance will be taken.

Participation in in-class activities (50 of 300 points):

Learning is an interactive, dynamic process. Activities are designed to help you practice the skills and knowledge that you acquired in lectures. Attendance at the lectures and activities is required. Your participation will be evaluated through 25 opportunities of earning participation points. Each attendance opportunity will accrue two participation points; therefore, there are a total of 50 participation points.

Assignment	Points	%
Examinations	150	
Exam 1		50
Exam 2		50
Final Exam		50
Major Assignment 1: Foodborne disease investigation (Group project)	100	
Deliverable #1: Presentation		40
Deliverable #2: Written Submission		40
Deliverable #3: Enact Scenario in PUBH 6533		20
In-class Activity (25 x 2 participation points)	50	
Total	300	

300 points = 100%

<u>Percent</u>	<u>Grade</u>
90 - 100%	A
80 - 89%	B
70 - 79%	C
60 - 69%	D
0 - 59%	F

Late submission (excluding exams): Reduction of 5% for every 24 hours. For example, for an assignment that is due on Wednesday at 11.59pm, if someone submits it on the coming Friday at 11.59pm, then: Adjusted Points = Points * 90%

General Expectations

1. For every one-credit hour, you should expect to work roughly two hours outside the classroom each week. For example, for a three credit hour course, during a regular fifteen week semester, you should expect approximately ninety hours of work outside of class.
2. Students are expected to keep up with the class, to read the required material, and to submit assignments and activities by due dates and times.
3. Students are expected to independently complete all activities, exercises, assignments, and assessments including exams.
4. Students are expected to produce quality work. Typos and grammar errors should be kept to a minimum. The format and readability of submissions will be taken into consideration when assigning a grade.
5. Remember to check when assignments are due. It is recommended that you stay ahead of schedule on the assignments, so if an emergency happens, your assignment will be completed and ready to submit within the designated time frame. It is your responsibility to keep track of the due dates for each assignment.

Response Times

During a normal work week (i.e., Monday 9:00 AM through Friday 5:00 PM) students can expect responses as follows:

- Email: within two workdays (excluding weekends and holidays)
- Assignment grades: within one week of submission date.

Exceptions: I may not check FOLIO or GSU email over the weekends. If you send me an email after 5:00 PM on Friday, please do not expect a response until the following Monday.

All assignments will be graded promptly so that students may accurately calculate their grades at any point in time during the semester. 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. Extensions are not guaranteed and will be granted solely at the discretion of the instructor.

Course Expectations

While learning Epidemiology will involve a considerable amount of mathematical calculations, Epidemiology is not just numbers. Understanding what the numbers you calculate *mean* and how they are interpreted is critical to your success in this course and as a public health professional. The presentation of your answers in a clear and concise manner is an expectation for all exams and assignments. In other words, your answer should have meaning when separated from the work leading up to the final answer. Additionally, when you are asked for an interpretation of an answer, you are expected to provide an interpretation relevant to the context of the problem.

As some calculations in this course will require multiple steps leading to a final number, it is strongly suggested that you carry FIVE decimal places after the decimal throughout the calculation. Rounding may affect your answer significantly and is often a source of confusion. This is never a good thing. Once you get to the final step, round to one/two decimal places depending on the magnitude of the association reported.

If you have ANY questions about how to report your results, write out your answers, carry decimal places, round off answers, select a constant, or anything else relevant to turning in assignments, ask me *before* turning in the assignment to avoid losing points.

Texting and Use of Cell Phones (and Other Technologies)

Please do not text in class or use your cell phone during class! Texting during class (or in a meeting) is disruptive and rude...at least to me. My preference is that you put cell phones away during class meetings so they are not a source of temptation. Offenders will be asked to leave.

Class Attendance and Participation Policy

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Regular attendance is expected. Your attendance will be verified at the first regular class session.

It is the policy of the University to permit students, faculty, and staff to observe those holidays set aside by their chosen religious faith. The faculty should be sensitive to the observance of these holidays so that students who choose to observe these holidays are not seriously disadvantaged. It is the responsibility of those who wish to be absent to make arrangements in advance with their instructors.

Students participating in authorized activities as an official representative of the University (i.e., athletic events, delegate to regional or national meetings or conferences, participation in university-sponsored performances, and **JPHCOPH funded**) will not receive academic penalties and, in consultation with the instructor of record, will be given reasonable opportunities to complete assignments and exams or given compensatory assignment(s) if needed. The student must provide written confirmation from a faculty or staff advisor to the course instructor(s) at least 10 days prior to the date for which the student will be absent from the class. The student is responsible for all material presented in class and for all announcements and assignments. When possible, students are expected to complete these assignments before their absences. In the event of a disagreement regarding this policy, an appeal may be made by either the student or the instructor of record to the corresponding college dean. (*University Graduate Catalog*)

Academic Misconduct

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.

Plagiarism

According to the Academic Dishonesty Policy of Georgia Southern University, Plagiarism includes (but is not limited to):

- A. Directly quoting the words of others without using quotation marks or indented format to identify them.
- B. Using published or unpublished sources of information without identifying them.
- C. Paraphrasing material or ideas without identifying the source.
- D. Unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic material.

If you are accused of plagiarism by a JPHCOPH, the following policy, as per the Judicial Affairs website: (<http://students.georgiasouthern.edu/judicial/faculty.htm>) will be enforced:

PROCEDURES FOR ADJUDICATING ACADEMIC DISHONESTY CASES

First Offense - In Violation Plea

1. If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is a first violation of academic dishonesty. The incident will be reported via the following website: <http://students.georgiasouthern.edu/judicial/faculty.htm>

2. If it is a first violation, the professor should talk with the student about the violation. **If the student accepts responsibility in writing and the professor decides to adjudicate the case, the following procedures will be followed:**

- a. The student will be placed on disciplinary probation for a minimum of one semester by the Office of Judicial Affairs.

b. The student will be subject to any academic sanctions imposed by the professor (from receiving a 0 on the assignment to receiving a failing grade in the class).

c. A copy of all the material involved in the case (Academic Dishonesty Report Form and the Request for Instructor to Adjudicate Form) and a brief statement from the professor concerning the facts of the case and the course syllabus should be mailed to the Office of Judicial Affairs for inclusion in the student's discipline record.

First Offense - Not In Violation Plea (student does not admit the violation)

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is the first or second violation of academic dishonesty. The student will be charged with academic dishonesty and the University Judicial Board or a University Hearing Officer would hear the case. If the student is found responsible, the following penalty will normally be imposed:

- a. The student will be placed on Disciplinary Probation for a minimum of one semester by the Office of Judicial Affairs.
- b. The student will be subject to any academic sanctions imposed by the professor.

Second Violation of Academic Dishonesty

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, and if it is determined this is the second violation, the student will be charged with academic dishonesty and the University Judicial Board or a University Hearing Officer would hear the case.

If the student is found responsible, the following penalty will normally be imposed:

- a. Suspension for a minimum of one semester or expulsion.
- b. The student will be subject to any academic sanctions imposed by the professor.

NOT RESPONSIBLE FINDING

When a student is found not responsible of academic dishonesty, the work in question (assignment, paper, test, etc.) would be forwarded to the Department Chair. It is the responsibility of the Chair to ensure that the work is evaluated by a faculty member other than the individual who brought the charge and, if necessary, submit a final grade to the Registrar. For the protection of the faculty member and the student, the work in question should not be referred back to the faculty member who charged the student with academic dishonesty.

In the case of a Department Chair bringing charges against a student, an administrator at the Dean's level will ensure that the student's work is evaluated in an appropriate manner.

CONFIDENTIALITY

In accordance with provisions of the Family Educational Rights and Privacy Act of 1974 and the Georgia Open Records Act, any information related to a violation of academic dishonesty or the outcome of a judicial hearing regarding academic dishonesty, is prohibited and must be treated as confidential by members of the faculty."

Disability-related Accommodations

Georgia Southern University is committed to providing reasonable accommodations to students with documented disabilities as required under federal law. Disabilities may include ADD or AD/HD, autism spectrum disorder, brain injury, chronic medical conditions, communication disorders, hearing loss, learning disabilities, mobility impairment, psychological disorders, visual impairment or temporary injuries. The purpose of disability accommodation is to provide equal access to the academic material and equal access to demonstrate mastery of the material. If you have a disability and need accommodations, please contact the Student Accessibility Resource Center (SARC). You will need to meet with a SARC staff member who can help you gather documentation of your disability or refer you to an appropriate resource for assessment. Once documentation of the disability is approved, SARC staff will provide you with an accommodation letter detailing the approved accommodations which you should present to me so we can discuss and implement your accommodations. Disability accommodations work best starting at the beginning of the semester, but can be approved and started at any point in the semester. Accommodations start at the time the accommodation letter is presented to faculty within reasonable timelines; accommodations are not given retroactively. SARC on the Statesboro campus is located on the second floor of Cone Hall and the phone number is (912) 478-1566. SARC for Savannah and Liberty campuses is located on the second floor of Memorial College Center and the phone number is (912) 344-2572.

University Calendar for the Semester

The University Calendar is located with the semester schedule, and can be found at: <http://em.georgiasouthern.edu/registrar/resources/calendars/>

One Final Note

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 to ensure better student learning. The instructor will announce any of such changes in class. It is the responsibility of the student to know what changes have been made in order to successfully complete the requirements of the course.

This syllabus, my lecture notes, and all materials distributed and presented during this course are protected by copyright law. You are authorized to take notes in this class but that authorization extends to only making one set of notes for your personal use and no other use. You are not authorized to sell, license, commercially publish, distribute, transmit, display, or record notes from this class unless you have my written consent to do so.

Appendix to the syllabus of EPID 7135

The schedule for class is a separate document that is an appendix to this syllabus. The schedule is subject to changes during the semester. This is the student's responsibility to refer to FOLIO for the updated schedule. If you have any questions, please ask the instructor.

STUDENT CONDUCT CODE

The Student Conduct Code is the official University publication governing student conduct and behavior. It is the responsibility of each student to become familiar with the rules and regulations governing student life. Student conduct procedures, appeal procedures, and disciplinary sanctions are found in the Student Conduct Code at <http://students.georgiasouthern.edu/conduct>. I acknowledge that I have read and understand this statement referencing the Student Conduct Code.

ACADEMIC DISHONESTY

The University goal is to foster an intellectual atmosphere that produces educated, literate people. Because cheating and plagiarism are at odds with that goal, they shall not be tolerated in any form. Students are expected to adhere to the rules and regulations as set forth in the Student Conduct Code. Therefore, all work submitted by a student must represent that student's own ideas and effort; when the work does not, the student has engaged in academic dishonesty. Plagiarism occurs when a person passes in another person's work as his or her own, borrows directly from another person's work without proper documentation, and resubmits his or her own work that has been previously submitted without explicit approval from the instructor. For example, academic dishonesty occurs whenever a student participates in any of the following: Cheating submitting material that is not yours as part of your course performance; using information or devices that are not allowed by the faculty; obtaining and/or using unauthorized materials; fabricating information, research, and/or results; violating procedures prescribed to protect the integrity of an assignment, test, or other evaluation; collaborating with others on assignments without the faculty's consent; cooperating with and/or helping another student to cheat; demonstrating any other forms of dishonest behavior. Plagiarism directly quoting the words of others without using quotation marks or indented format to identify them; using sources of information (published or unpublished) without identifying them; paraphrasing materials or ideas without identifying the source; self-plagiarism - resubmitting work previously submitted without explicit approval from the instructor; unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic material. NOTICE: The list above is intended only to provide general guidelines for recognizing and avoiding common types of academic dishonesty. It is in no way an exhaustive or comprehensive list of all the types of academic dishonesty. For more information about academic honesty, see the Student Conduct Code at <http://students.georgiasouthern.edu/conduct>. I acknowledge that I have read and understand the Academic Dishonesty Policy.

I have read the syllabus and understand the contents and course requirements.

Student Name (print)

Student Signature

Date