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Fall 8-1-2018

### PUBH 3231 – Epidemiology and Biostatistics

Kwanza D. Boone

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**Georgia Southern University**  
**Jiann-Ping Hsu College of Public Health**

PUBH 3231 – Epidemiology and Biostatistics  
Fall 2018

<b><u>Instructor:</u></b>	<b>Kwanza D. Boone, MPH &amp; Stuart Tedders, PhD</b>
<b><u>Office:</u></b>	Hendricks Hall
<b><u>Phone:</u></b>	(912) 478-1922
<b><u>E-Mail Address:</u></b>	kb09519 @georgiasouthern.edu
<b><u>Office Hours:</u></b>	By appointment
<b><u>Class Meets:</u></b>	Tuesday/Thursday 8:00 – 9:15am – Information Technology Bldg 2206

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 "C" in [PUBH 2131](#).

**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 introduces the student to the principles and practice of epidemiology and biostatistics. Students will be exposed to the historical development of epidemiology, concepts of causality, definitions of health and disease, and sources of community health data. Current principles and practices in the cause, prevention and control of diseases in various community settings will be emphasized.

**Required Textbook:**

**Merrill (2017).** Introduction to Epidemiology (7<sup>th</sup> Edition). Jones and Bartlett Publishers: Sudbury, MA. ISBN 978-1-284-09435-0

**Required Resource:**

Non-Programmable Calculator, preferably up to 10 digits

**BSPH Core Student Learning Outcomes**

TBD

## CEPH Concentration Competencies

TBD

### CEPH BSPH Competencies

#### **Public Health Communication**

The ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences

#### **Information Literacy**

The ability to locate, use, evaluate and synthesize public health information

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

#### Course Learning Objectives:

1. The student will be able to identify the basic concepts and principles of epidemiology and vital statistics (Assessment Approaches: Exams, Quizzes, Case Studies).
2. The student will be able to apply epidemiological concepts to diverse health problems and in various health settings (Assessment Approaches: Exams, Quizzes, Case Studies, Short Communications).
3. The student will be able to understand the basic components of collecting, organizing, interpreting, and summarizing vital statistics (Assessment Approaches: Exams, Quizzes, Case Studies, Short Communications).
4. The student will be able to operate within the information superhighway in order to obtain and utilize current epidemiological health data (Assessment Approaches: Exams, Quizzes, Case Studies).
5. The student will be able to review disease and epidemiological cases in order to solve current, relevant epidemiological case study problems (Assessment Approaches: Exams, Quizzes, Case Studies, Short Communications).

#### Assessment of Student Learning

1. Exams: There will be three exams, each worth 100 points. Exams may be any combination of true/false, multiple choice, matching, short answer, calculations & discussion. (300 points total). **Make-up exams will only be given in extreme circumstances and these decisions are made on a case-by-case basis.**
2. Final Exam: The final exam will be administered on Thursday, December 6, 2018 from 7:30 – 9:30am. This exam may be any combination of true/false, multiple choice, matching, short answer, computations, & discussion. (100 points total).
3. Quizzes: Although twelve (12) quizzes will be given over the course of the semester, only ten (10) quizzes will be counted. The two lowest quiz grades will be dropped, so make-up quizzes will not be administered. Quizzes will account for 10 points each (100 total points). Note: Quizzes are designed to encourage you to read the chapters in the

required textbook, so they will be administered prior to covering content for a specific chapter. **Make-up quizzes will only be given in extreme circumstances and these decisions are made on a case-by-case basis.**

4. Case Studies: Case studies are designed to facilitate problem solving and creative thinking. Although multiple practice case studies will be administered throughout the semester, only two (2) case studies will factor into the overall course grade. Each case study is worth 25 points each. A case study submission includes an overview (summary) of the case, specific questions related to the case (in text) and answers to each question (50 total points). Completed case studies should be brought to class on the due date (see tentative course outline). **Late assignments will not be accepted.**
5. Short Communications: Short communications are exercises to facilitate writing skills. Although multiple short communication exercises will be administered throughout the semester, only five (5) short communications will factor into the course grade. A short communication must be typed and cannot exceed 150 words. These communications will be evaluated on aspects of grammar, sentence structure, logical progression, and creativity. The communications should be emailed to [stedders@georgiasouthern.edu](mailto:stedders@georgiasouthern.edu) (50 total points). **Late assignments will not be accepted.**

*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 the semester:**

**PUBH 3231: Epidemiology and Biostatistics**

Tentative Course Schedule\*

**Fall 2018**

Date	Topic(s)	Readings	Assessments
Week 1 8/13 – 8/17	- Syllabus Overview, Introductions, Expectations -Basic Terminology -Disease Transmission Concepts -Levels of Prevention	Chapter 1: Foundations of Epidemiology	Chapter 1 Quiz (8/16)  Practice (In-Class) Short Communication (8/16)
Week 2 8/20 – 8/24	-Historical Origins of Epidemiology as a Discipline	Chapter 2: Historic Developments in Epidemiology	Chapter 2 Quiz (8/21)
Week 3 8/27 – 8/31	-Natural History of Disease -International Classification of Disease -Concepts of Immunity	Chapter 3: Practical Concepts in Epidemiology	Chapter 3 Quiz (8/28)  Practice Short Communication (Topic Assigned 8/28; Communication Due 8/30)  Wrap Up & Review (8/30)
Week 4 9/3 – 9/7	-Normal Distribution -Measures of Central Tendency -Tests of Significance	TBD	<b>Exam #1: Chapters 1, 2, 3 (9/4)</b>  Chapter 4 Quiz (9/6)
Week 5 9/10 – 9/14	-Ratios, Proportions, Rates -Descriptive Study Designs -Tables and Graphs	Chapter 4: Design Strategies and Statistical Methods in Descriptive Epidemiology	Short Communication #1 (Topic Assigned 9/11; Communication Due 9/13)
Week 6 9/17 – 9/21	-Person Trends -Place Trends -Time Trends	Chapter 5: Descriptive Epidemiology According to Person, Place and Time	Chapter 5 Quiz (9/18)
Week 7 9/24 – 9/28	-Birth Rates -Mortality Rates -Years of Potential Life Lost	Chapter 6: General Health and Population Indicators	Chapter 6 Quiz (9/15)
Week 8 10/1 – 10/5	-Observational Analytic Study Designs (Case Control Studies, Cohort Studies) -Bias -Measures of Risk -Effect Modification	Chapter 7: Design Strategies and Statistical Methods in Analytic Epidemiology	Chapter 7 Quiz (10/2)  Short Communication #2 (Topic Assigned 10/2; Communication Due 10/4)  Wrap Up & Review (10/4)

<p>Week 9 10/8* – 10/12 *Last day to withdraw without academic penalty</p>	<p>-Practice Case Study</p>		<p>Exam #2: Chapters 4, 5, 6, &amp; 7 (10/9)</p> <p>Short Communication #3 (Topic Assigned 10/9; Communication Due 10/11)</p>
<p>Week 10 10/15 – 10/19</p>	<p>-Experimental Study Design -Randomization -Blinding -Ethics in Experimental Research</p>	<p>Chapter 8: Experimental Studies in Epidemiology</p>	<p>Chapter 8 Quiz (10/16)</p>
<p>Week 11 10/22 – 10/26</p>	<p>-Statistical Inference -Causal Inference -Web of Causation</p> <p>-Concepts in Conducting a Field Investigation</p>	<p>Chapter 9: Causality</p> <p>Chapter 10: Field Epidemiology</p>	<p>Chapter 9 Quiz (10/23)</p> <p>Chapter 10 Quiz (10/25)</p>
<p>Week 12 10/29 – 11/2</p>	<p>-The Environment and Chronic Disease -Behavior and Chronic Disease -Heredity and Chronic Disease -Multifactorial Etiology and Chronic Disease</p>	<p>Chapter 11: Chronic Disease Epidemiology</p>	<p>Chapter 11 Quiz (10/30)</p> <p>Short Communication #4 (Topic Assigned 10/30; Communication Due 11/1)</p>
<p>Week 13 11/5 – 11/9</p>	<p>-Practice Case Study</p>		<p>Wrap Up &amp; Review (11/6)</p> <p>Exam #3: Chapters 8, 9, 10, 11, &amp; 12 (11/8)</p>
<p>Week 14 11/12 – 11/16  American Public Health Association 11/10 – 11/14</p>	<p>-Screening and Diagnosis -Evaluating the Screening Test</p>	<p>Chapter 12: Clinical Epidemiology</p>	<p>Chapter 12 Quiz (11/6)</p> <p>Case Study #1 (11/15)</p>
<p>Week 15 11/19 – 11/23</p>	<p>Thanksgiving</p>	<p>Thanksgiving</p>	<p>Thanksgiving</p>
<p>Week 16 11/26 – 11/30 Last Week of Class</p>			<p>Short Communication #5 (Topic Assigned 11/27; Communication Due 11/29)</p> <p>Case Study #2 (11/29)</p>

Week 17 12/3 – 12/7 Final Exams			Final Exam (12/6) 7:30 – 9:30am
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### **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**

Information will be presented in the classroom, through the required readings, and through various assignments. Class meetings will be a combination of lecture, class discussion, and group activities. The instructor will attempt to cover all of the assigned readings; however, failure to cover assigned readings does not alleviate the student's responsibility of knowing the material. Furthermore, students are responsible for all miscellaneous information discussed during the assigned class periods. If you miss a class, you are responsible to find a fellow classmate to get all notes and materials missed.

### **Grading**

<i>Assignments</i>	<i>Points</i>
Exams (3) @ 100 points each	300
Final Exam @ 100 points	100
Quizzes 10 @10 pts each	100
Case Study 2 @ 25 points each	50
<u>Short Communications 5 @ 10 points each</u>	<u>50</u>
Total	600

<u><i>Point Scale</i></u>	<u><i>Percent</i></u>	<u><i>Grade</i></u>
540 - 600 pts	90 - 100%	A
480 - 539 pts	80 - 89%	B
420 - 479 pts	70 - 79%	C
360 - 419 pts	60 - 69%	D
359 - 0 pts	00 - 59%	F

### **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 48 hours
- Discussion posts: within 72 hours
- Assignment grades: within 72 hours 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**

#### **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 Undergraduate & 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 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.

## **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.

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Student Name (print)

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Student Signature

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Date