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Spring 2018

## PUBH 9130 – Professional Seminar in Biostatistics

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

PUBH 9130 – Professional Seminar in Biostatistics  
Spring 2016

<b><u>Instructor:</u></b>	<b>Robert Vogel</b>
<b><u>Office:</u></b>	Hendricks Hall
<b><u>Phone:</u></b>	478-7423
<b><u>E-Mail Address:</u></b>	rvogel@georgiasouthern.edu
<b><u>Office Hours:</u></b>	Tuesday and Thursday 9:30am-noon and by appointment
<b><u>Web Page:</u></b>	.
<b><u>Class Meets:</u></b>	Tuesday and Thursday 12:30pm-1:45pm IT 2205.

**Prerequisites:** PUBH

**Web-CT Address:**

**Catalog Description:** This course focuses on study design and sampling methods as well as data analysis of small and large, national and local health surveys and vital statistics in order to gain experience describing data using effective graphical and numerical methods. Students will use statistical software (SAS) to analyze data originating from various survey designs, including data from experimental designs such as parallel, longitudinal studies that involve several treatment or intervention groups. Students will work in groups on data analysis projects and case studies in order to be exposed to others' expertise in different areas of public health and to learn effective collaboration. Readings from the literature in public health and biomedical studies will be analyzed and critiqued so that students will gain experience in distinguishing effective data analysis techniques. Emphasis will be placed on the development of critical thinking skills, statistical reasoning, and collaboration. Prerequisite: A minimum grade of "C" in PUBH 6541

**Required Textbook:**

Sampling of Populations Methods and Applications, 4<sup>th</sup> edition. Paul S. Levey and Stanley Lemeshow, Wiley, 2008.

**Secondary Textbook:**

Survey Methodology, 2nd Edition, Robert Groves, Wiley, 2009

## **DrPH**

### **Biostatistics Student Learning Outcomes**

#### ***Cross-cutting***

1. Demonstrate their readiness to work with communities to address public health problems.
2. Select and apply theoretically based interventions to address public health problems.
3. Apply appropriate research methods to address community health problems, particularly among rural and underserved populations.

#### ***Biostatistics Concentration***

1. Construct a public health and biomedical research question from ideas, conditions, and events that exist in a rural and urban community, region, state, and nation using critical thinking skills.
2. Demonstrate required skills for translating public health practice objectives to the appropriate biostatistical framework for analysis and interpretation of results.
3. Illustrate sufficient substantive knowledge of advanced biostatistical methods such as multiple regression, logistic regression, survival analysis, longitudinal data analysis, and Bayesian and adaptive methods to interact with biostatisticians and related public health researchers in a meaningful and productive fashion.
4. Communicate biostatistical principles and concepts to lay and professional audiences through both oral and written communication.

#### **Course Objectives:** At the end of this course, students will be able to:

1. Describe the usefulness of surveys in terms of specific objectives, sound research design, proper choice of population and sample, reliable and valid instruments, appropriate analysis, and accurate reporting of results. (Competencies 1, 2, 3, 4, 5, and 6)
2. Understand the relations between time, scope, and quality in survey design and implementation (Competencies 1 and 6)
3. Understand a survey's cultural, psychological, economic, and political context. (Competencies 1,4, 5, 6)

4. Be able to fully document the development and administration of the questionnaire and the data that is collected. (Competencies: 5, 6)
5. Be able to select the most appropriate interview mode. (Competencies 1, 3, 4, 5, 6)
6. Prepare a survey report with appropriate survey graphics and tables. (Competencies 5 and 6)

**Overview of the Content to be Covered During the Semester:**

Week	Topic	Readings	Assignment
1	Preliminaries	Chapter 1 (L&L)	1.7
1	The Sample	Chapter 2 (L&L)	2.4, 2.8
1-2	Simple Random Sampling	Chapter 3 (L&L)	3.3, 3.4, 3.5, 3.6 3.12
3	Systematic Sampling	Chapter 4 (L&L)	4.1, 4.2, 4.4, 4.6, 4.13
4	Stratified Sampling 1	Chapter 5 (L&L)	5.2, 5.3, 5.4, 5.7, 5.8, 5.10
5	Stratified Random Sampling 2	Chapter 6 (L&L)	6.4, 6.6, 6.8
6	Ratio Estimation	Chapter 7 (L &L)	7.2, 7.3, 7.4, 7.10
7	Cluster Sampling	Chapter 8 (L &L)	No assignment
7-8	Simple One-Stage Cluster Sampling	Chapter 9 (L&L)	9.2, 9.3, 9.4, 9.5
9-10	Two-Stage Cluster Sampling with Equal Probability	Chapter 10 (L&L)	10.4, 10.11, 10.12
11-12	Cluster Sampling with PPS Sampling	Chapter 11 (L&L)	11.1, 11.3
13	Variance Estimation Complex Surveys	Chapter 12 (L&L)	12.2

14	Nonresponse and Missing Data	Chapter 13 (L&L)	13.1, 13.2
15	Strategies for Design-Based Analysis of Sample Survey Data	Chapter 17 (L&L)	No assignments
bonus	Examples of various SAS Survey Procedures		No assignments

**Instructional Methods:** Class meetings will be a combination of lecture and class discussion. Module assignments constitute the basis of student evaluation. Students are expected to make use of ample office hours to discuss concepts or difficulties they may have. You-tube video links have been provided for additional insights into sampling issues.

**Grading:** Weighting of assignments for purposes of grading will be as follows:

Assignments : 40%  
Midterm: 30%  
Final: 30%

The following point scale will be utilized in grading (based on a total of 440 points):

90% - 100%      A  
80% - 90%        B  
70% - 80%        C  
60% - 70%        D

**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.

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 (and no other) 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.

**Academic Handbook:** 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.

**University Calendar for the Semester:**

The University Calendar is located with the semester schedule, and can be found at:  
<http://www.collegesource.org/displayinfo/catalink.asp>.

**Attendance Policy:**

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Attendance will not be recorded after this initial period.

**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. 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.

**The Fine Print:**

"According to the Academic Dishonesty Policy of GSU, 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.
- bathe 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).

can 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. and 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. bathe 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

Department 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."