

General Information								
Course Title:	<b>Biostatistics for Laboratory Scientists</b>			Course Designation: <b>PHS 525</b>	Credits: <b>3</b>			
Semester:	<b>Spring</b>		Year:	<b>2016</b>				
Department:	<b>Public Health Sciences</b>							
Director:	<b>Dajiang Liu, PhD Huamei Dong, PhD</b>		Tel #	<b>4178</b>	Email:	<a href="mailto:Dajiang.liu@psu.edu">Dajiang.liu@psu.edu</a> , <a href="mailto:hud3@psu.edu">hud3@psu.edu</a>	Office Rm #	<b>Dr. Liu: HCAR2020 Dr.Dong:ASB2404-2</b>
Time :	<b>1:00 – 2:30pm</b>		Days:	<b>Tuesday and Thursday 01/11/16---04/29/16</b>			Location:	<b>C1845C</b>

Course Information	
Description and/or Overview:	
This course covers basic theory and methods for statistical analysis, data visualization, presentation and experimental design, with a focus on biomedical applications.	
Goals and/or Objectives:	
By the end of the course, students will have a more intuitive and concrete understanding of biostatistics. Students will be able to identify appropriate statistical tests for a wide range of applications with an understanding of the specific assumptions underlying the tests. Students will also have the capability of using basic statistical software to perform statistical analyses and the set of knowledge to effectively interpret the results.	
Pre-requisites:	
One semester of college calculus (e.g. Math 110), experience with spreadsheet software such as Microsoft Excel.	
Requirements; course-specific policies and expectations:	
Students will need access to a laptop computer, and will be required to bring it to class on a regular basis. The computer must have access to wireless internet from the classroom.	
Required Texts and Resources:	
<b>Required Text: OPEN INTROSTATITICS</b> <a href="https://www.openintro.org/stat/textbook.php?stat_book=os">https://www.openintro.org/stat/textbook.php?stat_book=os</a>	

**Electronic Links:**

ANGEL, the Penn State course management system, will be used to post files with the course materials, such as lectures, articles, homework assignments, exams, etc.

**Attendance Policy:**

Students are expected to attend class regularly. Students should consult with the instructor if they anticipate missing more than one class. Cell phones and pagers should be turned off during class time in order not to disrupt the class.

**Examination Policy:**

Students are expected to perform their own work on the take-home assignments and not consult with classmates.

**Grading Criteria:**

There will be homework assignments, two midterms and a final.

Homework: 30%  
 Midterm #1: 20%  
 Midterm #2: 20%  
 Final: 30%

*Individual grades will not be uploaded until the student completes the confidential CourseEval survey for evaluating the course and the instructor(s). CourseEval surveys will be initiated during the last week of class instruction.*

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<b>Course Director:</b>		<b>Dajiang Liu, PhD; Huamei Dong, PhD</b>			
<b>Time :</b>	<b>1:00 to 2:15pm</b>	<b>Days:</b>	<b>Tues.&amp;Thurs.</b>	<b>Location</b>	<b>1845C</b>
<b>Date</b>	<b>Lecture #</b>	<b>Instructor Last, first</b>	<b>Instruction Type (Lecture or lab)</b>	<b>Projected Lecture Topic - This list is an approximate guide to lecture topics. Titles and content are subject to change</b>	
01/12/16	1	Liu, Dajiang	lecture	Introduction to data	
01/14/16	2	Liu, Dajiang	lecture	Examining numerical data and categorical data	
01/19/16	3	Dong, Huamei	lecture	Probability	
01/21/16	4	Dong, Huamei	lecture	Tree diagrams and Bayes Theorem	
01/26/16	5	Dong, Huamei	lecture	Random variables	
01/28/16	6	Dong, Huamei	lecture	Normal distribution	
02/02/16	7	Dong, Huamei	lecture	Binomial distribution, Geometric distribution and Negative binomial distribution	
02/04/16	8		lab		
02/09/16	9	Liu, Dajiang	lecture	Foundation for inference	

02/11/16	10	Liu, Dajiang	lecture	Confidence interval
02/16/16	11	Liu, Dajiang	lecture	Hypothesis testing
02/18/16	12	Liu, Dajiang	lecture	Inference for one mean
02/23/16	13	Liu, Dajiang	lecture	Inference for one mean
02/25/16	14	Liu, Dajiang	lecture	Inference for two means
03/01/16	15	Liu, Dajiang	lecture	Inference for two means
03/03/16	16		lab	
Spring Break	No class			
03/15/16	17	Dong, Huamei	lecture	Inference for a single proportion
03/17/16	18	Dong, Huamei	lecture	Inference for a single proportion
03/22/16	19	Dong, Huamei	lecture	Inference for two proportions
03/24/16	20	Dong, Huamei	lecture	Inference for two proportions
03/29/16	21		Second Midterm	
03/31/16	22	Dong, Huamei	lecture	Introduction to linear regression
04/05/16	23	Dong, Huamei	lecture	Least square regression
04/07/16	24	Dong, Huamei	lecture	Inference for linear regression
04/12/16	25		lab	
04/14/16	26	Liu, Dajiang	lecture	Introduction to multiple regression
04/19/16	27	Liu, Dajiang	lecture	Model Selection
04/21/16	28	Liu, Dajiang	lecture	Logistic regression
04/26/16	29	Dong, Huamei	lecture	Review
04/28/16	30		Final	

## **Academic Integrity**

Academic Integrity at Penn State is defined by Faculty Senate Policy 49-20 as “the pursuit of scholarly activity in an open, honest and responsible manner”. The University's Code of Conduct states that “all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others”. Academic dishonesty (including, but not limited to cheating, plagiarism, or falsification of information) will not be tolerated and can result in academic or disciplinary sanctions such as a failing (F) grade in the course.