



**Department of Public Health Sciences
MPH Program Syllabus**

Course name:	Biostatistics in Public Health
Course no.:	PUBH 5305
Course CRN:	15120
Semester/year	Fall Semester 2014
Graduate credit hours:	3
Class location:	HSN 213
Class meeting time:	Tuesdays 5p-750p
Class instructor:	Dr. Oralia Loza, Ph.D.
Office location:	HSN 405
Phone:	915.747.7232
Email:	oloza@utep.edu
Office hours:	Tuesdays 1030a-1230p and Thursdays 1030a-1230p
Preferred contact method:	email

Course description:	Core course focuses on the analysis, interpretation, and presentation of public health data. Overview of measurement methods, descriptive statistics, confidence intervals and hypothesis testing, sample size and power calculations, analysis of variance and multiple comparisons; correlation and regression; multiple regression and statistical control of confounding; logistic regression; and survival analysis.
Course pre-requisites:	One prior UG or GR statistics course with grade of B or better.
Required textbooks:	Essentials of Biostatistics for Public Health, Second Edition [Paperback] Authors: Lisa M. Sullivan Publisher: Jones & Bartlett Learning Print: (ISBN-10: 1449623948) (ISBN-13: 978-1449623944) http://www.jbpub.com/essentialpublichealth/sullivan/2e
Required software:	<ul style="list-style-type: none"> • Microsoft Office • IBM® SPSS® Statistics: data management and statistical analysis software <p>Access is available for free to UTEP students under MY.APPS.UTEP.EDU</p>
Supplemental reading:	<p>The Practice of Statistics in the Life Sciences, Second Edition Authors: Brigitte Baldi and David S. Moore Publisher: W. H. Freeman Print: (ISBN-10 1-4292-7271-6) (ISBN-13 978-14292-7271-1) eText: (ISBN-10 1429266937)(ISBN-13 9781429266932) http://www.whfreeman.com/catalog/Product/practiceofstatisticsinthelifesciences-secondedition-baldi</p> <p>Discovering Statistics Using IBM SPSS Statistics, Fourth Edition [Paperback] Print: (ISBN-10: 1446249182) (ISBN-13: 978-1446249185) Authors: Andy Field Publisher: SAGE Publications Ltd http://www.uk.sagepub.com/books/Book238032</p>

Additional Resources:	<ul style="list-style-type: none"> • Health Science Librarians <ul style="list-style-type: none"> ○ http://libguides.utep.edu/public_health ○ Harvey Castellano hcastell@utep.edu • Technology Support Center (TSC) <ul style="list-style-type: none"> ○ Workshops: tsc.utep.edu/workshops ○ Report issues to: https://servicedesk.utep.edu or ○ Mr. Frank Poblano fpoblano@utep.edu • Statistical Consulting Laboratory @ UTEP Bell Hall 131 (not for tutoring) <ul style="list-style-type: none"> ○ http://academics.utep.edu/Default.aspx?alias=academics.utep.edu/statlab
Course format:	<p>Course combines in-class lectures and homework exercises. Although students may sometimes work in groups while in the class, please note that all work done outside the class should be completed on an individual basis including homework exercises.</p> <p>Take-home assignments and other selected materials will be available in class or on Blackboard.</p>
Major learning objectives:	<p>Course Objectives: Upon completion of this course the student will learn the appropriate use of statistical methods for the analysis of data, with continuous and categorical responses, using statistical analysis software SPSS Statistics. These objectives should contribute to student's ability to critically review the public health and epidemiologic literature, and to carry out statistical analyses. Students will learn to:</p> <ol style="list-style-type: none"> 1. identify sources of health related data and statistics including sources such as the CDC, and Healthy People 2020 2. utilize biostatistical terminology in written and oral interpretations of statistical test results 3. write clear and concise interpretation of statistical analyses results in public health studies 4. utilize appropriate mathematical equations and equations for hypothesis testing 5. describe model assumptions for statistical tests 6. select the appropriate statistical methods (e.g., descriptive or analytic, parametric or parametric) 7. demonstrate technical skills needed to view, summarize, and analyze data using SPSS output. 8. read tables and graphs from manuscripts and/or reports 9. develop written and oral presentation of a complete descriptive and bivariate statistical analyses.
Assessment strategies:	<ol style="list-style-type: none"> 1. Bivariate Analysis Project (BAP): Students will identify a dataset and develop and test three hypotheses. This project will be completed in separate assignments then presented in a final 10-minute presentation and a report. <ul style="list-style-type: none"> BAP 1: Selecting Dataset BAP 2: Selecting Variables BAP 3: Univariate Analyses BAP 4: Stating the Hypotheses BAP 5: Bivariate Analyses BAP Final Presentation and Report 2. Literature Review and Reports 3. SPSS Modules: These modules include screen shots with directions to generate univariate and bivariate descriptive statistics, plots, and tests. 4. Word Problems from the Textbook 5. Exams on general course material: Students will also be tested on the course material in quiz and exam format.

Program Competencies (core competency area must be identified & number according to that listed by the MPH program)	Learning objectives	Assessment strategies
This course meets the following MPH degree & graduate certificate in public health competencies		
<p>1. BIOSTATISTICS CORE COMPETENCIES</p> <p>1. Describe the roles biostatistics serves in the discipline of public health.</p> <p>2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.</p> <p>3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.</p> <p>4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.</p> <p>5. Apply descriptive techniques commonly used to summarize public health data.</p> <p>6. Apply common statistical methods for inference.</p> <p>7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.</p> <p>8. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.</p> <p>9. Interpret results of statistical analyses found in public health studies.</p> <p>10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.</p> <p>3. EPIDEMIOLOGY CORE COMPETENCIES</p> <p>1. Identify key sources of data for epidemiologic purposes.</p> <p>7. Calculate basic epidemiology measures.</p> <p>HISPANIC/BORDER HEALTH CONCENTRATION-SPECIFIC COMPETENCIES</p> <p>5. Identify and access the major sources of public health data that pertain to Hispanic and border communities (e.g., vital statistics and disease registries, health and nutrition surveillance databases, census data, national surveys).</p>	<p>1, 3, 8</p> <p>4</p> <p>6</p> <p>6</p> <p>6, 7, 9</p> <p>6, 7</p> <p>6, 7, 9</p> <p>7</p> <p>1, 2, 8</p> <p>2, 3, 9</p> <p>1, 8</p> <p>4</p> <p>1, 8</p>	<p>2</p> <p>4, 5</p> <p>1, 2, 5</p> <p>1, 2, 3, 4, 5</p> <p>1, 2, 3, 4, 5</p> <p>1, 2, 3, 4, 5</p> <p>4, 5</p> <p>1</p> <p>2</p> <p>1</p> <p>1</p> <p>4, 5</p> <p>1, 2</p>
Grading scale & criteria	<p>Student performance will be evaluated on:</p> <ul style="list-style-type: none"> • Assignments (25%) • Quizzes, Midterm Exam, and Final Exam (35%) • Analysis Project (35%) • Class Participation (5%) <p>Grading Scheme: A (> 90%), B (80-89%), C (70-79%), D (60-69%), and F (< 60%)</p>	
Incomplete policy:	Incomplete assignments will be graded. Partial credit will be provided.	
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Course/Instructor & Institutional Policies

Attendance:	<p>It is UTEP policy that all students attend all scheduled classes. Attendance will be taken at each class. When a student registers for a course, it is assumed that she/he has made arrangements to avoid such conflicts. Students are responsible for any information or activities presented in class discussions, lectures, assignments, and/or readings. If you are unable to attend class, it is your responsibility to inform the instructor before the respective class session. Students may be administratively withdrawn for excessive unexcused absences (2 or more classes). Compliance to due dates, in class presentations, homework, exams and other activities is mandatory. All emergency-related absences must be verified.</p> <p>Chronic tardiness not only reflects lack of commitment and professional behavior but also is disruptive to your classmates and the instructor. You are expected to be in class and seated by 5:00 PM.</p>
Reading assignments:	All assigned readings need to be completed prior to coming to the next scheduled class session. Example: the reading assignments for week 2 need to be completed prior to coming to the week 2 class session.
Writing standards	Effective public health leaders and practitioners are also effective written as well as oral communicators. Written communication is a critical element of the communication process. Our MPH graduate program both recognizes and expects good writing to be the norm for course work. Please feel free to seek out assistance from the UTEP Writing Center. It is free and they are very helpful.
Policy for late assignments	Late work will receive point reduction: 50% within two days of deadline. Submission will receive no credit, if submitted after two days.
Permission to record lectures & discussions	Not permitted without express permission of the instructor
Cellphone/electronic tablet/ use policies:	Please note that all cellular telephones, pagers, headphones, iPods, iPads, mp3 players, earpieces, laptops, and other forms of communication and entertainment technology equipment must be powered off and put away during the class period. If a situation should arise which necessitates a student to be contacted by a physician or family member, the instructor shall be notified and cell phone can be set to "vibrate." Please be advised that students who use unauthorized technology during class time will be dismissed from that week's class session.
Field trip policies:	N/A
Class participation:	<i>Active student participation in this course is very important. Students must be prepared to come to class to discuss, answer questions, and participate in all class activities.</i>
Special accommodations:	If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 915.747.5148, cass@utep.edu , or visit their office located in UTEP Union East, Room 106. For additional information, visit http://sa.utep.edu/cass/ . CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.
Student conduct:	Students are expected to be above reproach in all scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties,

including the possibility of failure in the course and dismissal from the university. "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another student, any act designed to give unfair advantage to a student or the attempt to commit such acts." Regent's Rules and Regulations, Part One, Chapter VI, Section 3.2, Subdivision 3.22. Since scholastic dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. From the UTEP Dean of Student Affairs (<http://studentaffairs.utep.edu/Default.aspx?tabid=4386>) "It is an official policy of university that all suspected cases or acts of alleged scholastic dishonesty must be referred to the Dean of Students for investigation and appropriate disposition. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts".

Examples of "cheating" include:

- Copying from the homework, in-class work or exam paper of another student, engaging in written, oral, or any other means of communication with another student during an exam or homework assignment, or giving aid to or seeking aid from another student during a test;
- Possession and/or use during an exam or home test of materials which are not authorized by the person giving the test, such as class notes, books, or specifically designed "crib notes";
- Using, obtaining, or attempting to obtain by any means the whole or any part of non-administered test, test key, homework solution, or computer program; using a test that has been administered in prior classes or semesters but which will be used again either in whole or in part without permission of the instructor; or accessing a test bank without instructor permission;
- Collaborating with or seeking aid from another student for an assignment without authority;
- Substituting for another person, or permitting another person to substitute for one's self, to take a test;
- Falsifying research data, laboratory reports, and/or other records or academic work offered for credit.

"Plagiarism" means the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own academic work offered for credit, or using work in a paper or assignment for which the student had received credit in another course without direct permission of all involved instructors. NOTE: This includes cutting-and-pasting and photocopying from on-line and other material.

"Collusion" means the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on scholastic dishonesty.

TENTATIVE COURSE SCHEDULE *

Dates	Chapters (READ CHAPTER BEFORE CLASS) and SPSS Modules	Assignments SPSS & BAP
Tuesdays		
WEEK 1 Aug 26	Introduction to Biostatistics (Chapter 1) SPSS 1. Introduction to SPSS and Importing data SPH Officer Presentation	SPSS 1
WEEK 2 Sept 2	Study Designs (Chapter 2) Sources of Data SPSS 2. Entering Data and Defining Variables Special Topics: Paso del Norte Healthy Communities Network	SPSS 2
WEEK 3 Sept 9	Quantifying the Extent of Disease (Chapter 3) Summarizing Data (Chapter 4 – categorical) SPSS 3. Data Manipulation SPSS 4. Introduction to Graphing	SPSS 3 SPSS 4 (No HW) BAP1: DATASET
WEEK 4 Sept 16	Summarizing Data (Chapter 4 – continuous) SPSS 5. Univariate Descriptive Statistics and Plots	SPSS 5
WEEK 5 Sept 23	Probability (Chapter 5 – categorical) SPSS 6. One-Sample Binomial Test	SPSS 6 BAP2: VARIABLES
WEEK 6 Sept 30	Probability (Chapter 5 – continuous) SPSS 7. One-Sample t-Test	Book Questions SPSS 7
WEEK 7 Oct 7	Midterm Review with Book Questions	BAP3: UNIVARIATE
WEEK 8 Oct 14	MIDTERM BOOK CHAPTERS: 2, 4, 5 SPSS: 1-7	
WEEK 9 Oct 21	SPSS 8. Bivariate Descriptive Statistics and Plots	SPSS 8
WEEK 10 Oct 28	BAP Guidelines and Hypotheses Hypothesis Testing Procedures (Chapter 7 – One Sample Tests) SPSS 9. Two-Sample t-Tests and Paired t-Test SPSS 12. Correlation	SPSS 9 SPSS 12 BAP4: HYPOTHESES
WEEK 11 Nov 4	Hypothesis Testing Procedures (Chapter 7 – Chi-Square Tests) SPSS 11. Chi-square Analysis and Odds Ratios	SPSS 11
WEEK 12 Nov 11	Hypothesis Testing Procedures (Chapter 7 – t-tests and ANOVA) SPSS 14. One-Way ANOVA and Multiple Comparisons	SPSS 14
WEEK 13 Nov 18	SPSS 10. Nonparametric tests BAP Work session	SPSS 10 (No HW) BAP5: BIVARIATE
WEEK 14 Nov 25	BAP Work session	
WEEK 15 Dec 2	BAP Presentations (10 minutes/student or team)	BAP PRESENTATION
WEEK 16	FINAL EXAM: Tuesday, Dec 10th 4p – 645p BOOK CHAPTERS: 7 SPSS: 8-12, 14	

* Syllabus is subject to change. Assignments and due dates provided on BlackBoard.

More deadlines: <http://academics.utep.edu/Default.aspx?tabid=74281>