



Department of Public Health Sciences  
Masters in Public Health (MPH) Program Syllabus

Course Name:	Biostatistics in Public Health
Course No:	PUBH 5305
Course CRN:	13410
Semester/Year	Fall 2018
Graduate Credit Hours:	3
Class Location:	Undergraduate Learning Center (UGLC) 334
Class Meeting Time:	Tuesdays 500p - 750p
Class Instructor:	Dr. Oralia Loza, Ph.D.
Office Location:	HSN 405
Phone:	915.747.7232
Email:	oloza@utep.edu
Office Hours:	Tuesdays 1130a - 100p and Thursdays 1130a - 100p
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 bivariate hypothesis testing using t-tests, Chi-Square test analysis of variance and multiple comparisons, correlation and their non-parametric test equivalents.
Course Prerequisites:	One prior UG or GR statistics course with grade of B or better.
Required Textbook(s):	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) <a href="http://www.jbpub.com/essentialpublichealth/sullivan/2e">http://www.jbpub.com/essentialpublichealth/sullivan/2e</a>
Required Software:	1. Microsoft Office (Word, Excel, and PowerPoint) 2. IBM® SPSS® Statistics Standard GradPack (any version number): data management and statistical analysis software - access is available for free to UTEP students under MY.APPS.UTEP.EDU - student license available for purchase online at OnTheHub or Student Discounts
Supplemental Reading & Material:	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) <a href="http://www.whfreeman.com/catalog/Product/practiceofstatisticsinthelifesciences-secondedition-baldi">http://www.whfreeman.com/catalog/Product/practiceofstatisticsinthelifesciences-secondedition-baldi</a>

	<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  <a href="http://www.uk.sagepub.com/books/Book238032">http://www.uk.sagepub.com/books/Book238032</a></p>
<p>Additional Resources:</p>	<p>Health Science Librarian</p> <ul style="list-style-type: none"> <li>• Harvey Castellano <a href="mailto:hcastell@utep.edu">hcastell@utep.edu</a></li> <li>• <a href="http://libguides.utep.edu/prf.php?account_id=81079">http://libguides.utep.edu/prf.php?account_id=81079</a></li> <li>• <a href="http://libguides.utep.edu/public_health">http://libguides.utep.edu/public_health</a></li> </ul> <p>Technology Support Center (TSC)</p> <ul style="list-style-type: none"> <li>• Workshops: <a href="http://tsc.utep.edu/workshops">tsc.utep.edu/workshops</a> or <a href="https://admin.utep.edu/Default.aspx?tabid=74112">https://admin.utep.edu/Default.aspx?tabid=74112</a></li> <li>• Report issues to: <a href="https://servicedesk.utep.edu">https://servicedesk.utep.edu</a> or Frank Poblano <a href="mailto:fpoblano@utep.edu">fpoblano@utep.edu</a></li> </ul>
<p>Course Format:</p>	<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>Lecture notes, course material, assignments, graded assignments (with feedback), grades, and other selected materials will be available in class or on BlackBoard (BB).</p>
<p>Learning Objectives:</p>	<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"> <li>1. identify sources of health-related data and statistics including population data, research data, and survey data from agencies</li> <li>2. read and interpret summary tables and graphs from published public health manuscripts and/or reports</li> <li>3. select the appropriate statistical methods and describe assumptions for descriptive statistics and bivariate tests</li> <li>4. utilize appropriate statistical techniques for hypothesis testing</li> <li>5. demonstrate technical skills needed to view, summarize, and analyze data using SPSS output</li> <li>6. utilize biostatistical terminology in written and oral interpretations of statistical test results</li> <li>7. develop written and oral presentation of a complete descriptive and bivariate statistical analyses</li> </ol>

Assessment Strategies:	<ol style="list-style-type: none"> <li>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.  BAP 1: Selecting a Dataset and Variables  BAP 2: Selecting a Dataset and Variable Pairs  BAP 3: Univariate Analyses  BAP 4: Stating the Hypotheses  BAP 5: Bivariate Analyses  BAP Final Presentation</li> <li>2. SPSS Modules: These modules include screen shots with directions to generate univariate and bivariate descriptive statistics, plots, and tests.</li> <li>3. Word Problems from the Textbook</li> <li>4. Exams: Students will also be tested on general course material in quiz and exam format.</li> </ol>
Grading Scale & Criteria:	<p>Student performance will be evaluated on:</p> <ul style="list-style-type: none"> <li>Assignments (30%)</li> <li>Quizzes, Midterm Exam, and Final Exam (30%)</li> <li>Bivariate Analysis Project (BAP) (35%)</li> <li>Class Participation (5%)</li> </ul> <p>Grading Scheme: A (&gt; 90%), B (80-89%), C (70-79%), D (60-69%), and F (&lt; 60%)</p>
Incomplete Policy:	Incomplete assignments will be graded for partial credit.
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 (3 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 on time.</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

	<p>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.</p>
Policy for Late Assignments:	<p>Late work will receive point reduction: 50% within two days of deadline. Submission will receive no credit, if submitted after two days.</p>
Permission to Record Lectures & Discussions:	<p>Not permitted without expressed permission of the instructor.</p>
Mobile Device Use Policies:	<p>Please note that all mobile devices (e.g., 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.</p> <p>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."</p> <p>Please be advised that students who use unauthorized technology during class time will be dismissed from that week's class session.</p>
Field Trip Policies:	<p>N/A</p>
Class Participation:	<p>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.</p>
Special Accommodations:	<p>If you have or suspect a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 915.747.5148, <a href="mailto:cass@utep.edu">cass@utep.edu</a>, or visit their office located in UTEP Union East, Room 106. For additional information, visit <a href="http://sa.utep.edu/cass/">http://sa.utep.edu/cass/</a></p> <p>CASS Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.</p>
Student Conduct:	<p>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." <u>Regent's Rules and Regulations</u>, 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 (<a href="http://studentaffairs.utep.edu/Default.aspx?tabid=4386">http://studentaffairs.utep.edu/Default.aspx?tabid=4386</a>) "It is an official policy of university that all suspected cases or acts of alleged scholastic dishonesty must</p>

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.

**MPH Foundational Competencies**

	<b>Learning Objectives</b>	<b>Assessment Strategies</b>
<b>Evidence-based Approaches to Public Health</b>		
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	1, 2	1, 2, 3
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	1, 2, 3	1, 2, 3
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	5, 6	1, 2
4. Interpret results of data analysis for public health research, policy or practice	2, 4, 5	1, 2, 3, 4
<b>Public Health &amp; Health Care Systems</b>		
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		
6. Discuss means by which structural bias, social inequities, racism undermine health/create challenges in health equity at organizational, community, societal levels		
<b>Planning &amp; Management to Promote Health</b>		
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		
<b>Policy in Public Health</b>		
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		
<b>Leadership</b>		
16. Apply principles of leadership, governance, management, which include creating a vision, empowering others, fostering collaboration, guiding decision-making		
17. Apply negotiation and mediation skills to address organizational or community challenges		

<b>Communication</b>		
18. Select communication strategies for different audiences and sectors		
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	6, 7	1
20. Describe the importance of cultural competence in communicating public health content		
<b>Inter-Professional Practice</b>		
21. Perform effectively on inter-professional teams		
<b>Systems Thinking</b>		
22. Apply systems thinking tools to a public health issue		
<b>MPH Hispanic and Border Health Concentration Competencies</b>		
	<b>Learning Objectives</b>	<b>Assessment Strategies</b>
1. State and discuss the current major communicable, non-communicable, and environmental public health threats in Hispanic and border communities.		
2. State the basic principles of prevention and control of communicable and non-communicable disease; discuss how these principles can be modified to accommodate cultural values and practices in Hispanic and border communities.		
3. Identify and access public health data on communicable and non-communicable disease in Hispanic and border communities (including vital stats and disease registries; health and nutrition surveillance data; census data; national surveys).	1	1
4. Identify, access and summarize the content of one or more current initiatives relevant to border health (e.g., Healthy Border 2020; US-Mexico Border Philanthropy Partnership; Paso Del Norte Regional Strategic Health Framework).		
5. Identify health disparities, and approaches to achieving health equity.		

## COURSE SCHEDULE \*

Dates Tuesdays	MATERIAL: <b>Textbook Chapter (READ BEFORE CLASS), SPSS Modules, and Bivariate Analysis Project (BAP)</b>	<b>SPSS &amp; BAP Assignments DUE</b>
<b>WEEK 1</b> Aug 28	Chapter 1. Introduction to Biostatistics SPSS 1. Introduction to SPSS and Importing data Special Topics: Sources of Data	
<b>WEEK 2</b> Sept 4	Chapter 2. Study Designs SPSS 2. Entering Data and Defining Variables Special Topics: Paso del Norte Healthy Communities Network Speaker: Students for Public Health (SPH) Officer Presentation	SPSS 1 BAP1: DATASET DRAFT
<b>WEEK 3</b> Sept 11	Chapter 4. Summarizing Data (Categorical) SPSS 3. Data Manipulation SPSS 4. Introduction to Graphing	SPSS 2 BAP1: DATASET
<b>WEEK 4</b> Sept 18	Chapter 4. Summarizing Data (Continuous) SPSS 5. Univariate Descriptive Statistics and Plots	SPSS 3 SPSS 4 (No HW) BAP2: VARIABLES
<b>WEEK 5</b> Sept 25	Chapter 5. Probability (Categorical) SPSS 6. One-Sample Binomial Test	SPSS 5 BAP3: UNIVARIATE
<b>WEEK 6</b> Oct 2	Chapter 5. Probability (Continuous) SPSS 7. One-Sample t-Test	SPSS 6
<b>WEEK 7</b> Oct 9	Chapter 5. Probability (Categorical and Continuous - con't) Midterm Exam Practice Questions from Textbook	SPSS 7 Practice Questions
<b>WEEK 8</b> Oct 16	MIDTERM EXAM: in class BOOK CHAPTERS: 2, 4, 5 SPSS: 1-7	
<b>WEEK 9</b> Oct 23	SPSS 8. Bivariate Descriptive Statistics and Plots BAP Guidelines and Hypotheses	
<b>WEEK 10</b> Oct 30	Chapter 7. Hypothesis Testing Procedures (One Sample Tests) SPSS 9. Two-Sample t-Tests and Paired t-Test SPSS 12. Correlation	SPSS 8 BAP4: HYPOTHESES
<b>WEEK 11</b> Nov 6	Chapter 7. Hypothesis Testing Procedures (Chi-Square Tests) SPSS 11. Chi-square Analysis and Odds Ratios	SPSS 9 SPSS 12
<b>WEEK 12</b> Nov 13	Chapter 7. Hypothesis Testing Procedures (t-Tests and ANOVA) SPSS 10. One-Way ANOVA and Multiple Comparisons SPSS 13. Nonparametric tests	SPSS 11 BAP5: BIVARIATE DRAFT
<b>WEEK 13</b> Nov 20	Special Topics: Reports and Summary Tables BAP Work Session	SPSS 10 SPSS 13 BAP5: BIVARIATE
<b>WEEK 14</b> Nov 27	BAP Presentations (10 minutes/student or team)	BAP PRESENTATION
<b>WEEK 15</b> Dec 4	BAP Presentations (10 minutes/student or team) Final Exam Practice Questions from Textbook	Practice Questions
<b>WEEK 16</b> Dec 11	FINAL EXAM: TBD BOOK CHAPTER: 7 SPSS: 8-13	

\* Please note, the instructor reserves the right to change the syllabus during the semester (e.g., deadlines, grading scheme). In the event that a change is made, you will be notified. Assignments and due dates provided on BlackBoard.

More deadlines: <https://www.utep.edu/student-affairs/registrar/Academic%20Calendars/academic-calendar.html>