

Master of Public Health Program, University of Texas El Paso  
Course Syllabus

| TOPIC                            | CONTENT   |
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| <b>Course Name/Number CRN</b>    | Biostatistics in Public Health (PUBH 5305) (13161)  |
| <b>Semester/year</b>             | Fall 2019   |
| <b>Graduate credit hours</b>     | 3   |
| <b>Class location, day, time</b> | HSSN 216, Tuesdays 5p-750p  |
| <b>Instructor, Office Hours</b>  | Dr. Oralia Loza <a href="mailto:oloza@utep.edu">oloza@utep.edu</a> 915.747.7232 Office Hours: Tuesdays 1130a - 1p and Thursdays 1130a - 1p  |
| <b>Course description</b>        | 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.  |
| <b>Course pre-requisites</b>     | Admission to the MPH or Graduate Certificate in Public Health Program.<br>One prior UG or GR statistics course with grade of B or better.   |
| <b>Required textbooks</b>        | Essentials of Biostatistics for Public Health, Second Edition [Paperback]<br>Authors: Lisa M. Sullivan<br>Publisher: Jones & Bartlett Learning<br>Print: (ISBN-10: 1449623948) (ISBN-13: 978-1449623944)<br><a href="http://www.jbpub.com/essentialpublichealth/sullivan/2e">http://www.jbpub.com/essentialpublichealth/sullivan/2e</a>   |
| <b>Required software</b>         | Microsoft Office (Word, Excel, and PowerPoint)<br>IBM® SPSS® Statistics Standard GradPack (any version number): data management and statistical analysis software<br>- access is available for free to UTEP students under MY.APPS.UTEP.EDU<br>- student license available for purchase online at OnTheHub or Student Discounts   |
| <b>Supplemental Reading</b>      | The Practice of Statistics in the Life Sciences, Second Edition<br>Authors: Brigitte Baldi and David S. Moore<br>Publisher: W. H. Freeman<br>Print: (ISBN-10 1-4292-7271-6) (ISBN-13 978-14292-7271-1)<br>eText: (ISBN-10 1429266937)(ISBN-13 9781429266932)<br><a href="http://www.whfreeman.com/catalog/Product/practiceofstatisticsinthelifesciences-secondedition-baldi">http://www.whfreeman.com/catalog/Product/practiceofstatisticsinthelifesciences-secondedition-baldi</a><br><br>Discovering Statistics Using IBM SPSS Statistics, Fourth Edition [Paperback]<br>Print: (ISBN-10: 1446249182) (ISBN-13: 978-1446249185)<br>Authors: Andy Field<br>Publisher: SAGE Publications Ltd<br><a href="http://www.uk.sagepub.com/books/Book238032">http://www.uk.sagepub.com/books/Book238032</a> |

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| <p><b>Additional Resources</b></p>  | <p><b>Health Science Librarian</b></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><b>Technology Support Center (TSC)</b></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><b>Course format</b></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><b>THE COUNCIL ON EDUCATION FOR PUBLIC HEALTH FOUNDATIONAL AND CONCENTRATION COMPETENCIES (CEPH)</b></p> | <p>The UTEP MPH program is nationally accredited by the Council on Education for Public Health (CEPH). The CEPH has defined <u>22 foundational competencies</u> required for attainment of the MPH degree; in addition, our MPH program has defined <u>5 concentration competencies</u> that reflect the unique training that you will receive in our program in <i>Hispanic and Border Health</i>. During orientation, you were provided with the complete list of the foundational and concentration competencies. Each of your courses will address different competencies. The competencies that will be addressed in this course are listed below and during the first class session, your professor will review these with you. In different ways throughout the semester, you will be evaluated on your <u>knowledge</u> regarding the specific competencies addressed in this course, and you will be assessed on your <u>ability to apply</u> each of the competencies addressed in this course.</p> |

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| <b>Course Competencies</b> | <p><b>Evidence-based Approaches to Public Health</b></p> <ol style="list-style-type: none"><li>1. Apply epidemiological methods to the breadth of settings and situations in public health practice</li><li>2. Select quantitative and qualitative data collection methods appropriate for a given public health context</li><li>3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate</li><li>4. Interpret results of data analysis for public health research, policy or practice</li></ol> <p><b>Communication</b></p> <ol style="list-style-type: none"><li>19. Communicate audience-appropriate public health content, both in writing and through oral presentation</li></ol> <p><b>MPH Hispanic and Border Health Concentration Competencies</b></p> <ol style="list-style-type: none"><li>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).</li></ol> |

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| <p><b>Assessment strategies</b></p> | <p><b>Your <u>knowledge</u> of course content related to each competency addressed in this course will be tested in the following ways:</b></p> <p><b>SPSS Modules:</b> These modules include screen shots with directions to generate univariate and bivariate descriptive statistics, plots, and tests.</p> <ul style="list-style-type: none"> <li>SPSS 1. Introduction to SPSS and Importing data</li> <li>SPSS 2. Entering Data and Defining Variables</li> <li>SPSS 3. Data Manipulation</li> <li>SPSS 4. Introduction to Graphing</li> <li>SPSS 5. Univariate Descriptive Statistics and Plots</li> <li>SPSS 6. One-Sample Binomial Test</li> <li>SPSS 7. One-Sample t-Test</li> <li>SPSS 8. Bivariate Descriptive Statistics and Plots</li> <li>SPSS 9. Two-Sample t-Tests and Paired t-Test</li> <li>SPSS 10. One-Way ANOVA and Multiple Comparisons</li> <li>SPSS 11. Chi-square Analysis and Odds Ratios</li> <li>SPSS 12. Correlation</li> <li>SPSS 13. Nonparametric tests</li> </ul> <p><b>Exams:</b> Students will also be tested on general course material in exam format.<br/>                     Midterm Exam: CHAPTERS: 2, 4, 5 and SPSS: 1-7<br/>                     Final Exam: CHAPTERS: 7 and SPSS: 8-13</p> <p><b>Word Problems from the Textbook:</b> Word problems will be assigned from CHAPTERS: 2, 4, 5, 7</p> <p><b>Your <u>ability to apply</u> course content related to each competency addressed in this course will be tested in the following ways:</b></p> <p><b>Bivariate Analysis Project (BAP):</b> 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.</p> <ul style="list-style-type: none"> <li>BAP 1: Selecting a Dataset and Variables</li> <li>BAP 2: Selecting a Dataset and Variable Pairs</li> <li>BAP 3: Univariate Analyses</li> <li>BAP 4: Stating the Hypotheses</li> <li>BAP 5: Bivariate Analyses</li> <li>BAP Final Presentation</li> </ul> |

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| <b>Learning Objectives</b> | 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: <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> |
| <b>Grading scale</b>       | A (> 90%-exceptional graduate-level performance)<br>B (80-89%-average graduate-level performance)<br>C (70-79%-below average graduate-level performance)<br>D (60-69%-unacceptable graduate-level performance)<br>F (< 60%-very unacceptable graduate-level performance)  |
| <b>Grading Components</b>  | Student performance will be evaluated on: <ul style="list-style-type: none"> <li>SPSS Modules (30%)</li> <li>Exams (30%)</li> <li>Bivariate Analysis Project (BAP) (35%)</li> <li>Class Participation (5%)</li> </ul>   |
| <b>Incomplete Policy</b>   | The grade of "I" (incomplete) is considered only in very rare circumstances involving fully documented emergencies, must be requested at least <u>four weeks</u> prior to the last class of the fall term, and is allowed at the discretion of the instructor.  |
| <b>Attendance</b>          | It is <u>UTEP policy</u> that <u>all students attend all scheduled classes</u> . 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 conflicts that would result in chronic tardiness or absence from class. Students are personally responsible for all information or activities presented in class discussions, lectures, assignments, and/or readings. If you are unable to attend class, <i>it is your responsibility to inform the instructor before the class session. <u>Students will be administratively withdrawn for excessive unexcused absences of 2 or more classes.</u></i> Compliance is mandatory with regard to assignment due dates, student-led discussions and class presentations, reading assignments, exams and all other activities. All emergency-related absences must be documented and verified by presentation of documents to the instructor. <i>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 seated and ready to begin class at 5:00 PM.</i>  |
| <b>Reading assignments</b> | 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.   |

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| <b>Writing standards</b>         | Effective public health leaders and practitioners must have highly developed written and oral communication skills. Excellent writing skills are a critical element of communication and information dissemination. Our MPH graduate program expects good writing skills as the norm for course work. Please speak with the instructor for resources on-campus that can help you develop necessary writing skills (e.g., UTEP Writing Center).   |
| <b>Late Assignment Policy</b>    | Late work will receive point reduction: 50% within two days of deadline. Submission will receive no credit, if submitted after two days.   |
| <b>Permission to record</b>      | Recording of lectures and discussion is permitted only with the approval of the instructor.  |
| <b>Classroom electronics</b>     | <i>All cell phones, headphones, iPods, iPads, mp3 players, earpieces, and other forms of communication and entertainment technology must be powered off and put away during the class period.</i> 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. |
| <b>Class participation</b>       | 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.   |
| <b>Special accommodations</b>    | If you have 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> . CASS Staff are the only individuals who can validate and authorize accommodations for students with disabilities.                               |
| <b>UTEP MPH Program Handbook</b> | Available at: <a href="http://chs.utep.edu/publichealthsciences/pdf/MPH%20STUDENT%20%20HANDBOOK%202013-2014.pdf">http://chs.utep.edu/publichealthsciences/pdf/MPH%20STUDENT%20%20HANDBOOK%202013-2014.pdf</a>  |

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| <p><b>Student Conduct</b></p> | <p>“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>University of Texas Regent’s Rules and Regulations</u>, Part One, Chapter VI, Section 3.2, Subdivision 3.22.</p> <p>FOR THE PUBLIC HEALTH PROFESSIONAL, ETHICAL CONDUCT IS A CENTRAL TENET AND GUIDING PRINCIPLE OF ALL ACTIVITIES, DECISIONS AND CRITICAL ANALYSES. STUDENTS IN THE MASTER OF PUBLIC HEALTH PROGRAM AT UTEP ARE EXPECTED TO BE <u>ABOVE REPROACH</u> IN ALL SCHOLASTIC ACTIVITIES.</p> <p>Students who engage in scholastic dishonesty will be subject to disciplinary penalties, including failure in the course and dismissal from the university. “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, 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.” (<a href="http://studentaffairs.utep.edu/Default.aspx?tabid=4386">http://studentaffairs.utep.edu/Default.aspx?tabid=4386</a>)</p> <p>“<u>CHEATING</u>” means copying from the work another student; possession and/or use during an exam or home test of materials which are not authorized by the person giving the test; 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; falsifying research data, laboratory reports, and/or other records or academic work offered for credit.</p> <p>“<u>PLAGIARISM</u>” 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.</p> <p>“<u>COLLUSION</u>” 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.</p> |

**WEEKLY PLAN**

| Dates                    | Competency Topics   | Topics: Textbook Chapter (READ BEFORE CLASS), SPSS Modules, and Bivariate Analysis Project (BAP)  | SPSS & BAP Assignments and Deadlines        |
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| <b>WEEK 1</b><br>Aug 27  | Course Introduction<br><br>Identifying and accessing public health data | Chapter 1. Introduction to Biostatistics<br>SPSS 1. Introduction to SPSS and Importing data<br>Special Topics: Sources of Data  |   |
| <b>WEEK 2</b><br>Sept 3  | Selecting quantitative data collection methods                          | Chapter 2. Study Designs<br>SPSS 2. Entering Data and Defining Variables<br>Special Topics: Paso del Norte Healthy Communities Network                                  | SPSS 1<br>BAP1: DATASET DRAFT               |
| <b>WEEK 3</b><br>Sept 10 | Interpret quantitative data results                                     | Chapter 4. Summarizing Data (Categorical)<br>SPSS 3. Data Manipulation<br>SPSS 4. Introduction to Graphing  | SPSS 2<br>BAP1: DATASET                     |
| <b>WEEK 4</b><br>Sept 17 | Selecting quantitative data collection methods                          | Chapter 4. Summarizing Data (Continuous)<br>SPSS 5. Univariate Descriptive Statistics and Plots<br>Guest Speaker: Students for Public Health (SPH) Officer Presentation | SPSS 3<br>SPSS 4 (No HW)<br>BAP2: VARIABLES |
| <b>WEEK 5</b><br>Sept 24 | Analyze quantitative data<br><br>Interpret quantitative data results    | Chapter 5. Probability (Categorical)<br>SPSS 6. One-Sample Binomial Test  | SPSS 5<br>BAP3: UNIVARIATE - draft          |
| <b>WEEK 6</b><br>Oct 1   | Analyze quantitative data<br><br>Interpret quantitative data results    | Chapter 5. Probability (Continuous)<br>SPSS 7. One-Sample t-Test  | SPSS 6<br>BAP3: UNIVARIATE                  |
| <b>WEEK 7</b><br>Oct 8   | Interpret quantitative data results                                     | Chapter 5. Probability (Categorical and Continuous - con't)<br>Midterm Exam Practice Questions from Textbook  | SPSS 7<br>Practice Questions                |
| <b>WEEK 8</b><br>Oct 15  |   | MIDTERM EXAM: in class<br>BOOK CHAPTERS: 2, 4, 5 and SPSS: 1-7  |   |
| <b>WEEK 9</b><br>Oct 22  | Analyze quantitative data<br><br>Interpret quantitative data results    | SPSS 8. Bivariate Descriptive Statistics and Plots<br>BAP Guidelines and Hypotheses   |   |
| <b>WEEK 10</b><br>Oct 29 | Analyze quantitative data<br><br>Interpret quantitative data results    | Chapter 7. Hypothesis Testing Procedures (One Sample Tests)<br>SPSS 9. Two-Sample t-Tests and Paired t-Test<br>SPSS 12. Correlation                                     | SPSS 8<br>BAP4: HYPOTHESES                  |



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| <b>WEEK 11</b><br>Nov 5  | Analyze quantitative data<br><br>Interpret quantitative data results   | Chapter 7. Hypothesis Testing Procedures (Chi-Square Tests)<br>SPSS 11. Chi-square Analysis and Odds Ratios                                     | SPSS 9<br>SPSS 12                             |
| <b>WEEK 12</b><br>Nov 12 | Analyze quantitative data<br><br>Interpret quantitative data results   | Chapter 7. Hypothesis Testing Procedures (t-Tests and ANOVA)<br>SPSS 10. One-Way ANOVA and Multiple Comparisons<br>SPSS 13. Nonparametric tests | SPSS 11<br>BAP5: BIVARIATE DRAFT              |
| <b>WEEK 13</b><br>Nov 19 | Select methods for data collection<br><br>Analyze quantitative data<br><br>Interpret quantitative data results | Special Topics: Reports and Summary Tables<br>BAP Work Session  | SPSS 10<br>SPSS 13<br>BAP5: BIVARIATE         |
| <b>WEEK 14</b><br>Nov 26 | Select methods for data collection<br><br>Analyze quantitative data<br><br>Interpret quantitative data results | BAP Presentations Draft Review  | BAP PRESENTATION DRAFT                        |
| <b>WEEK 15</b><br>Dec 3  | Select methods for data collection<br><br>Analyze quantitative data<br><br>Interpret quantitative data results | BAP Presentations (10 minutes/student or team)<br>Final Exam Practice Questions from Textbook   | BAP PRESENTATION (430p)<br>Practice Questions |
| <b>WEEK 16</b><br>Dec 10 |  | FINAL EXAM: Tuesday, Dec 10, 5p-7p<br>BOOK CHAPTER: 7 and SPSS: 8-13  |   |