Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: HLTH
Course and Section #: 3750-X01
Course Title: Biostatistics for Public Health
Credits: 3

Course Description

Introduces the use of statistics for research purposes in health-related fields. Teaches principles of probability and statistical inference. Covers descriptive and inferential statistics, including measures of central tendency, variability, correlation, and various inferential techniques such as t-tests, analysis of variance, regression, post-hoc tests, and non-parametric statistical tests.

Course Attributes

This course has the following attributes:
☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Kristine Snyder

Student Learning Outcomes

Upon successful completion of this course, students will be able to: Explain what biostatistics is and its application in health-related fields. Distinguish between levels of data measurement. Produce the appropriate tables, figures, and graphs for visualizing categorical and quantitative data. Interpret calculated measures of central location and variability. Apply the basic principles of probability and statistical inference related to biostatistics. Implement the steps of hypothesis testing. Design survey questions appropriate for answering a given research question. Prepare data for analysis using appropriate software. Execute analyses of a dataset using statistical software.

Course Materials and Texts

Textbook: Burt, B. (2013). Basic biostatistics: Statistics for public health practice (2nd edition). Jones & Bartlett Learning

Course Requirements

Course Assignments, Assessments, and Grading Policy

Individual Assignments: Homework for this class will provide an avenue to practice biostatistical reasoning skills. Chapter exercises from the textbook will be assigned weekly for the first half of the semester, when we are focused on establishing a strong foundation in basic statistical concepts. These exercises may take only a few minutes, or may be more in-depth and require a significant amount of time. Chapter exercises will be due by Thursday each week so that I can grade them by Friday and provide feedback that might be helpful for the chapter quizzes. Students may revise and resubmit chapter exercises to earn up to 50% of the points they missed on their original submission. However, resubmissions are only accepted within one week of when the exercises are graded. A handful of other assignments that students will complete individually relate to getting started in this course and on the team project, obtaining CITI certification (required through the university to participate in human subjects research), and completing an SPSS tutorial (the statistical software program we will use later in the semester). These other assignments are typically due on Sundays at 11:59 p.m. See the course schedule for specific due dates. Quizzes & Final Exam: Rather than midterm exams, students will complete weekly quizzes on the textbook learning material in the first half of the semester. Quizzes will be administered on Canvas and are open-book and open-note. However, there is a time limit associated with each quiz (which varies), so students should prepare before taking the assessments. Preparation should include reviewing all learning material on the learning content page, completing the chapter study guide, practice problems, and assigned exercises. Students have two attempts at each quiz; the highest score will be kept. Quizzes are due Sundays at 11:59 p.m. on the week they are assigned. This course will also include a 40-point final exam that is application-oriented, involving data analysis using SPSS. The final exam will be administered on Canvas and must be taken during the window it is open. It will be open-note, with a 120-minute time limit. Team Project Development Assignments: Students will be required to work as a small team (2-3 students) to complete a major biostatistics project in the course. Each team will design and administer a survey on a health topic of their choice. Teams will clean and code the data they collect, and then analyze their data using a statistical software package. Team assignments throughout the semester will progressively build towards the completion of a final research paper. These assignments are meant to be formative in nature, meaning the instructor will provide feedback, which students should then use to make any necessary revisions. Students may revise and resubmit team assignments to earn up to 50% of the points they missed on their original submission. However, resubmissions are only accepted within one week of when the assignment is graded. The development of this project as a team, rather than an individual, is meant to be helpful. Several people attempting to conduct and interpret the same statistical tests using the same data can help ensure these analyses are carried out correctly. However, any student may opt to leave a team and complete the project individually if their teammates are not contributing to the project in an equitable manner. If you do not want to complete this project solo, I highly recommend doing everything you can to be a highly engaged, productive teammate! Final Research Paper: At the end of the term, each team will submit a final research paper summarizing their semester-long research project in a scholarly research article format. This paper will include a brief introduction, a methods section, a results section, and a conclusion. A detailed overview of this project is found on the Biostatistics Project Overview page. Additionally, student are encouraged to use this Final Paper Template Download Final Paper Template to assist them with the proper formatting of this paper. Activity Description [Points/Percent] Individual Assignments 13 assignments @ 5-10 points each = 115 points 115/555 = 20.7% Quizzes & Final Exam 9 quizzes @ 10 points each = 90 points Final Exam = 50 points 140/555 = 25.2% Team Project Development Assignments 16 assignments @ 5-20 points each = 175 points 175/555 = 31.5% Final (team) Research Paper 125 points 125/555 = 22.5%

Required or Recommended Reading Assignments

Module Week Topics Covered Individual Assignments Team Assignments Module 1 Jan 8 Intro to Biostatistics The Research Process Discussion- Introduce Yourself (video) Biostats Office Hour Survey (optional) Syllabus Quiz CITI Certification (due in M04) Module 2 Jan 15 Ch 1- Measurement Ch 2- Types of Studies Ch 1 Exercises Ch 2 Exercises Ch 1 Quiz Ch 2 Quiz Biostatistics Project Survey

Module 3 Jan 22 Ch 3- Frequency Distributions Team Formation Ch 3 Exercises Ch 3 Quiz Team Charter Team Project Proposal Module 4 Jan 29 Ch 4- Summary Statistics Survey Design Ch 4 Exercises Ch 4 Quiz CITI Certification Survey Draft (due in M05) Module 5 Feb 5 Ch 5- Probability Concepts Intro to Qualtrics Ch 5 Exercises Ch 5 Quiz Survey Draft Qualtrics Survey (due in M06) Module 6 Feb 12 Ch 6 (6.1 only) & 7- Probability Distributions Intro to SPSS Ch 6 & 7 Exercises Ch 6 & 7 Quiz SPSS Tutorial (due in M08) Qualtrics Survey Module 7 Feb 19 Ch 8- Intro to Statistical Inference Writing the Introduction Ch 8 Exercises Ch 8 Quiz Introduction Draft (Revise survey as needed; distribute after instructor's approval) Module 8 Feb 26 Ch 9- Basics of Hypothesis Testing Writing the Methods Ch 9 Exercises Ch 9 Quiz SPSS Tutorial Methods Draft (due in M10) (Complete data collection) Module 9 Mar 4 Cleaning & Coding Data Writing the Results Codebook & Data Spreadsheet Module 10 Mar 18 Creating a Data File Frequencies & Descriptives SPSS Data File Frequency & Descriptive Results Methods Draft Module 11 Mar 25 Stratified Descriptive Statistics Descriptive Statistics Table Stratified Descriptive Results Descriptive Statistics Table Draft Module 12 Apr 1 t-Tests & ANOVAs t-Test Results ANOVA Results Module 13 Apr 8 Chi-Square Tests of Association Chi-Square Results Module 14 Apr 15 Correlation Linear Regression Correlation Results Regression Results Module 15 Apr 22 Pulling Everything Together Final Exam Review Module 16 Apr 29 Course Wrap-up Final Exam (in SPSS) SRI Receipt Final Research Paper

General Description of the Subject Matter of Each Lecture or Discussion

Required Course Syllabus Statements

Generative AI

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Using Remote Testing Software

☐ This course does not use remote testing software.

☒ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX
Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation
UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.
To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.