



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: STAT

Course and Section #: 2050-003

Course Title: Introduction to Statistical Methods

Credits: 4

Course Description

The main objectives of STAT 2050 are to give the student an introduction to the practice of statistics. This course will give insight into how to gather, summarize, and draw conclusions from data. Topics that will be covered include: data sampling and summarization, distributions of data and statistics, hypothesis testing, analysis of variance (ANOVA), regression, and probability rules.

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: John Kidd

Student Learning Outcomes

At the end of the course, the student will have a good understanding of some statistical methods used in biological research and other applications. They will also be able to identify the appropriate statistical methods for analyzing data in their fields, be able to analyze them using R, and be able to interpret the results. More specifically, they will be able to

- I. Summarize statistical data both graphically and numerically.
 - II. Apply basic probability rules.
 - III. Apply key features of some discrete and continuous distributions to real life data.
 - IV. Perform basic statistical inference techniques on real life data.
 - V. Perform regression analysis.
 - VI. Analyze linear statistical models.
 - VII. Perform categorical data analysis.
 - VIII. Apply bootstrap statistical inference to real data sets.
 - IX. Use statistical software in data analysis
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Course Materials and Texts

- Statistics Unlocking the Power of Data, by Robin H. Lock, Patti Frazer Lock, Kari Lock Morgan, Eric F. Lock, Dennis F. Lock (3rd Edition)
 - Computer access
 - Internet Access
 - Scientific Calculator
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Course Requirements

Course Assignments, Assessments, and Grading Policy

- Participation – Canvas discussions (5% of final grade)
 - WileyPlus Homework Assignments based on each section (20% of final grade)
 - Data analysis project of NCHA survey data, including smaller weekly assignments and a final report (10% of final grade)
 - Weekly quizzes – omitting exam weeks – (20% of final grade)
 - Four exams that cover multiple chapters (25% of final grade)
 - Final comprehensive exam (20% of final grade)
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Required or Recommended Reading Assignments

- Lock textbook: Ch 1-10, Section P
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General Description of the Subject Matter of Each Lecture or Discussion

- Chapter 1: Data collection
 - Chapter 2: Graphs and Summary Statistics
 - Exam 1: Exam covering Chapters 1-2
 - Section P1: Introductory Probability
 - Section 5.1: Normal Distribution
 - Chapter 3, Sections 1-2: Confidence intervals
 - Chapters 5 and 6: Confidence intervals for specific distributions
 - Exam 2: Exam covering Chapters 3, 5, 6, and Section P1
 - Chapter 4: Hypothesis Tests
 - Chapter 6: Hypothesis Tests for specific distributions
 - Chapter 7: Chi-square tests
 - Exam 3: Exam covering Chapters 4, 6, and 7
 - Chapter 8: ANOVA
 - Chapter 9: Simple Regression and Correlation
 - Chapter 10: Multiple Regression
 - Sections P2-P5: Probability Rules
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Required Course Syllabus Statements

Generative AI

ChatGPT and other generative AI can be wonderful tools, and will likely be something you need to know how to use in the future. You are allowed to use ChatGPT for this course, but use it as a learning aid, not a crutch. I highly recommend using it to help you with your coding in R if you are struggling, to generate additional answers, or to help you see steps for questions you are struggling with. Do not, however, let it be a crutch or replace learning and the power of the human mind.

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.