
COURSE INFORMATION

Course Website: wolfware.ncsu.edu

Course Credit Hours: 3

Course Description: Covers basic methods for summarizing and describing data, accounting for variability in data, and techniques for inference. Topics include basic exploratory data analysis, probability distributions, confidence intervals, hypothesis testing, and regression analysis. This is a calculus-based course. Statistical software is used; however, there is no lab associated with the course.

Prerequisites/Corequisites Credit not given for this course and ST 511 or ST 513 or ST 515. This course does NOT count as an elective towards a degree or a minor in Statistics.

COURSE DELIVERY AND STRUCTURE

This online course delivers all learning materials, activities and assignments through **Moodle**, a secure and easy-to-use online learning platform.

- The course is **asynchronous**; students have no real-time class meeting requirements.
- Learning materials and activities include:
 - **Guided note outlines:** Contain key text and graphics for each topic; some topics may be broken into multiple note outlines. Definitions and examples will be filled in by students with the help of the online lectures. These outlines are a student's major resource in completing the weekly assignments and semester exams.
 - **Online lecture videos:** These narrated presentations take the place of face-to-face lecture. Students will use the content in these videos to complete the guided note outlines. These videos are intentionally kept short, so there will be multiple videos for each outline.
 - **Weekly assignments:** Administered through the Moodle in the form of quizzes or homework.
 - **Discussion forums:** Required weekly discussion postings, which help students apply course content while building community.

COURSE LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Discuss important issues of data collection (sampling methods and study design), including identifying common biases and ways to avoid them.
2. Identify and implement appropriate analyses, including exploratory data analysis (EDA), confidence intervals, hypothesis tests, and/or regression analysis, for quantitative variables and categorical response variables.

3. Construct appropriate conclusion(s) to address a research question of interest, including identifying and discussing limitations of a study.

Each of the above learning outcomes contributes to the overarching objective of the course:

4. Students will be able to describe and appropriately implement each step of the scientific method (i.e. statistical process).

COURSE TOPICS AND SCHEDULE

Topic List and Schedule

- Data Collection
- Data Summary
- Random Variables and Distribution, including sampling distributions
- Confidence intervals, illustrated for a single population
- Hypothesis tests, errors, and power, illustrated for a single population
- Inference (intervals and testing) for two populations (2 independent proportions, 2 independent means, mean of paired data)
- Inference (intervals and testing) for more than two populations (ANOVA, Chi-square)
- Simple linear regression and correlation
- Multiple linear regression

Please note: the course schedule is subject to change.

COURSE MATERIALS

Required Materials

- **Guided Note Outlines:** *No cost.* There is no required textbook for the course; the note outlines are the main resource to help students learn course content. Outlines should be printed and completed by the student based on content in the online lecture videos. Completed outlines are the best resource to prepare for discussion posts, quizzes, and exams.
- **SAS Statistical Software:** *No cost.* Students will be exposed to the statistical software SAS, which is widely used in analysis of research data. See the main course Moodle page for information on accessing SAS for free.

Basic calculator: *Cost varies but should be minimal.* Should have square and square root functions in addition to basic addition, subtraction, multiplication, and division.

Optional Materials

Textbook: Statistics for Research (3rd edition) by Dowdy, Wearden, and Chilko.

Published by Wiley; ISBN 9780471267355.

- Homework will not be assigned from this book, however, readings and practice problems for each topic will be provided as an additional resource for students.

- This book could be purchased for about \$145 new or it can be viewed online for free via the NCSU Library:
<https://onlinelibrary-wiley-com.prox.lib.ncsu.edu/doi/book/10.1002/0471477435>

Grading Scale: This course uses the standard NCSU letter grading scale. Percentage cutoffs are firm, and no rounding occurs; for example, a percentage of 86.99 would correspond to a B.

Low(percentage)	Letter
97 ≤	A+
93 ≤	A
90 ≤	A-
87 ≤	B+
83 ≤	B
80 ≤	B-
77 ≤	C+
73 ≤	C
70 ≤	C-
67 ≤	D+
63 ≤	D
60 ≤	D-
0 ≤	F

Exam and Testing Instructions

Exam proctoring: Your instructor may require proctored exams facilitated through [DELTA Testing Services](#). A proctor is an impartial third-party who verifies the identity of the student and ensures the academic integrity of an exam.

1. **Local students** — DELTA Testing Services will offer the exam(s) for this course on campus. Please visit the DELTA Testing Services website for [more information about on-campus testing](#).
 - **Step 1: Make an Appointment.** Exams at the DELTA Test Centers are by **appointment only**. To schedule your appointment, visit go.ncsu.edu/takemytest.

Appointments must be made at least 24 hours in advance; however, the sooner – the better.

- **Step 2: Come Prepared**

- Bring a photo ID
- Know your UnityID
- If you are a DUO user, bring your registered device.
- Arriving late for an appointment may result in the appointment cancellation; students can sign in for an appointment up to 15 minutes early.

2. **Students with Accommodations**— If you have approved accommodations with NC State's Disability Resources Office (DRO), DELTA Testing Services wants to ensure that you receive the appropriate accommodations when you go to the test center.

- **Email Testing Services.** Send a PDF copy of your Accommodation Letter to delta_accommodations@ncsu.edu. Once we have received a copy of your accommodation letter, a confirmation email will be sent informing you that your accommodations have been processed. You will *then* be able to schedule an appointment.

3. **Remote students** — DELTA Testing Services will oversee the process of approving a remote proctor, sending all exam materials, and receiving any materials from your proctor

(<https://testing-services.delta.ncsu.edu/testing-services-remote/off-campus-submit-request/>)

- **Step 1: Submit a Request.** To use a remote proctor for an exam, you must submit an online request and it must be approved by DELTA Testing Services. The request should be submitted at the start of the semester. The approval process takes at least 72 hours.
 - Pre-approved proctors are marked on the map and are selectable in a drop-down menu in the request form.
 - If you do not see a pre-approved option in your area, it is your responsibility to find a proctor who meets the guidelines. When submitting a request, if your proctor is not pre-approved, select “other” and fill in the remote proctor's information. (Please double-check the email address.)

Please note that the instructor does not communicate directly with proctors. Please refer all questions regarding proctoring to the distance proctoring center via deproctor@ncsu.edu or call 919.513.1513.

This document is an example of course information that will be modified per instructor's preference.