

NRES 701C: Advanced Resource Management, Fall 2016 (Graduate Environmental Statistics)

Time: Tuesdays 3:30-6:30

Room: KRC 127

Instructor: Dr. Benjamin (Ben) Sullivan

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Email: bsullivan@cabnr.unr.edu

Office location: In the back of FA 132. Knock hard if door is shut!

Office hours: Wednesdays 10-11 *OR by appointment*

Course description and objectives: The proper use and understanding of statistics is fundamental to addressing questions in the environmental and natural resource sciences. In this course, you will learn the principles that underlie parametric statistics and the tools to analyze your data.

Required materials: Students will use the open source statistical software R. There is no textbook for the course, but readings and handouts will be provided and are considered assignments.

Suggested materials: A laptop; Any of dozens of books on the use of R

Student learning objectives:

1. Students will be able to communicate, in writing or verbally, an understanding of statistical assumptions.
2. Students will be able to calculate, by hand, statistical tests such as T-test, ANOVAs, and regression.
3. Students will be able to identify and perform appropriate statistical tests on their own data collected during their graduate program
4. Students will be able to compare and contrast statistical tools.

Instructional approach & Graded assignments: Instruction will consist of lessons on statistics and lessons on the tools to perform statistical analysis. Stats lessons will include both lecture-style material, readings, and class discussions. Stats analysis lessons will use R – this is where a laptop in the classroom will be most helpful.

There will be one midterm exam and one final project. The midterm exam will be based on stats lessons and will include both a traditional in-class exam and a take-home exam in which you will use R.

Given the small class size and the nature of graduate classes, student participation is encouraged. Each student will need to present a 10-15 minute discussion of a statistical tool that is commonly used in their area of study, laboratory, that is just of personal interest to the student.

Letter grades will be assigned as follows:

<u>Grade</u>	<u>Semester Average (%)</u>
A	93-100
A-	90-93
B+	87-90
B	83-87
B-	80-83

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C+	77-80
C	73-80
C-	70-73
D+	67-70
D	63-67
D-	60-63
F	<60

POLICIES AND STATEMENTS

Policy on Absence

I adhere to the new UNR policy on student absences:

There are no official absences from any university class. It is the personal responsibility of the student to consult with the professor regarding absence from class. In the event that a student misses a class because of an official university function or event or because of serious personal considerations, the Office of the Associate Vice President for Student Life Services may, at its discretion, send an explanation to the instructor involved or to the faculty in general. The instructor shall make the final determination on whether the missed work can be done at a time other than during the regularly scheduled class period.

In short, your attendance is your business, but attendance will be directly linked to success in the course. Consult with me on absences. Absences from exams or assignments will be treated as described in "Graded assignments & grading system." If you miss graded events, and I have no advance knowledge,

Academic Dishonesty

Academic dishonesty of any form is a serious offense: It is a waste of my time and yours. The UNR statement on academic dishonesty is as follows:

Cheating, plagiarism or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include canceling a student's enrollment without a grade, giving an F for the course or for the assignment.

For more details, see the [University of Nevada, Reno General Catalog](#).

In this course, there will be opportunities in labs and classroom to work in groups. However, each student must turn in their own individual assignment, and copied language or ideas among students will be considered plagiarism and treated accordingly.

Disability Services

Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center (Thompson Building, Suite 101) as soon as possible to arrange for appropriate accommodations.

Academic Success Services

There's nothing I would like more than to see you succeed in the course. Please any appropriate resources to ensure this result. Discuss concerns, ideas, or suggestions with me. Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring-center), and University Writing Center (784-6030 or <http://www.unr.edu/writing-center>). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

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Audio and Video Recording

I adhere to the UNR policy on audio and video recording:

Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may be given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

Course calendar

Date	Topic
August 30	Introduction, Types of data, Installation of R
September 6	Hypothesis testing, Central Limit Theorem
September 13	Analyses: Z test, t-test, Regression, ANOVA
September 20	Analyses, continued
September 27	Analyses, continued
October 4	Analyses: post hoc tests, RM ANOVA
October 11	Midterm exam
October 18	Data problems and solutions
October 25	Nonparametric tests
November 1	Ordination
November 8	No Class
November 15	Intro to likelihood, Bayesian theory
November 22	Review
November 29	Final project presentations
December 6 th	Final project presentations