ST 502

Fundamentals of Statistical Inference II

Mondays/Wednesdays, 13:30–14:45, 3218 Broughton Hall

Instructor: Dr. Jonathan P Williams

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Course website: jonathanpw.github.io/
Office location: 5218 SAS Hall
Office hours: 15:00-18:00 Mondays/Tuesdays, and by appointment
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Course Description: Second of a two-semester sequence in probability and statistics taught at a calculus-based level. Statistical inference: methods of construction and evaluation of estimators, hypothesis tests, and interval estimators, including maximum likelihood.
Prerequisite(s): ST 501 and Calculus.
Note(s):
Credit Hours: 3

Text(s): *Mathematical Statistics and Data Analysis*, 3rd Edition
Author(s): John A Rice; **ISBN-13:** 978-0-534-39942-9

Grade Distribution:

Assignments	10%
Midterm Exam 1	30%
Midterm Exam 2	30%
Final Project and Presentation	30%

Letter Grade Distribution:

≥ 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	≤ 59.99	F

Course Policies:

- **Assignments**
  - Homework will be assigned each Wednesday, and will be due the following Wednesday **at the start of class**. Revisions to assignment due dates will be posted on the course website.

- No late assignments will be accepted. Reach out to the instructor if you begin to fall behind!
- It is strongly encourage for you to work with classmates on all homework assignments. You will learn a lot about what you do and do not understand when you discuss your ideas and solutions with others, and you will expand the way you think when you understand the ideas and solutions of others.
- If you are not confident that you have correctly solved all homework problems before submitting each assignment, then you are not making adequate use of available resources (i.e., discussions with classmates, lectures notes, textbook, open-source materials available online, office hours).
- Take responsibility for understanding solutions to all assignments. For example, if you find a solution on StackExchange, then convince yourself that the solution is actually correct.
- **Learn to distinguish between the things you *do* know and the things you *do not* know** (this is one of the most important results of all education). To understand, to *a* particular degree, that a given statement is true means that you can explain why the statement is true, to *the* particular degree.

- **Attendance**
  - Use lecture time (or not) as you feel most productive, but do not use it in a way which is distracting to others.
  - Lecture time is not for answering homework questions; please visit office hours with homework questions.

Tentative Course Outline:

Week	Content
Week 1	• Review of ST 501 • Chapter 1 from Rice
Week 2	• Review of ST 501 • Chapters 2 and 3 from Rice
Week 3	• Review of ST 501 • Chapters 4 and 5 from Rice
Week 4	• Distributions Derived from the Normal Distribution • Chapter 6 from Rice
Week 5	• Sampling Distributions • Chapter 7 from Rice
Week 6	• Parameter Estimation • Chapter 8 from Rice
Week 7	• Parameter Estimation • Chapter 8 from Rice
Week 8	• Parameter Estimation • Chapter 8 from Rice • **Midterm 1 – Monday, October 7th, 2019**
Week 9	• Hypothesis Testing and Goodness of Fit • Chapter 9 from Rice
Week 10	• Hypothesis Testing and Goodness of Fit • Chapter 9 from Rice
Week 11	• Summarizing Data • Chapter 10 from Rice
Week 12	• Comparing Two Samples • Chapter 11 from Rice
Week 13	• Analysis of Variance • Chapter 12 from Rice • **Midterm 2 – Monday, November 11th, 2019**
Week 14	• Analysis of Categorical Data • Chapter 13 from Rice
Week 15	• Linear Least Squares • Chapter 14 from Rice
Week 16	• Linear Least Squares • Chapter 14 from Rice

University Policies: Students are responsible for reviewing the NC State University PRR's which pertains to their course rights and responsibilities:

- Equal Opportunity and Non-Discrimination Policy Statement https://policies.ncsu.edu/policy/pol-04-25-05 with additional references at https://oied.ncsu.edu/equity/policies/
- Code of Student Conduct https://policies.ncsu.edu/policy/pol-11-35-01
- Grades and Grade Point Average https://policies.ncsu.edu/regulation/reg-02-50-03
- Credit-Only Courses https://policies.ncsu.edu/regulation/reg-02-20-15
- Audits https://policies.ncsu.edu/regulation/reg-02-20-04

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304, 2751 Cates Avenue, Campus Box 7509, 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01)